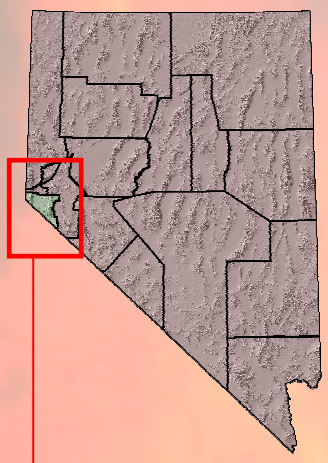
Nevada Community Wildfire

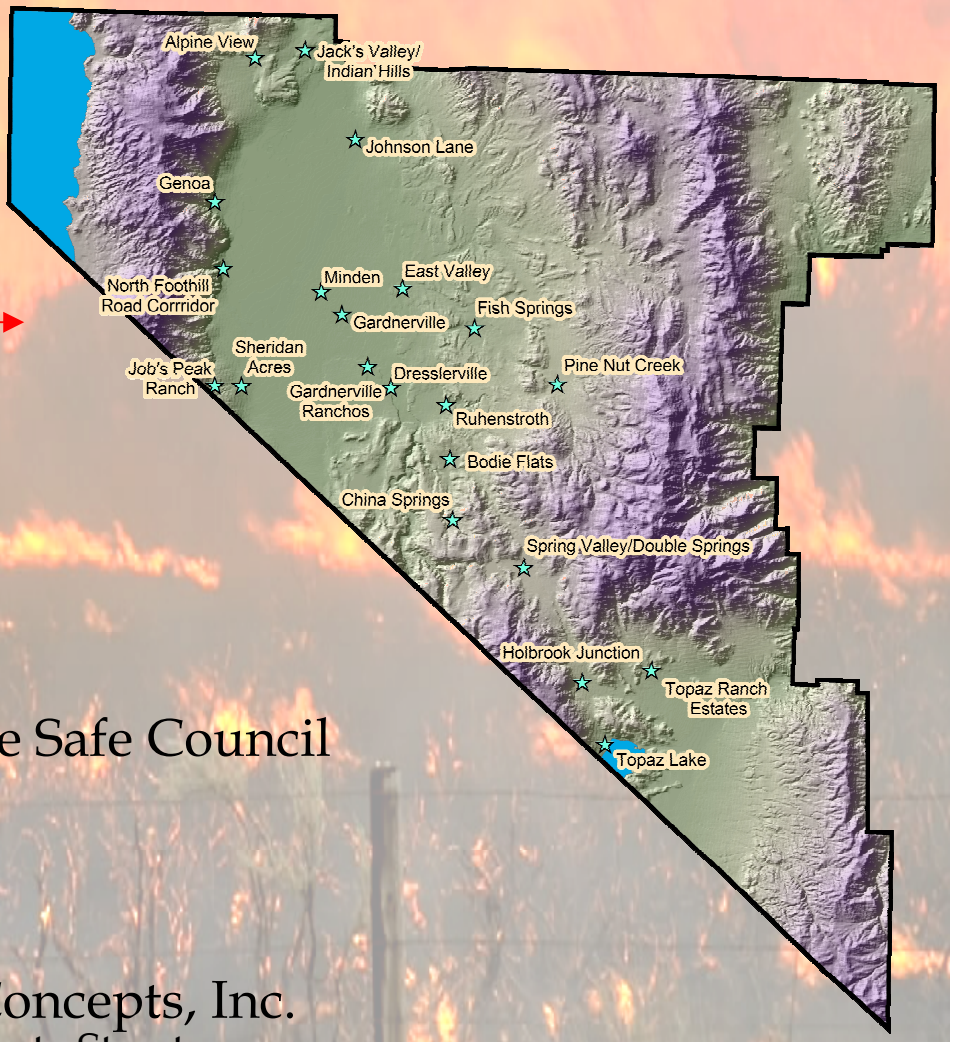
Risk/Hazard Assessment Project

# DOUGLAS COUNTY

## EXCLUDING THE TAHOE BASIN

March 2005



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# DOUGLAS COUNTY

## EXCLUDING THE TAHOE BASIN

March 2005

*The information provided in this report is for the Douglas County communities that are outside of the Lake Tahoe Basin.*

*A separate report was prepared for the Douglas County Lake Tahoe Basin Communities.*

This project was administered by the Nevada Fire Safe Council and funded through National Fire Plan grants from the Bureau of Land Management, the US Forest Service, and the Nevada Division of Forestry.

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# Executive Summary

The Healthy Forests Initiative was announced by the White House in 2002 to implement the core components of the *National Fire Plan Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy*. The Plan calls for more active forest and rangeland management to reduce the threat of wildland fire in the wildland-urban interface, the areas where homes and wildland meet. This report was prepared specifically for the communities in Douglas County, Nevada that were identified in the 2001 Federal Register list of communities at risk within the vicinity of federal lands. Douglas County communities located in the Lake Tahoe Basin were addressed in a separate report (RCI 2004). The Douglas County communities addressed in this report are listed in Table 1-1.

The Nevada Fire Safe Council contracted with Resource Concepts, Inc. (RCI) to assemble a project team of experts in the fields of fire behavior and suppression, natural resource ecology, and geographic information systems (GIS) to complete the assessment for each Douglas County community listed in the Federal Register. The RCI Project Team spent eleven days inventorying conditions in Douglas County and completing the primary data collection and verification portions of the risk/hazard assessment. Field visits were conducted in June 2004.

Five primary factors that affect potential fire hazard were evaluated to develop a community hazard assessment score: community design, construction materials, defensible space, availability and capability of fire suppression resources, and physical conditions such as the vegetative fuel load and topography. Information on fire suppression capabilities and responsibilities for Douglas County communities was obtained through interviews with local Fire Chiefs and local agency Fire Management Officers (state and federal). The Fire Specialist on the RCI Project Team assigned an ignition risk rating of low, moderate, or high to each community. That rating was based upon historical ignition patterns, interviews with local fire department personnel, interviews with state and federal agency fire personnel, field visits to each community, and the Fire Specialist's professional judgment based on experience with wildland fire ignitions in Nevada. Table 1-1 lists the communities and identifies the risks and hazard assessment results for each community.

Existing Bureau of Land Management fuel hazard data for the wildland-urban interface was evaluated and field-verified by the RCI Project Team Wildfire Specialists and Natural Resource Specialists. The interface fuel hazard condition was determined to be low, moderate, high, or extreme based slope, aspect, and vegetation composition and structure.

**Table 1-1. Community Risk and Hazard Assessment Results**

| Community | Interface Classification | Interface Fuel Hazard Conditions | Ignition Risk Rating | Community Hazard Rating |
|---|---|---|---|---|
| **Alpine View** | Intermix | High to Extreme | High | Moderate |
| **Bodie Flats** | Intermix | High to Extreme | High | Extreme |
| **China Springs** | Intermix and Rural | Low to Extreme | High | High |
| **Dresslerville** | Classic | Low to Moderate | Low | Moderate* |
| **East Valley** | Intermix | Moderate | Moderate | Low |
| **Fish Springs** | Intermix | High | High | High* |
| **Gardnerville** | Classic | Low | Low | Low |
| **Gardnerville Ranchos** | Classic | Low | High | Low |
| **Genoa** | Intermix | Low to Extreme | High | High |
| **Holbrook Junction** | Intermix | Moderate to Extreme | High | High* |
| **Jacks Valley/Indian Hills** | Classic and Intermix | Low to High | High | Moderate |
| **Job's Peak Ranch** | Intermix | Moderate to High | High | High* |
| **Johnson Lane** | Classic and Intermix | Low to High | Moderate | Moderate |
| **Minden** | Classic | Low | Low | Low |
| **North Foothill Road Corridor** | Intermix | Low to Extreme | High | High |
| **Pine Nut Creek** | Intermix | High | High* | High* |
| **Ruhenstroth** | Intermix | Moderate to High | Moderate | Moderate |
| **Sheridan Acres** | Intermix | Low to Extreme | High | High |
| **Spring Valley/Double Springs** | Intermix | Low to High | High | High* |
| **Topaz Lake** | Intermix | Low to High | High | Moderate |
| **Topaz Ranch Estates** | Intermix | Low to Extreme | High | High |

** These ratings are reported from previously completed reports by Blackbull Wildfire Services, Resource Concepts, Inc., and SWCA Environmental Consultants.*

## Existing Situation

There is high to extreme potential for a catastrophic fire event in the wildland-urban interface areas of Bodie Flats, China Springs, Fish Springs, Genoa, Holbrook Junction, Job's Peak Ranch, North Foothill Road Corridor, Pine Nut Creek, Sheridan Acres, Spring Valley/Double Springs, and Topaz Ranch Estates. These elevated hazard ratings are attributed to inadequate defensible space, combustible building materials, steep slopes, and moderate to extreme fuel hazards, often in either volatile pinyon-juniper or Jeffrey pine/sagebrush/bitterbrush fuel types. These circumstances also contribute to extremely dangerous conditions for firefighters.

Moderate potential for a catastrophic fire event in the wildland-urban interface exists for the communities of Alpine View, Dresslerville, Jacks Valley/Indian Hills, Johnson Lane, Ruhenstroth, and Topaz Lake. Either reduced fuel hazards or adequate implementation of defensible space has partially mitigated the potential for a destructive wildfire in these communities.

There is a low potential for a catastrophic fire event in the wildland-urban interface communities of East Valley Gardnerville, Gardnerville Ranchos, and Minden. A combination of irrigated agricultural lands, adequate defensible space, fire-resistant construction materials, and a career-staffed fire department within five miles of the community have mitigated the primary risks and hazards associated with wildfire in these areas.

## RECOMMENDATIONS

Recommendations in this report focus primarily on efforts that homeowners can initiate and implement to enhance the fire safe nature of their communities. Recommendations for creating defensible space were uniformly given to homeowners in each community who have not yet reduced fuels on their private property. Defensible space is the homeowner's responsibility, and it is an essential first line of defense for saving lives and property during a catastrophic wildland fire.

Douglas County must take a proactive stance on future residential development in heavy fuel, high-density vegetation areas. County ordinances should be adopted to provide the East Fork Fire and Paramedic Districts the authority to require defensible space treatments on all developed and undeveloped lots within the interface areas and to bill property owners for defensible space treatment if the landowner fails to implement the necessary fuel reduction treatments. Ordinances should be passed to ensure that all new development meets the most stringent fire codes and standards with regards to road design, building materials, water supply, and emergency access. Ordinances should also require developers to construct adequate fuel reduction treatments as a condition of new subdivision approval.

Many homeowners throughout Douglas County have been aggressive in establishing and maintaining appropriate defensible space around their residences, especially in the communities with local chapters of the Nevada Fire Safe Council including Alpine View, Jacks Valley, Holbrook Junction, Job's Peak Ranch, Pine Nut Creek, and Spring Valley/Double Springs. Projects planned and completed under the supervision of these local Fire Safe Council chapters provide an example of collaborative efforts for hazardous fuel reduction involving both homeowners and agencies. Formation of additional local Fire Safe Council chapters are recommended for the communities of Bodie Flats, Dresslerville, East Valley, Fish Springs, Gardnerville Ranchos, Johnson Lane, North Foothill Road Corridor, Ruhenstroth, Sheridan Acres, Topaz Lake, and Topaz Ranch Estates.

## SPECIFIC RECOMMENDATIONS FOR FUEL REDUCTION TREATMENTS

Recommendations within this report were formulated to mitigate the hazardous conditions for each identified problem area. The recommendations for widely needed treatments to reduce the vegetative fuel load in the interface areas are directed to the East Fork Fire and Paramedic Districts, Nevada Division of Forestry Sierra Forest Fire Protection District, Bureau of Land Management, US Forest Service, Washoe Tribe of California and Nevada, Nevada Division of State Lands, and individual property owners.

In forested areas, the recommended approach, known as "thinning from below," involves removal of smaller trees, brush, and dead and down materials to achieve the desired tree densities and effectively minimize the hazardous ladder fuels that often lead to crown fires. Implementation of the prescribed treatments will also reduce competition among the residual trees for sunlight and water, thus improving forest health. Encouraging the reestablishment of native grasses in order to combat the invasion of cheatgrass, a highly flashy fuel, will also mitigate the fire hazard in specific areas.

Excessive amounts of biomass (vegetative fuel) generated from fuel reduction treatments in the Douglas County communities will need to be chipped, burned, or removed from the treated areas to achieve the required fuel load reduction.

Fuel reduction treatments in the form of fuelbreaks, shaded fuelbreaks, tree thinning, and ground fuel removal, are recommended for the following communities.

- Alpine View
- Bodie Flats
- China Springs
- Dresslerville
- Fish Springs
- Gardnerville Ranchos
- Genoa
- Holbrook Junction
- Jacks Valley/Indian Hills
- Job's Peak Ranch
- North Foothill Road Corridor
- Pine Nut Creek
- Ruhenstroth
- Sheridan Acres
- Spring Valley/Double Springs
- Topaz Ranch Estates

To be most effective, fire safe practices need to be implemented on a community-wide basis. There is no guarantee that a wildfire will not occur in any of these communities, even if all of the recommendations in this report are implemented. Nonetheless, public awareness, neighbors helping neighbors, and concerned, proactive individuals setting examples for others to follow are among the most important initiatives involved in reducing the risk of wildfire ignition and managing the hazards inherent in wildland-urban interface areas.

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*[June 15, 2005]*

# 1.0 INTRODUCTION

## 1.1 PROJECT BACKGROUND

A key element of the Healthy Forests Initiative, announced by the White House in 2002, is the implementation of core components of the *National Fire Plan Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-year Comprehensive Strategy.* Federal agencies and western State Governors adopted the Plan in the spring of 2002, in collaboration with County Commissioners, State Foresters, and tribal officials. The Plan calls for more active forest and rangeland management to reduce the threat of wildfire in the wildland-urban interface.

The Healthy Forest Restoration Act (H.R. 1904) was signed into law in December of 2003. The act creates provisions for expanding the activities outlined in the National Fire Plan. In this same year the Nevada Fire Safe Council received National Fire Plan funding through the Department of Interior Bureau of Land Management to conduct a Community Risk/Hazard Assessment in at risk communities across Nevada. The communities included in the Community Wildfire Risk/Hazard Assessment project are among those named in the 2001 Federal Register list of Communities at high risk of wildfire within the vicinity of Federal lands (66 FR 160). The list identifies Nevada communities adjacent to federal lands that are most vulnerable to wildfire in Nevada.

Resource Concepts, Inc. (RCI), a Carson City consulting firm, was selected to conduct the Community Risk/Hazard Assessments. During 2004, the RCI Project Team visited over 250 communities in seventeen Nevada counties to assess both the risk of ignition and the potential fire behavior hazard. Procedures accepted by Nevada's wildland fire agencies were used to reach consistent and objective evaluations of each community.

The specific goals of the Nevada Community Risk/Hazard Assessment Project are listed below:

- Assess the wildfire hazards present in each community on the Federal Register list of Communities at Risk in Nevada.
- Identify firefighting resource needs (equipment and infrastructure).
- Conduct fuel hazard mapping for high hazard communities.
- Describe proposed risk and hazard mitigation projects in enough detail to aid communities in applying for future implementation funds.
- Distribute assessment results and proposed mitigation project descriptions to each County in a format that will be easily updated and useful for public meetings and other public education activities.

The community risk/hazard assessments were conducted systematically for each community. The RCI Project Team observed and recorded the factors that significantly influence the risk of wildfire ignition along the wildland-urban interface and inventoried features that may be hazardous in the event of a wildfire. Interviews with local fire agency and emergency response personnel were completed to assess the availability and capability of suppression resources and to identify opportunities for increased community preparedness. A description of the existing fuel hazard and potential fire behavior are

discussed for each community. Photo points and fuel hazard maps are presented for each community where the community hazard rating is high or extreme.

The results of each community assessment are formatted to facilitate ease of reference and reproduction for individual communities. Each community is mapped and ignition risks, fire hazards, and recommended mitigation projects are described for each community. The recommendations are summarized in table form and presented on a map, if the proposed mitigation project can be graphically represented. These tools will aid local, state, and federal agencies in strategic planning, raising public awareness, and seeking funding for future risk and hazard reduction projects. Mitigating the risks and hazards identified by these assessments is not only crucial to the long term goals of the National Fire Plan, but also to the short and long-term viability of Nevada communities, natural resources, infrastructures, and watersheds.

**Numerous agencies and individuals were involved in the planning and implementation of this effort. Special thanks and acknowledgement is given to:**

- Nevada Fire Safe Council (NFSC)
- U.S.D.I. Bureau of Land Management (BLM)
- U.S.D.A. Forest Service (USFS)
- Nevada Division of Forestry (NDF)
- University of Nevada Cooperative Extension (UNCE)
- Nevada Association of Counties (NACO)
- Nevada's Counties
- Fire chiefs and firefighters statewide

## 1.2 COMMUNITIES ASSESSED

Twenty communities at risk of wildfire were identified within Douglas County (Federal Register 66 FR 160). The communities listed for the Lake Tahoe Basin portion of Douglas County were assessed and reported separately and include: Glenbrook, Kingsbury, and Stateline (RCI 2004).

Community risk/hazard assessments for the remaining Douglas County communities on the federal register list were completed by the Resource Concepts Team and include:

- Alpine View
- Bodie Flats
- China Springs
- East Valley[1]
- Gardnerville
- Gardnerville Ranchos[1]
- Genoa
- Jacks Valley/Indian Hills
- Johnson Lane
- Minden
- North Foothill Road Corridor
- Ruhenstroth
- Sheridan Acres
- Topaz Lake
- Topaz Ranch Estates

[1] East Valley and Gardnerville Ranchos were added to the Douglas County community list and evaluated as individual communities based on specific differences in fire suppression resources, community design, and vegetative fuel conditions.

The results of previous wildfire risk and hazard assessments for other Douglas County communities were reviewed by RCI and are also incorporated into this report include:

- Holbrook Junction (RCI 2002)
- Spring Valley/Double Springs (SWCA Environmental Consultants 2003)
- Clear Creek (Dynamac, Inc. 2003)
- Dresslerville [2] (SWCA Environmental Consultants 2002)
- Fish Springs (Blackbull Wildfire Services 2004)
- Job's Peak Ranch[2] (Blackbull Wildfire Services 2004)
- Pine Nut Creek[2] (Blackbull Wildfire Services 2004)

## 1.3 COMMUNITIES NOT ASSESSED

### *1.3.1 Spooner State Park*

The Spooner Lake Unit of Lake Tahoe State Park was included on the Federal Register list; however, no residential homes or commercial properties exist within the State Park. The Spooner Lake Unit of the park is located in the western portions of both Carson City and Douglas County along US Highway 50 in the southern portion of Lake Tahoe State Park. Because there is no permanent community, very few structures, and no features listed in the National Register of Historic Places within the State Park, the risk/hazard assessment was not completed. However, the Spooner Lake Unit of the State Park is listed as a critical feature potentially at risk and described further in Section 3.3.

There may be additional rural areas or small subdivisions in Douglas County that were not included on the Federal Register list, and thus not included in the scope of this project. Conditions in and around some of these communities may warrant future individual hazard/risk assessment. However, many of the recommendations developed for similar communities in this report may apply to these additional areas.

[2] The Dresslerville, Job's Peak Ranch, and Pine Nut Creek communities were not included on the Federal Register list.

# 2.0 METHODOLOGY

## 2.1 PROJECT TEAM

The RCI Project Team was composed of experts in the fields of fire behavior and suppression, geographic information systems (GIS), natural resource ecology, and forest health who collaborated to complete a Community Risk/Hazard Assessment for each community. The RCI Project Team included a Fire Specialist with extensive wildland fire suppression and prevention experience in Nevada and a Resource Specialist experienced in the natural resource environment of the Great Basin.

The RCI Project Team used standardized procedures developed from the *Draft Community Wildland Fire Assessment For Existing and Planned Wildland Residential Interface Developments in Nevada* during the assessment process (Nevada's Wildland Fire Agencies, Board of Fire Directors, April 2001; revised 2002). This approach incorporates values for fuel hazards, structural hazards, community design and preparedness, and fire protection capabilities into an overall community rating. A glossary of wildland fire terms used frequently in describing assessment results and recommendations is included in Appendix A.

## 2.2 BASE MAP DATA COLLECTION

The RCI Project Team Geographic Information System (GIS) Specialists compiled and reviewed existing statewide geospatial data to create field maps for recording baseline data and data verification. Data sources for the maps were the Nevada Fire Safe Council, the Nevada Department of Transportation, the US Forest Service, and the Bureau of Land Management. Datasets and sources utilized are summarized in Table 2-1.

**Table 2-1. Primary Datasets and Sources Utilized in the Douglas County Community Wildfire Risk/Hazard Assessment.**

| SPATIAL DATASET | DATA SOURCE |
|---|---|
| **Land ownership** | BLM Nevada State Office Mapping Services |
| **Vegetation communities** | Nevada Gap Analysis Program Data, Utah Cooperative Fish and Wildlife Research Unit, Utah State University |
| **Topography** | US Geological Survey Digital Elevation Models and Topographic Maps |
| **Fire suppression resources** | Douglas County 'MAGIC' |
| **Roads** | Nevada Department of Transportation 'TIGER' Census data (2000) |
| **Current aerial photographs** | US Geological Survey Digital Orthophoto Quadrangles (1994, 1996, or 1998) |
| **Fuel hazard classes** | BLM Nevada and Utah State Office Fire Hazard Potential Data |
| **Fire history** | BLM Nevada State Office Mapping Services<br>BLM Carson City Field Office<br>USFS Humboldt-Toiyabe Supervisor's Office<br>National Interagency Fire Center – Boise, Idaho |

### *2.2.1 Wildfire History*

Recorded wildfire history was mapped using Bureau of Land Management and US Forest Service datasets and GIS databases that identify wildfire perimeters on federally administered lands during the past 24 years. Fire perimeters were mapped by agency personnel using Global Positioning System (GPS) data and screen digitizing from source maps with a minimum detail level of 1:250,000. The datasets have been updated at the Bureau of Land Management Nevada State Office and Humboldt-Toiyabe Supervisors Office at the end of each fire season from information provided by each BLM Field Office and Humboldt-Toiyabe Ranger District. The datasets are intended to be central sources of historical GIS fire data to support fire management efforts and land use planning on federal lands.

In addition to the fire perimeter information, point data for all recorded fire ignitions within Nevada from 1980 to 2003 was obtained from the National Interagency Fire Center (NIFC) database in Boise, Idaho. This dataset includes an ignition point coordinate and an acreage component as reported to NIFC through a variety of agencies. This data is included in Table 3-2 and provides the ignition point locations for the maps in this report. In many cases, the ignition point location is only accurate within the section; in such cases, the point coordinate is located in the section center on the maps.

The wildfire history and ignition history data were used to formulate risk ratings and to develop recommendations specific to areas that have been repeatedly impacted by wildland fires. Observations made by the RCI Project Team and comments from local fire agency personnel were used to develop recommendations in areas without recent wildfire activity where a significant buildup of fuels or expansion of urban development into the interface area represents a growing risk.

## 2.3 COMMUNITY RISK/HAZARD ASSESSMENT

The wildland-urban interface is the place where homes and wildland meet. This project focused on identifying hazards and risks in the wildland-urban interface areas countywide by assessing each community individually. Site-specific information for each community was collected during field visits conducted between June 7 and June 17, 2004. The predominant conditions recorded during these site visits were used as the basis for the Community Risk and Hazard Assessment Ratings.

### *2.3.1 Ignition Risk Assessment Criteria*

The Fire Specialist on the RCI Project Team assigned an ignition risk rating of low, moderate, or high to each community assessed. This rating was based on four sources of information: interpretation of the historical record of ignition patterns and fire polygons provided by the National Interagency Fire Center, Bureau of Land Management, and US Forest Service databases, interviews with local fire department personnel and local Fire Management Officers, field visits to each community, and the professional judgment of the RCI Project Team Fire Specialists based on their experience with wildland fire ignitions in Nevada.

### *2.3.2 Hazard Assessment Criteria*

The Community Risk/Hazard Assessments were completed using methodology outlined in the *Draft Community Wildland Fire Assessment For Existing and Planned Wildland Residential Interface Developments in Nevada*. This system assigns hazard ratings of low through extreme based on the scoring system shown in Table 2-2 and detailed in Appendix B.

**Table 2-2. Hazard Rating Point System Used in the Nevada Community Wildfire Risk/Hazard Assessment Project**

| HAZARD CATEGORY | SCORE |
|---|---|
| Low Hazard | < 41 |
| Moderate Hazard | 41-60 |
| High Hazard | 61-75 |
| Extreme Hazard | 76+ |

To arrive at a score for the community, five primary factors that affect potential fire hazard were assessed: community design, construction materials, defensible space, availability and capability of fire suppression resources, and physical conditions such as fuel loading and topography. A description of each of these factors and their importance in developing the overall score for the community is provided below. Individual community score sheets presenting the point values assigned to each element in the hazard assessment are provided at the end of each community assessment.

*Community Design*

Aspects of community design account for 26 percent of the total hazard assessment score. Many aspects of community design can be modified to make a community more fire safe. Factors considered include:

- **Interface Condition**. Community safety is affected by the density and distribution of structures with respect to the surrounding wildland environment. Four interface condition classes are used to categorize the wildland-urban interface: Classic Interface, Intermix, Occluded, and Rural. Definitions for each condition class are included in Appendix A.
- **Access.** Design aspects of roadways influence the hazard rating assigned to a community. A road gradient of greater than five percent can increase response times for heavy vehicles carrying water. Roads less than twenty feet in width often impede two-way movement of vehicles and fire suppression equipment. Hairpin turns and cul-de-sacs with radii of less than 45 feet can cause problems for equipment mobility. Adequately designed secondary access routes and loop roads in a community can lower a hazard rating. Visible, fire-resistant street and address identification and adequate driveway widths also reduce the overall community hazard.
- **Utilities.** Poorly maintained overhead power lines can be a potential ignition source for wildfires. It is important to keep power line corridors clear of flammable vegetation, especially around power poles and beneath transformers. Fires have been known to start from arcing power lines or exploding transformers during windstorms or during periods of high electricity

demand. Keeping flammable vegetation cleared from beneath power lines and around power poles reduces potential hazards from damaged power lines. Energized power lines may fall and create additional hazards for residents and firefighters including blocked road access. Power failures are especially dangerous to a community without a back-up energy source. Many communities rely on electric pumps to provide water to residents and firefighters for structure protection and fire suppression.

*Construction Materials*

The type of building materials used for construction account for sixteen percent of the total assessment score. While it is not feasible to expect all structures in the wildland-urban interface area to be rebuilt with fire-resistant materials, there are steps that can be taken to address specific elements that strongly affect structure ignition potential in the interface area. Factors considered in the assessment include:

- **Building Materials.** The composition of building materials determines the length of time a structure could withstand high temperatures before ignition occurs. Houses composed of wood siding and wood shake roofing are usually the most susceptible to ignitions. Houses built with stucco exteriors and tile, metal, or composition roofing are able to withstand much higher temperatures and heat durations.
- **Architectural Features.** Unenclosed or unscreened balconies, decks, porches, eaves, or attic vents on homes provide areas where sparks and embers can be trapped, smolder, ignite, and rapidly spreading fire to the house. A high number of houses within a wildland-urban interface area with these features implies a greater hazard to the community.

*Defensible Space*

Defensible space accounts for sixteen percent of the assessment score. Density and type of fuel around a home determines the potential fire exposure and potential for damage to the home. A greater volume of trees, shrubs, dry weeds, grass, woodpiles, and other combustible materials near the home will ignite more readily, produce more intense heat during a fire, and increase the threat of losing the home. Defensible space is one of the factors that homeowners can most easily manipulate in order to improve the chances that a home or other property avoids damage or complete loss from a wildfire.

*Suppression Capabilities*

The availability and capability of fire suppression resources account for sixteen percent of the total assessment score. Knowledge of the capabilities or limitations of the fire suppression resources in a community can help the residents take action to maximize the resources available. Factors considered in the assessment include:

- **Availability, Number, and Training Level of Firefighting Personnel**. When a fire begins in or near a community, having the appropriate firefighting personnel available to respond quickly is critical to saving structures and lives. Whether there is a local paid fire department, volunteer department, or no local fire department impacts how long it takes for firefighting personnel to respond to a reported wildland fire or to a threatened community.

- **Quantity and Type of Fire Suppression Equipment.** The quantity and type of available fire suppression equipment has an important role in minimizing the effect of a wildfire on a community. Effective wildland firefighting requires specialized equipment.
- **Water Resources**. The availability of water resources is critical to fighting a wildland fire. Whether there is a community water system with adequate fire flow capabilities, or whether firefighters must rely on local ponds or other drafting sites affects how difficult it will be for firefighters to protect the community.

*Physical Conditions*

The physical conditions that influence fire behavior account for 26 percent of the hazard rating. Physical conditions include slope, aspect, topography, fuel type, and fuel density. With the exception of changes to the fuel composition, the physical conditions in and around a community cannot be altered to make the community more fire safe. Therefore, an understanding of how these physical conditions can influence the behavior of a fire is essential to planning effective preparedness activities, such as fuel reduction treatments. Physical conditions considered in the assessment include:

- **Slope, Aspect, and Topography.** In addition to local weather conditions, slope, aspect, and topographic features are also used to predict fire behavior. Steep slopes greatly influence fire behavior. Fire usually burns upslope with greater speed and longer flame lengths than on flat areas. Fire can burn downslope; however, it usually burns downhill at a slower rate and with shorter flame lengths than in upslope burns. East facing slopes in the Great Basin routinely experience strong down slope winds in the afternoon that can rapidly push fires down slope. West and south facing aspects are subject to more intense solar exposure, which preheats vegetation and lowers the moisture content of fuels. Canyons, ravines, and saddles are topographic features that are prone to higher wind speeds than adjacent areas. Fires pushed by winds grow at an accelerated rate compared to fires burning in non-windy conditions. Homes built mid-slope, at the crest of slopes, or in saddles are most at risk due to wind-prone topography in the event of a wildfire.
- **Fuel Type and Density.** Vegetation type, fuel moisture values, and fuel density around a community affect the potential fire behavior. Areas with thick, continuous, vegetative fuels carry a higher hazard rating than communities situated in areas of irrigated, sparse, or non-continuous fuels. Dry weather conditions, particularly successive years of drought in combination with steep slopes or high winds, can create situations in which the worst-case fire severity scenario can occur.

### *2.3.3 Fuel Hazard Mapping*

Fuel hazard maps were initially prepared by the BLM (Nevada and Utah State Offices) using wildfire hazard delineations derived from vegetation data (Nevada GAP Analysis Program satellite dataset at 30-meter resolution). A total of 65 vegetation types were mapped statewide and classified into four wildfire hazard categories (low, moderate, high, and extreme) based on the anticipated fire behavior for each vegetation cover type. For

example, pinyon-juniper cover types were generally rated as extreme fuel hazards, while sparse shadscale cover types were rated as low fuel hazards.

The RCI Project Teams visited high and extreme hazard communities and verified the BLM fuel hazard information by comparing the hazard ratings on the existing fuel hazard map to vegetation, slope, and aspect conditions directly observed in the field. Where necessary, changes to the ratings were drawn on the maps and used to update the fuel hazard layer of the project database. Photo points were established in high and extreme fuel hazard areas to monitor future changes in fuel hazard conditions. Fuel hazard mapping was completed for the Douglas County communities of Bodie Flats, China Springs, Genoa, Holbrook Junction, North Foothill Road Corridor, Sheridan Acres, Spring Valley/ Double Springs, and Topaz Ranch Estates.

### *2.3.4 Fire Behavior Worst-Case Scenario*

The Fire Specialists on the RCI Project Team described a worst-case scenario for each community based on an analyses of the severe fire behavior that could occur given a set of weather conditions, observed fuel load conditions, and minimal fire suppression resources. The worst-case scenario does not describe the most likely outcome of a wildfire event in the interface, but illustrates the potential for damage if a given set of conditions were to occur simultaneously. The worst-case scenarios described in this document are for public education purposes and are part of the basis for the fuel reduction recommendations.

## 2.4 INTERVIEWS WITH FIRE PERSONNEL

The RCI Project Team interviewed local fire department personnel and local area Fire Management Officers to obtain information on wildfire training, emergency response time, personnel, equipment availability, evacuation plans, pre-attack plans, and estimates of possible worst-case scenarios. Local fire personnel reviewed maps showing the history of wildfires to ensure that local information on wildland fires was added to the dataset when possible. A list of fire agency personnel contacted for information used in the assessments is included in Appendix C.

## 2.5 RECOMMENDATION DEVELOPMENT

A wide variety of treatments and alternative measures can be used to reduce ignition risks, mitigate fire hazards, and promote fire safe communities. Proposed recommendations typically include physical removal or reduction of flammable vegetation, increased community awareness of the risk of fires and how to reduce those risks, and coordination among fire suppression agencies to optimize efforts and resources. The RCI Project Team met repeatedly to analyze community risks, treatment alternatives, and treatment benefits. Treatment recommendations to reduce existing risks were formulated based upon professional experience, quantitative risk assessment, and information developed in conjunction with the *Living With Fire* publications, National Fire Plan, and FIREWISE resources (National Fire Plan website; FIREWISE website; and Nevada Cooperative Extension publications).

# 3.0 DESCRIPTION OF THE COUNTY

## 3.1 DEMOGRAPHICS, LOCATION, TOPOGRAPHY, AND CLIMATIC DATA

Douglas County is located in western Nevada and is approximately 471,675-acres in size. A jurisdictional summary of land management and administration and coverage including water is provided in Table 3-1 and presented in Figure 3-1. Slightly more than half of land within Douglas County is administered and managed by federal agencies. The federal agency policies and decisions on lands located near the wildland-urban interface may have direct effects on private landowners within Douglas County.

**Table 3-1. Land Management Acreage within Douglas County**

| LAND ADMINISTRATOR | APPROXIMATE ACREAGE | PERCENT OF COUNTY |
|---|---|---|
| BUREAU OF LAND MANAGEMENT | 161,622 | 34 |
| US FOREST SERVICE | 80,752 | 17 |
| STATE OF NEVADA | 727 | < 1 |
| PRIVATE* | 205,199 | 44 |
| BUREAU OF INDIAN AFFAIRS | 3,647 | < 1 |
| DOUGLAS COUNTY | 2,292 | < 1 |
| WATER | 17,436 | 4 |

*Approximate values derived from the BLM land ownership GIS database and Douglas County Assessor's Office. The land administrator for surface waters in Douglas County was not available in the database.*

** Includes Indian Allotment Lands.*

The county population was estimated to be 45,603 people in 2003 (Nevada State Demographer's Office) The Douglas County economy is based primarily in services, trade, government, and agriculture. The Nevada Department of Employment, Training and Rehabilitation website lists the Douglas County School District, Bently Nevada Corporation, Douglas County, Wal-Mart Supercenter, and Carson Valley Inn as the largest employers in the Carson Valley portion of the county.

The majority of residential development in Douglas County is located either in Carson Valley or in the Lake Tahoe Basin. The scope of this report focuses on the developed areas in Carson Valley and south to Topaz Lake. The highest elevation within the county is 9,591 feet at East Peak. The lowest elevation is approximately 4,640 feet along the Carson River at the boundary between Douglas County and Carson City. The major valleys in Douglas County include Carson Valley, Long Valley, and Antelope Valley. Major mountain ranges and mountain features in Douglas County include the Carson Range, Pine Nut Mountains, Hot Springs Mountain, and the Wellington Hills.

## 3.2 WILDFIRE HISTORY

Several large wildfires have occurred in the recent history of Douglas County. Between 1980 and 2003, 48,005 acres (ten percent of Douglas County) burned in wildland fires. The largest fire recorded in the county was the 16,600-acre Indian Creek II Fire in 1984 that started in California and burned approximately 12,400-acres in Douglas County. Table 3-2 summarizes the large fire history and fire ignitions recorded by year for public lands within Douglas County. Figure 3-2 illustrates the recorded fire history in the vicinity of Douglas County. Several wildland fires have occurred on private lands within the county. Often these fires are not reported to federal agencies and are therefore, not reflected in Table 3-2 or Figure 3-2.

**Table 3-2. Summary of Reported Fire History Data 1980-2003**

| YEAR | NUMBER OF FIRE IGNITIONS | TOTAL FIRE ACREAGE | YEAR | NUMBER OF FIRE IGNITIONS | TOTAL FIRE ACREAGE |
|---|---|---|---|---|---|
| 1980 | 8 | NA | 1992 | 7 | 2 |
| 1981 | 13 | 2,650 | 1993 | 3 | 2 |
| 1982 | 6 | NA | 1994 | 10 | 10,060 |
| 1983 | 11 | 2,163 | 1995 | 2 | 0 |
| 1984 | 13 | 12,882 | 1996 | 7 | 15,197 |
| 1985 | 8 | 10 | 1997 | 4 | 18 |
| 1986 | 9 | 2 | 1998 | 3 | <1 |
| 1987 | 19 | 61 | 1999 | 14 | 89 |
| 1988 | 22 | 577 | 2000 | 17 | 2,453 |
| 1989 | 4 | 55 | 2001 | 10 | 445 |
| 1990 | 19 | 521 | 2002 | 8 | 813 |
| 1991 | 10 | 2 | 2003 | 9 | 3 |
| | | | **TOTAL** | **236** | **48,005** |

Source: Fire history data provided by the National Interagency Fire Center, Boise, Idaho. Fire acreage is derived from BLM and USFS fire perimeter data and specific to fire acreage within Douglas County.

### *3.2.1 Ignition Risk Factors*

Ignition risks for wildfires fall into two categories: lightning and human caused. Human caused ignitions can come from a variety of sources: fires started along highways and roads from burning material thrown out of vehicle windows or ignited during auto accidents, off-road vehicles, arcing power lines, agricultural fires, ditch burning, debris burning in piles or burn barrels, burning matches, target shooting, and fireworks. In the Douglas County database, records for 201 fire incidents include the ignition source; 162 were due to natural causes (lightning) and 39 were human caused.

### *3.2.2 Fire Ecology*

The science of fire ecology is the study of how fire contributes to plant community structure and species composition. A 'fire regime' is defined in terms of the average number of years between fires under natural conditions (fire frequency) and the amount of dominant species replacement (fire severity). Natural fire regimes have been affected throughout most of Nevada by twentieth century fire suppression policies. Large areas that formerly burned with high frequency but low intensity (fires more amenable to control, suppression, and

rehabilitation) are now characterized by large accumulations of unburned fuels, which once ignited, will burn at higher intensities.

Some plant communities have evolved to burn frequently with low intensity, for example mature Jeffrey pine forests. Under a natural fire regime, low-intensity surface fires reduce fuel loading from grasses and shrubs, suppress regeneration of shade-tolerant white fir seedlings, and leave the adult Jeffrey pine trees unaffected, protected by thick, fire-resistant bark. Forests with frequent fire occurrence often have an open, "park-like" appearance with an understory of grass or low shrubs. Though shaded by large, mature trees, spacing between trees is sufficient to allow sunlight to reach the forest floor and encourage regeneration of shade-intolerant species like Jeffrey pine trees. Pockets of heavy fuels exist in these conditions, but their discontinuous nature reduces the likelihood that a fire will burn with enough intensity to negatively impact mature trees. In the absence of frequent surface fires, accumulated dead-and-down woody fuels and the green "ladder fuels" can carry flames into the coniferous overstory, potentially provoking a catastrophic, stand-destroying crown fire.

Big sagebrush communities are the most common vegetation types in Nevada with an altered fire regime, now characterized by infrequent, high-intensity, catastrophic fires. Sagebrush requires ten to twenty or more years to reestablish on burned areas, and most often these areas provide the conditions for establishment and spread of invasive species before sagebrush reestablishment can occur. Cheatgrass is the most common invasive species to reoccupy sagebrush and pinyon-juniper burned areas in northern Nevada.

*Effect of Cheatgrass on Fire Ecology*

Cheatgrass is a common, introduced annual grass that aggressively invades disturbed areas, especially burns. Replacement of a native shrub community with a pure stand of cheatgrass increases the susceptibility of an area to repeated wildfire ignitions, especially in late summer when desiccating winds and lightning activity are more prevalent. The annual production, or volume of cheatgrass fuel produced each year, is highly variable and dependent on winter and spring precipitation. Plants can range from only a few inches tall in a dry year to over two feet tall on the very same site in wet years. In a normal or above normal precipitation year, cheatgrass can be considered a high hazard fuel type. In dry years, cheatgrass is generally sparse and low in stature and poses a low fire behavior hazard because it tends to burn with a relatively low intensity. However, in both dry and wet years, dried cheatgrass creates a highly flammable fuel bed that is easily ignited with the propensity to rapidly burn into adjacent cover types that may be characterized by more severe and hazardous fire behavior. The ecologic risk of a fire spreading from a cheatgrass stand into adjacent, unburned native vegetation is that additional disturbed areas are thereby opened and vulnerable to cheatgrass invasion. Associated losses of natural resource values such as wildlife habitat, soil stability, and watershed functions are additional risks.

Eliminating cheatgrass is an arduous task. Mowing defensible space and fuelbreak areas annually before seed maturity is effective in reducing cheatgrass growth. In areas where livestock may be utilized, implementing early-season intensive grazing up to and during flowering may aid in depleting the seed bank and reduce the annual

fuel load (BLM 2003, Davison and Smith 2000, Montana State University 2004)[3]. It may take years and intensive treatment efforts to control cheatgrass in a given area, but it is a desirable conservation objective in order to revert the landscape to the natural fire cycle and reduce the occurrence of large, catastrophic wildfires. Community-wide efforts in cooperation with county, state, and federal agencies are necessary for successful cheatgrass reduction treatments.

*Fire Ecology in Pinyon-Juniper Woodlands*

Singleleaf pinyon and Utah juniper are the dominant components of a plant community commonly referred to as Pinyon-Juniper (P-J). P-J woodlands were once characterized by a discontinuous distribution on the landscape and a heterogeneous internal fuel structure: a mosaic pattern of shrubs and trees resulting from the canopy openings created by small and frequent wildfires.

Both pinyon and juniper trees have relatively thin bark with continuous branching all the way to the ground. In dense stands, lower tree branches frequently intercept adjacent ladder fuels, e.g. shrubs, herbaceous groundcover, and smaller trees. This situation creates a dangerous fuel condition where ground fires can be carried into tree canopies, which often results in crown fires. A crown fire is the most perilous of all wildfire conditions and is usually catastrophic in nature since the danger to firefighters is generally too great to deploy ground crews.

## 3.3 NATURAL RESOURCES AND CRITICAL FEATURES POTENTIALLY AT RISK

Critical features at risk of loss during a wildfire event can be economic assets such as agricultural and industrial resources, or cultural features such as historic structures, archaeological sites, and recreation-based resources.

### *3.3.1 Irrigation Water, Irrigation Systems, and Municipal Infrastructure*

There are approximately twenty creeks (perennial, intermittent, or ephemeral) along the east slope of the Sierra Nevada that provide irrigation water to agricultural users and municipalities in Douglas County. A catastrophic fire along the eastern slope would substantially increase sediment yield and decrease water infiltration. The increased erosion and sedimentation would adversely impact the irrigation structures and create the need for extensive repair and maintenance on irrigation systems. In the absence of successful reclamation, decreased stream flow and groundwater recharge would reduce water yields. Additionally, mudslide hazards would be present until vegetation established in the burned areas, which would leave homes, roads, pipelines, and other municipal infrastructures at risk of loss.

### *3.3.2 Historical Registers*

There are nineteen sites listed on the National Register of Historical Places for Douglas County. The Nevada State Register of Historical Places lists twelve sites. The effects of fire on cultural and historical resources depend on factors, which vary from place to place such as fuels, terrain, and type of cultural or historical materials present. Archeological sites

[3] Proposed changes to livestock grazing on public lands for cheatgrass control must be approved by the appropriate land management agency prior to implementation.

and historic trails are not necessarily vulnerable to wildfire impacts. Historic districts, historic buildings, and resources that lie in the wildland-urban interface could be negatively impacted (damaged or destroyed) by wildfire are summarized in Table 3-3 and shown on Figure 3-2.

**Table 3-3. Historical Places At Risk in the Carson Valley Portion of Douglas County**

| SITE NAME | LOCATION | SOURCE REGISTER |
|---|---|---|
| Genoa Historic District | Genoa | National Register of Historic Places; Nevada State Register of Historic Places |
| Job's Peak Ranch | 144 Summit Ridge Way, Genoa | National Register of Historic Places |
| Reese-Johnson-Virgin House | 193 Genoa Lane Genoa | Nevada State Register of Historic Places |
| Walley's Hot Springs | State Route 206, two miles south of Genoa. | Nevada State Register of Historic Places |

### *3.3.3 Recreation*

The Spooner Lake Unit of the Lake Tahoe State Park is located within both Douglas County and the Carson City Municipality. The park is managed by the Carson-Tahoe Region Headquarters of the Nevada Division of State Parks. There are several structures within the 2,800-acre park unit including a maintenance building, well house, restroom, cross-country ski lodge, fee booth and entrance station, historic sheepherder's cabin, water tender's cabin, and two rental cabins. None of the structures are inhabited year-round, and all structures within the park are constructed of either wood siding or logs and have composite, asphalt, or metal roofs. No hydrants or water storage drafting sources are available for structure fire protection; however, water can be drafted out of nearby Spooner Lake.

Approximately 120,000 people visit the park annually and the estimated daily summer weekend visitation is 525 persons. The park management has developed an informal evacuation plan that they used to evacuate the Park during the 2004 Waterfall Fire. The Nevada Division of Forestry is the primary fire suppression agency responsible for the State Park. The Parks Division has received some funding for fuel reduction treatments along corridors outside of the Lake Tahoe Basin. They have also received funding from the Environmental Improvement Program for fuels reduction and forest health treatments for the areas of the park within the Lake Tahoe Basin (Kosch pers. comm.).

The Humboldt-Toiyabe National Forest, Carson Ranger District (USFS) has completed several fuels reduction treatments south of the Spooner Lake State Park. Approximately 400 acres were treated about ten years ago through a salvage timber sale and hand crew cut, pile, and burn treatments.

The Mormon Station State Historic Park is located in Genoa, Nevada and is the site of Nevada's first non-native permanent settlement. The park hosts a replica of the original Mormon Station trading post and a small museum. There are also restroom facilities and areas for picnicking and group events. All structures within the Park have wood shake roofs and could be at risk of spot fires and building ignition if a wildfire occurred nearby.

### *3.3.4 Flora and Fauna*

The Lahontan cutthroat trout is the only federally listed threatened species with potential habitat in Douglas County. Habitat for this trout could be severely impacted from accelerated erosion following a wildfire. Projects implemented to protect habitat for this species require formal consultation with the US Fish and Wildlife Service. An additional fifteen listed sensitive species are protected by Nevada State legislation and are identified in Table 3-4. The Nevada Natural Heritage Program, the Nevada Division of Forestry, and the Nevada Department of Wildlife should be consulted regarding specific concerns and potential mitigation to minimize impacts to these species when implementing fuel hazard reduction activities, prior to the event of a catastrophic wildfire.

**Table 3-4. Federal and State Listed Flora and Fauna At Risk in Douglas County**

| SCIENTIFIC NAME | COMMON NAME | LEGISLATION |
|---|---|---|
| **Plants** | | |
| *Ivesia webberi* | Webber ivesia | NRS 527.260.300 |
| *Opuntia pulchella* | Sand cholla | NRS 527.060.120 |
| *Polyctenium williamsiae* | Williams combleaf | NRS 527.260.300 |
| *Rorippa subumbellata* | Tahoe yellowcress | NRS 527.260.300 |
| **Fish** | | |
| *Eremichthys across* | Desert dace | NRS 527.260.300 |
| *Oncorhynchus clarki henshawi* | Lahontan cutthroat trout | ESA–Listed Threatened; NRS 527.260.300 |
| **Mammals** | | |
| *Euderma maculatum* | Spotted bat | NRS 501 |
| *Lontra canadensis* | River otter | NRS 501 |
| *Martes americana* | American marten | NRS 501 |
| **Birds** | | |
| *Athene cunicularia ssp. Hypugaea* | Western burrowing owl | NRS 501 |
| *Buteo regalis* | Ferruginous hawk | NRS 501 |
| *Buteo swainsoni* | Swainson's hawk | NRS 501 |
| *Falco peregrinus* | Peregrine falcon | NRS 501 |
| *Oreortyx pictus* | Mountain quail | NRS 501 |
| *Otus flammeolus* | Flammulated owl | NRS 501 |
| *Strix occidentalis ssp. Occidentalis* | California spotted owl | NRS 501 |

## 3.4 PREVIOUS FIRE HAZARD REDUCTION PROJECTS

The East Fork Fire and Paramedic Districts, US Forest Service Carson Ranger District, Nevada Division of Forestry, Spring Valley/Double Springs and Holbrook chapters of the Nevada Fire Safe Council, and the Washoe Tribe of Nevada and California have implemented several fuel hazard reduction projects in the wildland-urban interface areas of Douglas County. The Bureau of Land Management currently has a fuel reduction project in the Pine Nut Creek community underway that will be completed by May 2005. The Nevada Fire Safe Council has facilitated projects to complete risk assessments and develop recommendations for several fire mitigation projects throughout Douglas County. Information on completed, scheduled, and proposed hazard reduction projects is discussed further in each community section of this report.

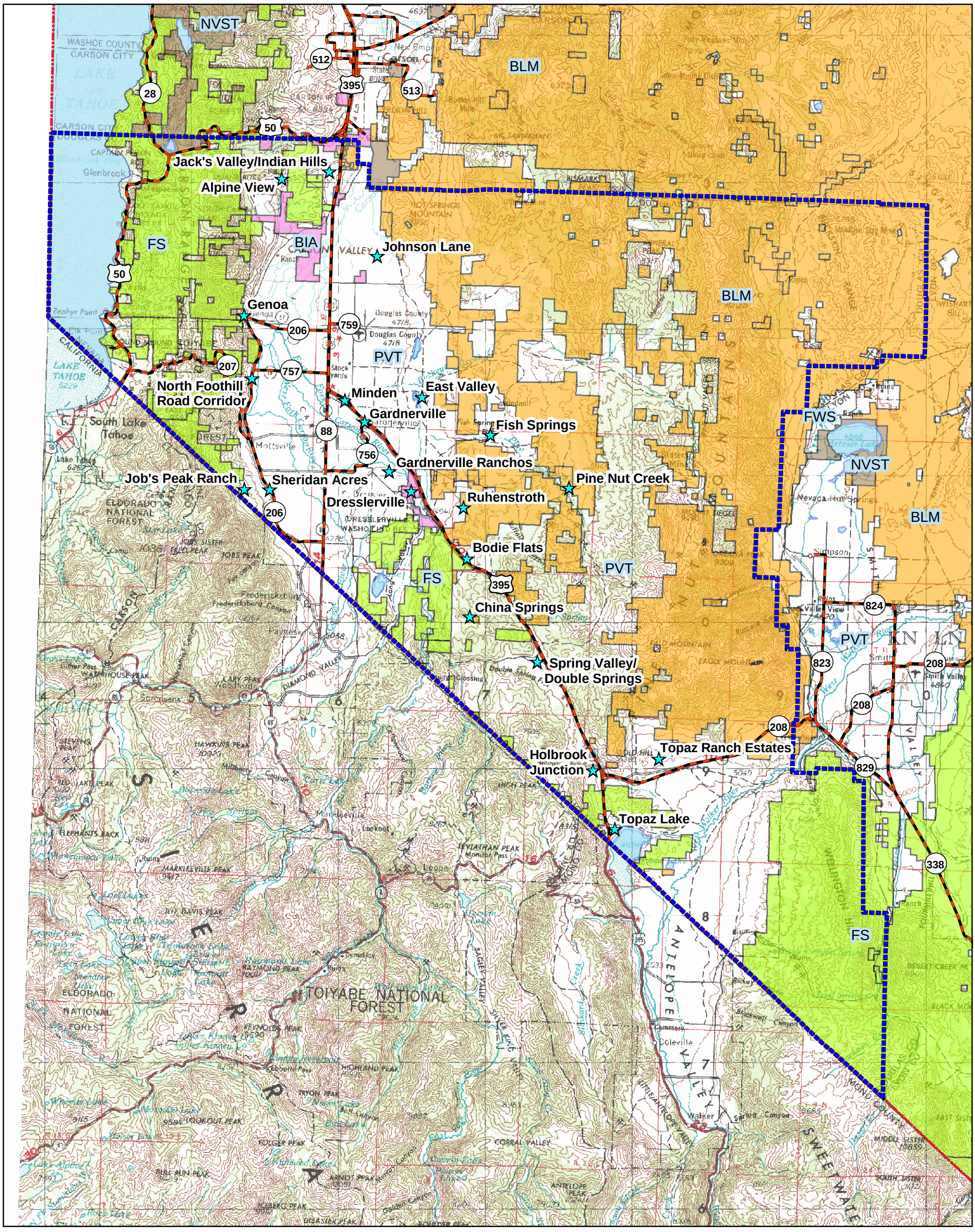



Figure 3-1. Community Locations and Land Ownership, Douglas County, Nevada

*The private land classification also includes Indian Allotment lands.

**Legend**

- Douglas County Community
- Highways and State Routes

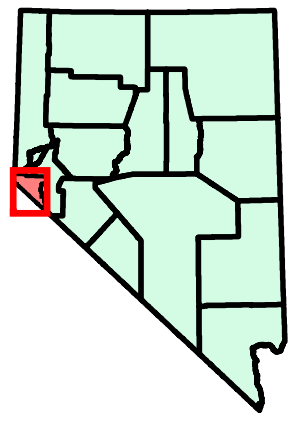
**Land Ownership**

- Bureau of Indian Affairs (BIA)
- Bureau of Land Management (BLM)
- Fish and Wildlife Service (FWS)
- Forest Service (FS)
- Nevada State (NVST)
- Private (PVT)
- Water (WTR)

0 4 8 16

Miles

N W E S



Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600

***Nevada Community Wildfire Risk / Hazard Assessment Project***

Spooner Lake Unit of the Lake Tahoe State Park

Jack's Valley/Indian Hills

Alpine View

Johnson Lane

Walley's Hot Springs

Genoa

Genoa Historic District
Reese-Johnson-Virgin House
Mormon Station Historic Park

North Foothill Road Corridor

Minden

East Valley

Gardnerville

Fish Springs

Gardnerville Ranchos

Pine Nut Creek

Job's Peak Ranch

Historic Job's Peak Ranch

Sheridan Acres

Dresslerville

Ruhenstroth

Bodie Flats

China Springs

Spring Valley/Double Springs

Holbrook Junction

Topaz Ranch Estates

Topaz Lake

Figure 3-2. Fire History and
Critical Features Potentially At-Risk
Douglas County, Nevada

0 4 8 16
Miles

N
W E
S

**Legend**

- Douglas County Community
- Douglas County Boundary
- Recreation Area
- Fire Ignition
- Past Fires (1980-2003)
- Highways and State Routes

Resource Concepts, Inc.
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***Nevada Community Wildfire Risk / Hazard Assessment Project***

# 4.0 COUNTY-WIDE ASSESSMENT RESULTS

## 4.1 COUNTY-WIDE RISK AND HAZARD ASSESSMENT OVERVIEW

During June of 2004 the RCI Project Team evaluated fifteen of the communities listed below. Assessments of six other communities were completed under separate contracts. The assessment results and recommendations for the six additional communities are included in this report. The overall results of the community risk/hazard assessments are summarized in Table 4-1.

**Table 4-1. Summary of Community Risk/Hazard Assessment Results**

| COMMUNITY | INTERFACE CLASSIFICATION | INTERFACE FUEL HAZARD CONDITIONS | IGNITION RISK RATING | COMMUNITY HAZARD RATING |
|---|---|---|---|---|
| **Alpine View** | Intermix | High to Extreme | High | Moderate |
| **Bodie Flats** | Intermix | High to Extreme | High | Extreme |
| **China Springs** | Intermix / Rural | Low to Extreme | High | High |
| **Dresslerville**[*4] | Classic | Low to Moderate | Low* | Moderate* |
| **East Valley** | Intermix | Moderate | Moderate | Low |
| **Fish Springs**[5] | Intermix | High | High | High |
| **Gardnerville** | Classic | Low | Low | Low |
| **Gardnerville Ranchos** | Classic | Low | Low | Low |
| **Genoa** | Intermix | Low to Extreme | High | High |
| **Holbrook Junction**[6] | Intermix | Moderate to Extreme | High | High |
| **Jacks Valley/ Indian Hills** | Classic / Intermix | Low to High | High | Moderate |
| **Job's Peak Ranch**[5] | Intermix | Moderate to High | High | High* |
| **Johnson Lane** | Classic / Intermix | Low to High | Moderate | Moderate |
| **Minden** | Classic | Low | Low | Low |
| **North Foothill Road Corridor** | Intermix | Low to Extreme | High | High |
| **Pine Nut Creek**[5] | Intermix | High | High* | High* |
| **Ruhenstroth** | Intermix | Moderate to High | Moderate | Moderate |
| **Sheridan Acres** | Intermix | Low to Extreme | High | High |
| **Spring Valley/Double Springs**[7] | Intermix | Low to High | High* | High* |
| **Topaz Lake** | Intermix | Low to High | High | Moderate |
| **Topaz Ranch Estates** | Intermix | Low to Extreme | High | High |

** Ratings adapted from previously completed reports using similar community hazard assessment criteria.*

[4] SWCA Environmental Consultants 2002
[5] Blackbull Wildfire Services 2004
[6] Resource Concepts, Inc. 2002
[7] SWCA Environmental Consultants 2003

### *4.1.1 Wildfire Protection Resources*

The Douglas County East Fork Fire and Paramedic Districts (EFFPD) and the Nevada Division of Forestry Sierra Forest Fire Protection District are responsible for fire protection on the private land in Douglas County. NDF is responsible for wildfire suppression on private lands within the Sierra Forest Fire Protection District, which includes the communities of Jacks Valley / Indian Hills, Alpine View, Sheridan Acres, North Foothill Road Corridor, and Job's Peak Ranch. NDF contracts with EFFPD to provide all risk emergency services (with the exception of wildfire suppression) within the Sierra Forest Fire Protection District. The EFFPD is a 40-member career department that also includes approximately 200 volunteer and four seasonal firefighters.

The BLM Carson City Field Office is the primary agency responsible for wildland fire suppression on public lands within the county (161,622 acres). BLM also has an agreement with the Bureau of Indian Affairs to provide suppression on tribal lands (3,647 acres) and Indian allotment lands in the Pine Nut Mountains. The US Forest Service Carson Ranger District Humboldt-Toiyabe National Forest is the primary agency responsible for wildland fire suppression on National Forest lands within the county (80,752-acres). The Sierra Front Interagency Dispatch Center in Minden, Nevada dispatches BLM, USFS, and NDF suppression resources through a computer-aided dispatch system.

Wildland firefighting suppression resources are available throughout Douglas County through mutual aid agreements with the BLM Carson City Field Office, US Forest Service Carson Ranger District Office, Nevada Division of Forestry, Carson City Fire Department, Sierra Front Wildfire Cooperators, Lake Tahoe Regional Fire Chief's Association, Tahoe-Douglas Fire Protection District, and Mono County. The USFS, BLM, and NDF usually provide one seasonal engine crew each to Douglas County between June 1 and October 15. The USFS usually stations a hotshot crew at the Minden Airport during fire season and the EFFPD stations a seasonal engine at the Gardnerville Ranchos (Station 7).

Tables 4-2 and 4-3 summarize the types of wildfire suppression resources, cooperating partners, and equipment available for first alarm and initial attack of wildland fires in Douglas County. The availability of resources may vary depending on time of year and resource needs in other areas, especially from federal agencies. The EFFPD second alarm to a wildland-urban interface fire in Douglas County would double the resources included in the first alarm.

**Table 4-2. East Fork Fire and Paramedic Districts Equipment Available for First-Alarm Response to a Wildland-Urban Interface Fire**

| TYPE OF EQUIPMENT | AMOUNT OF EQUIPMENT | COOPERATING PARTNER (RESOURCE LOCATION) |
|---|---|---|
| Type 1 Engine | 2 | East Fork Fire and Paramedic Districts |
| Type 3 Brush Truck | 2 | |
| Battalion Chief | 1 | |
| Duty Chief | 1 | |
| Rescue Ambulance | 1 | |
| Water Tender | 2 | |

*Source: Personal Communication with Steve Eisele East Fork Fire and Paramedic Districts Deputy Chief/Fire Marshal*

**Table 4-3. Maximum Level of Equipment Available for Initial Attack of a Wildland-Urban Interface Fire (during a high hazard day) from Cooperating Partners in Douglas County**

| TYPE OF EQUIPMENT | AMOUNT OF EQUIPMENT | COOPERATING PARTNER (RESOURCE LOCATION) |
|---|---|---|
| Type 3 Engine | 5 | Sierra Front Interagency Dispatch Minden, Nevada (Closest available resources from NDF,BLM,USFS |
| Battalion Chief/Duty Officer | 2 | |
| Water Tender | 1 | |
| Dozer | 1 | |
| Hand Crew | 1 | |
| Single Engine Air Tanker (SEAT) or Air Tanker and Lead Plane* | 1 | |
| Air Attack* | 1 | |
| Helicopter* | 1 | |
| *Air suppression response only if smoke is visible | | |

*Source: Personal Communication with Steve Eisele East Fork Fire and Paramedic Districts Deputy Chief/Fire Marshal; Rich Riolo Nevada Division of Forestry Fire Prevention Chief; Leonard Waking BLM Carson City Field Office Fire Management Officer; and Mike Polovina Sierra Front Interagency Dispatch Center Manager.*

The BLM Carson Filed Office has provided Volunteer Fire Departments in Douglas County with Rural Fire Assistance (RFA) grants in the amount of approximately $87,000 over the last three years that were made available through the National Fire Plan. The intent of the Rural Fire Assistance Program is to provide funds to Volunteer Fire Departments for their wildland suppression program. Funds to towards purchasing personal protective equipment, communications equipment, fire suppression equipment and wildland fire prevention programs. The RFA program applications for 2005 are currently being submitted to the BLM.

### *4.1.2 Water Sources and Infrastructure*

Water availability for fire suppression resources for Douglas County include:

- Community wells,
- 500 gpm hydrants within 500 feet of structures for about seventy percent of residences,
- Helicopter dip sites, and
- Water storage tanks in the areas of East Valley, Fish Springs, Spring Valley/Double Springs, Pine View Estates, Fredericksburg, Tomerlin Ranch Subdivision, Holbrook Junction, Topaz Range Estates, Topaz Lake, Ruhenstroth, Jacks Valley/Indian Hills, Genoa, Job's Peak Ranch, Johnson Lane, Gardnerville, and the Gardnerville Ranchos.

Generally, either gravity or pumps pressurize the water systems. Most of the pressure pumps or wells have emergency back-up generators, except at Topaz Lake, Topaz Ranch Estates, Sheridan Acres, and Fish Springs. The existing infrastructure for the water delivery systems in Douglas County meets the 2000 Uniform Fire Code standards.

Hydrants are not available in the Fish Springs, Topaz Ranch Estates, Topaz Lake, Ruhenstroth, and some areas of East Valley, Sheridan Acres, Genoa, the Foothill Road Corridor, and Jacks Valley. The hydrants at the north end of Jacks Valley and in the Sheridan Acres areas do not meet the 2000 Uniform Fire Code. There are several helicopter dip sites located around Douglas County including the Carson River, Topaz Lake, and ponds in the Willow Bend subdivision. The Genoa Lakes Golf Course also has water hazards that could be used for dip sites. Reservoir dip sites are available in East Valley. Homeowner pools may also be used as dip sites when permission is obtained.

### *4.1.3 Detection and Communication*

Fires are reported in Douglas County through 911 calls and calls directly to the Douglas County Sheriff Dispatch. Fires may also be detected through reconnaissance flights conducted by federal agencies. Fires are communicated to fire response personnel through radios and pagers. Douglas County Dispatch uses a computer-aided dispatch system and either retains or releases communication and dispatch responsibilities to Sierra Front Interagency Dispatch for wildland-urban interface fires depending upon fire jurisdiction and level of response (e.g. when the Sierra Front Management Team is called in for a fire, Douglas County will release dispatch responsibility to Sierra Front Interagency Dispatch). The EFFPD has access to the state mutual aid frequencies and their radio system is compatible with neighboring agencies; however, there are some areas of the county without radio coverage.

The Sierra Forest Fire Protection District (NDF), Bureau of Land Management, and US Forest Service fire personnel and equipment are dispatched through the Sierra Front Interagency Dispatch Center in Minden, Nevada.

### *4.1.4 Fire Protection Personnel Qualifications*

The EFFPD firefighters have been trained to meet basic National Fire Protection Association structural, wildland, and EMS standards. Red Card certifications are required for all EFFPD firefighters responding out of the primary district response area. A Red Card certification is part of a fire qualifications management system used by many state and all federal wildland fire management agencies that indicates an individual's qualifications to fight wildland fires.

### *4.1.5 Work Load*

The East Fork Fire and Paramedic Districts responded to 41 wildland fires in Douglas County in 2003. The Sierra Front Interagency Dispatch Center, which dispatches for the USFS Carson and Bridgeport Ranger Districts, BLM Carson City District, and NDF Western Region, which include portions of Carson City, Douglas, Lyon, Churchill, Pershing, Mineral, and Washoe Counties in Nevada, reported these agencies responding to 234 wildfires in 2004 (Polovina pers. comm.)

### *4.1.6 Financial Support*

Funding for the East Fork Fire District is provided primarily through *ad valorem* property tax as well as from county sales tax revenue. The East Fork Paramedic District is provided funding solely through *ad valorem* property tax. The Sierra Forest Fire Protection District is provided funding through *ad valorem* property tax and county sales tax revenue.

### *4.1.7 Community Preparedness*

Douglas County has an active Local Emergency Planning Committee and has adopted an emergency response mitigation plan that covers all risks. The emergency plan was last updated in 1999. The Douglas County FEMA plan covers wildland fires, earthquakes, and floods. The Sierra Front Wildfire Cooperators dispatch run cards for initial attack are updated annually prior to the start of each fire season. The EFFPD and Sierra Forest Fire Protection District participate in the annual pre-attack meetings. Both fire districts review new development plans for their respective districts within the county.

The Sierra Front Interagency Dispatch Center uses WildCad (computer aided dispatch system) to dispatch initial attack fire suppression resources to wildland fire incidents. The response areas in WildCad are updated annually prior to fire season. Sierra Front Interagency Dispatch Center also has pre-attack plans developed in 1986 for the Fredricksburg and Genoa areas. These plans include travel maps, topographic maps, facility locations for incident command posts, water supply locations, basic fuel maps, and aerial photos. These pre-attack plans are now out of date and need to be updated.

The East Fork Fire and Paramedic District is currently working on establishing a defensible space program within the county. During the summer of 2004, a seasonal engine crew conducted defensible space surveys and provided public education to homeowners in Douglas County. The BLM Carson Field Office has also sponsored a Student Conservation Association Fire Education Corp Team to conduct defensible space evaluations for homeowners in Fish Springs, Pine Nut Creek, and Ruhenstroth. The Education Corp Team was coordinated by the EFFPD and local volunteer fire departments. These Douglas County programs is anticipated to expand over the next several years. Further information on defensible space programs and open burning dates and regulations is available on the East Fork Fire and Paramedic District has web page (http://effpd.co.douglas.nv.us/).

The BLM Carson Field Office has provided EFFPD with $200,000 over the past four years through National Fire Plan grant funding for the Douglas County “Compost Your Combustibles” program several times a year. This program allows homeowners to dispose of vegetation (biomass) removed from around their homes without being charged. The successful program has been in effect in Douglas County since the late 1990’s.

Prior to burning, Douglas County residents must call the Douglas County Dispatch Center at (775) 782-9969 to determine whether or not burning is permitted that day. For residents who live in Jacks Valley/Indian Hills, Alpine View, or the west side of Foothill Road, open burning is prohibited unless a site inspection is completed and a burn permit is issued by the EFFPD.

The Douglas County Road Maintenance Department, Town of Minden, Town of Gardnerville, individual general improvement districts, individual homeowners associations, and the Nevada Department of Transportation perform rights-of-way clearance on public streets in Douglas County. The Carson Valley Weed District is responsible for noxious weed abatement.

## 4.2 COUNTY-WIDE RECOMMENDATIONS

Risk and hazard reduction recommendations for Douglas County address the primary concern regarding protection of existing and future development in the wildland-urban interface areas within the county. Other recommendations pertain to community coordination and public education efforts that could be undertaken to enhance fire safety in Douglas County.

### *4.2.1 Fuel Reduction Treatments*

Fuel reduction treatments are applied on a larger scale than defensible space treatments. By permanently changing the fuel structure over large blocks of land to one of lower volume or reduced flammability (a fuel reduction treatment), the expected result in the event of a catastrophic wildfire would be one of reduced capacity for uncontrolled spread through the treatment area.

*East Fork Fire And Paramedic Districts, Bureau of Land Management, and US Forest Service Recommendations*

- Continue the "Compost your Combustibles" program that provides a location for homeowners to dispose of their vegetation clippings from defensible space implementation. Provide this or a similar service for vegetation (biomass) accumulations resulting from fuelbreak construction around communities.

*Douglas County, General Improvement Districts, Homeowner Associations, and Nevada Department of Transportation Recommendations*

- In areas with sagebrush-dominated vegetation, remove shrubs for a distance of 25-feet on each side of community roads. In areas where the vegetation is dominated by pinyon and juniper trees, remove trees and shrubs for a distance of 50-feet on each side of the community roads. Seed these fuel reduction areas with an appropriate fire resistant seed mix such as provided in Appendix D.

### *4.2.2 Fire Suppression Capabilities*

Proper maintenance, storage, and acquisition of fire suppression equipment along with regular and appropriate firefighter training increases fire suppression capability for those areas where fire protection is available. Improving the visibility of street and address signs increases the ease of navigation for those unfamiliar with the area under smoky conditions that are common during a wildland fire.

*East Fork Fire And Paramedic Districts and Nevada Division of Forestry Recommendations*

- Remove or mow vegetation within ten feet of hydrants to improve visibility and access for fire personnel.
- Continue enforcement of the burn permit programs.
- Coordinate with Douglas County to identify appropriate private and public ponds along the Carson River for use as helicopter dip sites.
- Develop specific agreements with private landowners for designating helicopter dip sites and landings prior to a wildfire event.

- Continue to relocate fire suppression resources throughout the county in response to localized lightning storm activity.
- Update the Douglas County pre-attack plans and develop new plans where needed. These plans should include locations for helibases, staging areas, safe zones, aerial photos, and incident command post locations, and the locations of previous fuel reduction project areas. The pre-attack plans should be made available to mutual aid fire suppression resources and incident management teams when assisting local resources during an emergency.

### *4.2.3 Public Education*

Increased public education on fire safety is critical in communities that have rapidly growing populations, especially when many of the areas being developed are larger lots scattered throughout wildland fuels. People moving into the area may be unfamiliar with fire prone environments.

*East Fork Fire And Paramedic Districts and Nevada Division of Forestry Recommendations*

- Coordinate with the Bureau of Land Management, University of Nevada Cooperative Extension, and Nevada Division of Forestry to conduct public education, showcase good examples of defensible space, and participate in annual fire awareness programs.
- Distribute copies of the publication *"Living With Fire"* to all property owners who live in wildland-urban interface subdivisions in Douglas County. This publication is free of charge and can be requested from the University of Nevada Cooperative Extension.

### *4.2.4 Wildland-Urban Interface Policy*

*Douglas County Commission Recommendations*

- Require all future development in the Douglas County to comply with the most stringent fire code and standards with regards to construction materials, road design, and water supply systems.
- Adopt a County ordinance regarding fuel reduction and defensible space requirements for wildland-urban interface areas. Require defensible space implementation on all developed and undeveloped lots within interface areas. If landowners do not complete defensible space treatments within a specified time frame, authorize EFFPD to charge the landowner for defensible space services through property tax levies. Require fuel reduction treatments prior to approval of new wildland-urban interface subdivisions and require approval of defensible space implementation prior to issuing building permits.

*East Fork Fire and Paramedic Districts and Nevada Division of Forestry Recommendations*

- Expand the opportunities for engine companies to conduct annual defensible space inspections within their response area. Provide homeowners with inspection reports and recommended actions.

# 5.0 ALPINE VIEW

## 5.1 HAZARD AND RISK ASSESSMENT

The community of Alpine View is located on Jacks Valley Road, west of Jacks Valley/Indian Hills and north of Genoa in the northwestern portion of Douglas County. Alpine View is situated at the base of the Carson Range at an elevation of 5,200 feet, adjacent to the Jacks Valley Wildlife Management Area administered by the US Forest Service. The southern and western portions of the community border irrigated pastureland. Ninety-six residences were observed during the assessment visit. **The risk/hazard assessment resulted in classifying Alpine View in the Moderate Hazard category** (54 points). A summary of the factors that contributed to the hazard rating is included in Table 5-2. The primary factors that determined the hazard rating for Alpine View were the widespread use of fire resistant construction materials and adequate road accessibility. However, the community is situated in a location adjacent to dense fuel loads and terrain associated with hazardous fire behavior.

### *5.1.1 Community Design*

The Alpine View interface area is characterized by the intermix wildland-urban interface condition. Structures are scattered throughout the wildland area with no clear line of demarcation between wildland fuels and residences in the community. The RCI Project Team observed that all of the homes in Alpine View are located on lots between one and ten acres in size. Figure 5-1 details the community layout and design.

**Roads:** Jacks Valley Road is the major transportation route linking Alpine View to surrounding communities. This primary access road is paved and at least 24 feet wide, an adequate width for two-vehicle passage and fire suppression equipment to maneuver. All of the secondary community roads have adequate turn around space for fire suppression equipment, and the majority of community roads have less than a five percent grade.

**Signage:** Street signs were present and visible for all streets. Residential addresses were generally visible except for six of the homes in the community.

**Utilities:** The utilities serving Alpine View are underground and do not contribute to any additional wildfire hazard or ignition risk.

### *5.1.2 Construction Materials*

Of the 96 homes observed, almost all were built with treated wood siding materials, stucco, vinyl, brick, or other fire resistant siding materials. Most homes have fire resistant roofing materials such as composite, metal, or tile. Twenty percent of the homes observed have unenclosed balconies, porches, decks, or other architectural features that create drafts and provide areas where sparks and firebrands can be trapped, smolder, ignite, and rapidly spread fire to the home.

### *5.1.3 Defensible Space*

Approximately 92 percent of homes observed had landscaping that would meet defensible space guidelines to protect the home from damage or loss during a wildfire. The recommended defensible space treatment area is a minimum of thirty to 200 feet depending upon vegetation type and slope within the Alpine View community.

### *5.1.4 Suppression Capabilities*

*Wildfire Protection Resources*

Career-staffed Indian Hills Station 12 of the East Fork Fire Protection District and the Jacks Valley Volunteer Fire Department (Station 15) are responsible for wildfire and structure fire protection in Alpine View. At the time of the assessment, the Jacks Valley VFD listed fifteen to twenty volunteers on its roster (East Fork Fire Protection District website). See Tables 4-2 and 4-3 for more information on the typical fire suppression response for first-alarm wildland-urban interface fires in Douglas County. Appendix E lists the type and number of fire suppression vehicles located at each EFFPD and Douglas County VFD station.

*Water Sources and Infrastructure*

Water availability for fire suppression resources for Alpine View include a one million-gallon and one 250,000-gallon water storage tank in Jacks Valley/Indian Hills and a fire hydrant at the Jacks Valley Elementary School. The turn-around time for fire apparatus responding to a fire occurrence in Alpine View is less than twenty minutes. Ponds may be available for use as helicopter dip sites on private land south of the community during the irrigation season. The ponds could only be used with landowner permission. There are no fire hydrants available for the Alpine View community.

### *5.1.5 Factors Affecting Fire Behavior*

Vegetation, dead and down fuels, and topographic features contribute to the potential fire hazard around wildland-urban interface communities. The Alpine View community lies on the south-facing aspect of an alluvial fan with slopes ranging from ten to twenty percent. Steeper mountainous slopes of thirty percent or greater are located directly north of the community. The predominant wind direction is from the west with occasional strong downslope winds in the late afternoons during the summer months. A history of lightning-caused ignitions exists to the east of the community and thunderstorms are frequent in the area.

The vegetative fuel density was heavy in both fuel types within the Alpine View community. Dominant vegetation types included big sagebrush/bitterbrush and Jeffrey Pine/bitterbrush associations. The majority of the community is situated where vegetative fuels consisted of six to eight foot tall bitterbrush and four foot tall big sagebrush, Mormon tea, and rabbitbrush. Cheatgrass, Indian ricegrass, and bottlebrush squirreltail were the dominant grasses in the understory. Fuel loads in this vegetation type ranged from 3.5 to six tons per acre and were rated as a moderate to high fuel hazard.

Fuels in the northwest portion of the community transitioned into the Jeffrey pine/bitterbrush vegetation type. Dominant understory vegetation was similar to the rest of the community

with the addition of a Jeffrey pine tree canopy. Fuel loads in this vegetation type ranged from six to eight tons per acre and were rated as an extreme fuel hazard.

### *5.1.6 Fire Hazard Reduction Projects*

The US Forest Service Humboldt-Toiyabe Carson Ranger District completed a 200 to 400 foot wide fuel reduction treatment on the north and northeast sides of the Alpine View community. On the northwest side of the community a private landowner installed a 25-foot wide fuelbreak along fences behind homes from Schneider Ranch Road to the US Forest Service fuelbreak.

The USFS Humboldt-Toiyabe Carson Ranger District is in the process of planning approximately 340 acres of fuel reduction treatment within the Jacks Valley Wildlife Management Area, located southeast of the Alpine View community. Proposed treatments include several 200-foot wide fuelbreaks along the Forest Service boundary and along designated roads. Mechanical mastication equipment will likely be the primary method used to reduce fuels, except in areas where topography and ground conditions warrant the use of hand crews (see the Jacks Valley/Indian Hills section, Figure 15-4). A final decision on implementation of this project is pending due to funding and prioritization by the Carson Ranger District.

### *5.1.7 Fire Behavior Worst Case Scenario*

The worst-case scenario for a wildland fire in the area surrounding Alpine View would likely occur in the event of a dry lightning storm with numerous ignitions along the east-facing slope of the Carson Range. Fire agencies could be faced with multiple fires being pushed by erratic winds toward residential areas on the west side of Douglas County including Alpine View. A fire ignition located northwest of the community with downslope winds in excess of 25 miles per hour could push a fire front through the heavy brush fuels toward homes. The intermix interface condition and heavy fuel density in this area could increase difficulty in controlling a wildfire that is threatening homes. The scenario would be worse if East Fork Fire and Paramedic Districts resources were unavailable due to previous assignment to an emergency situation elsewhere.

### *5.1.8 Ignition Risk Assessment*

Alpine View is considered to be at high risk of ignition for lightning caused fires. There is an extensive history of wildfire and fire ignitions in the public lands nearby and adjacent to Alpine View. High ignition rates are likely due to the high hazard fuel type in and around the community and the tendency for lightning storms during the summer.

## 5.2 RISK AND HAZARD REDUCTION RECOMMENDATIONS

The Alpine View risk and hazard reduction recommendations address the primary concern regarding protection of existing and future development in the wildland-urban interface area. Other recommendations pertain to community coordination and public education efforts that could be undertaken to enhance fire safety in the community.

### *5.2.1 Defensible Space Treatments*

Defensible space treatments are an essential first line of defense for residential structures. Significantly reducing or removing vegetation within a prescribed distance from structures (minimum of 30 feet to 200 feet depending upon slope and vegetative fuel type) reduces fire intensity and improves firefighter and homeowner chances for successfully defending a structure against an oncoming wildfire.

*Property Owner Recommendations*

- Remove, reduce, and replace vegetation to create defensible space around homes according to the guidelines in Appendix D. This area should be kept:

  Lean – There are only small amounts of flammable vegetation,

  Clean – There is no accumulation of dead vegetation or other flammable debris,

  Green – Existing plants are healthy and green during the fire season.
- Remove debris and flammable materials from within the defensible space area.
- Store firewood a minimum distance of thirty feet from structures.
- Mow or remove brush growing against wood and vinyl fences for a distance of ten to 25 feet.
- Remove pine needles, leaves, and debris from roofs and rain gutters.
- Maintain areas under wood decks and porches free of weeds and other flammable debris. Enclose these areas wherever possible.
- Clear all vegetation and combustible materials around propane tanks for a minimum of ten feet.
- Install spark-arresting devices on chimneys.
- For Jeffrey pine trees within the defensible space zone, limb branches a minimum distance of fifteen feet from the ground or no more than one-third the height of the tree. All dead and diseased branches and duff should be removed from beneath remaining trees.
- Prune trees so that the branches are at least fifteen feet away from chimneys and or structures.
- Immediately dispose of cleared vegetation when implementing defensible space treatments. This material dries quickly and poses a fire hazard if left on site.
- Irrigate all trees and large shrubs in close proximity to structures to increase their fire resiliency, especially during drought conditions.
- Maintain this defensible space as needed to keep the space lean, clean, and green.

### *5.2.2 Fire Suppression Capability*

Coordination among local, state, and federal fire suppression agencies is important in the day-to-day fire prevention activities and becomes critical in the event of a wildland fire. During a fire event, firefighters from other communities and states may be dispatched to areas they have never been before. This is particularly true in areas like Alpine View, which may receive aid from outside fire suppression agencies in the event of a catastrophic

wildland fire. The following recommendations related to actions homeowners can take to increase the quality of fire suppression response in their community.

*Property Owner Recommendation*

- Consider purchasing a fire retardant gel or foam product designed for homeowner use. These gels/foams can be applied to structures and vegetation to create an added layer of flame resistance in the event of a fire.

### *5.2.3 Fuel Reduction Treatments*

Fuel reduction treatments are applied on a larger scale than defensible space treatments. By permanently changing the fuel structure over large blocks of land to one of lower volume or reduced flammability (a fuel reduction treatment), the expected result in the event of a catastrophic wildfire would be one of reduced capacity for uncontrolled spread through the treatment area. Reducing vegetation along roadways and driveways could reduce the likelihood of wildfire spreading across roads and improve firefighter access and safety for protecting homes.

*Property Owner Recommendation*

- Reduce fuels at least ten feet along both sides of private driveways longer than 200 feet. Flammable fuels should be replaced with fire-resistant species such as crested wheatgrass, irrigated deciduous shrubs, wildflowers, lawn, or by seeding with an approved pre-suppression seed mix. Refer to Appendix D for recommended seed mixes and planting guidelines.

*East Fork Fire and Paramedic Districts, Nevada Division of Forestry and US Forest Service Recommendations*

- Coordinate with private landowners to construct a 100 to 200-foot wide fuelbreak on the east side of the community one-half mile in length, for a total treatment area of approximately six to twelve acres. Remove all brush within half of the width of the fuelbreak nearest to the homes (50 to 100 feet). Thin shrubs within the remaining area such that the distance between each canopy is twice the height of the shrubs (preferring bitterbrush retention over other species). Seed the treatment area with short-stature perennial grasses and forbs suitable to the site and the fuelbreak goals such as recommended in Appendix D.
- Widen the existing 25-foot wide fuelbreak on the west side of the community to 200 feet. Remove all brush within the half of the fuelbreak width (100 feet nearest to the homes). Thin shrubs within the remaining area such that the distance between each canopy is twice the height of the shrubs (preferring bitterbrush retention over other species). Seed the treatment area with short-stature perennial grasses and forbs suitable to the site and the fuelbreak goals such as recommended in Appendix D.
- Construct a 100 to 200 foot wide fuelbreak for a distance of approximately one mile on the south side of Jacks Valley Road between the communities of Alpine View and Jacks Valley/Indian Hills. The total proposed treatment area is approximately 12 to 24 acres (see Figure 5-1). Remove all shrubs (except bitterbrush) and seed the fuelbreak with a seed mix suitable to the site such as recommended in Appendix D.

- Maintain existing fuelbreaks on the west and north sides of the community every three to seven years as needed to maintain reduced fuel conditions.
- Remove the biomass generated from construction of the fuelbreak and disposed of at an appropriate site. The fuelbreak should be maintained as needed to reestablish reduced fuel conditions.

### *5.2.4 Community Coordination*

Many of the most effective activities aimed at reducing the threat of wildfire for the Alpine View community require that individual property owners coordinate with each other and with local fire authorities. Defensible space, for example, is more effective in small communities when applied uniformly throughout entire neighborhoods. Public education and awareness, neighbors helping neighbors, and proactive individuals setting examples for others to follow are just a few of the approaches that will be necessary to meet the fire safe goals in the community. Disposal of biomass generated from defensible space and fuel reduction treatments can sometimes be most efficiently handled through community programs.

*Property Owner Recommendations*

- Assure that address signs are visible from the road. Address characters should be at least four inches high, reflective, and composed of non-flammable material. Improving visibility of addresses will make it easier for those unfamiliar with the area to navigate under smoky conditions during a wildland fire.
- Reorganize the Alpine View/Jacks Valley chapter of the Nevada Fire Safe Council to include the Indian Hills and Sunridge areas.

*East Fork Fire and Paramedic Districts and Nevada Division of Forestry Recommendations*

- Distribute copies of the publication *"Living With Fire"* to all property owners who live in wildland-urban interface subdivisions in Alpine View. This publication is free of charge. Copies can be requested from the University of Nevada Cooperative Extension.

## 5.3 SUMMARY OF RECOMMENDATIONS

**Table 5-1. Alpine View Priority Recommendations to Reduce Wildfire Risks and Hazards**

| INVOLVED PARTY | RECOMMENDED TREATMENT | RECOMMENDATION DESCRIPTION |
|---|---|---|
| **Property Owners** | Defensible Space | Remove, reduce, and replace vegetation around homes according to the defensible space guidelines in Appendix D. |
| | Fire Suppression Capability | Consider purchasing a fire retardant gel or foam product designed for homeowner use. |
| | Fuels Reduction | Reduce fuels at least ten feet along both sides of private driveways that are longer than 200 feet. |
| | Community Coordination | Assure that address signs are visible from the road. Address characters should be at least four inches high, reflective, and composed of non-flammable material.<br>Reorganize the local chapter of the Nevada Fire Safe Council to include the Indian Hills and Sunridge areas. |
| **US Forest Service**<br>**Nevada Division of Forestry**<br>**East Fork Fire and Paramedic Districts** | Fuels Reduction | Coordinate with private landowners to construct and maintain a proposed 100 to 200-foot wide fuelbreak on the east side of the community and widen the 25-foot wide fuelbreak on the west side of the community to 200 feet. |
| | Community Coordination | Distribute copies of the publication *"Living With Fire"* to all property owners. |

## Table 5-2 Alpine View Wildfire Hazard Rating Summary

**A. Urban Interface Condition** ***2***

**B. Community Design**

| | | |
|---|---|---|
| 1. Ingress / Egress | 3 | /5 |
| 2. Width of Road | 1 | /5 |
| 3. Accessibility | 1 | /3 |
| 4. Secondary Road | 1 | /5 |
| 5. Street Signs | 1 | /5 |
| 6. Address Signs | 1 | /5 |
| 7. Utilities | 1 | /5 |

**C. Construction Materials**

| | | |
|---|---|---|
| 1. Roofs | 1 | /10 |
| 2. Siding | 1 | /5 |
| 3. Unenclosed Structures | 1 | /5 |

**D. Defensible Space**

| | | |
|---|---|---|
| 1. Lot Size | 3 | /5 |
| 2. Defensible Space | 1 | /15 |

**F. Fire Behavior**

| | | |
|---|---|---|
| 1. Fuels | 5 | /5 |
| 2. Fire Behavior | 10 | /10 |
| 3. Slope | 7 | /10 |
| 4. Aspect | 10 | /10 |

**E. Suppression Capabilities**

| | | |
|---|---|---|
| 1. Water Source | 5 | /10 |
| 2. Department | 1 | /10 |

***TALLIES***

**96 Total Houses** **4 Residential Streets**

**B5. Street Signs**

| | | | | | |
|---|---|---|---|---|---|
| 0 | not visible | 4 | visible | 100% | visible |

**B6. Address Signs**

| | | | | | |
|---|---|---|---|---|---|
| 6 | not visible | 90 | visible | 94% | visible |

**C1. Roofs**

| | | | | | |
|---|---|---|---|---|---|
| 9 | combust | 87 | not combust | 91% | not combust |

**C2. Siding**

| | | | | | |
|---|---|---|---|---|---|
| 2 | combust | 94 | not combust | 98% | not combust |

**C3. Unenclosed Structures on Lot**

| | | | | | |
|---|---|---|---|---|---|
| 20 | not enclosed | 76 | enclosed | 21% | not enclosed |

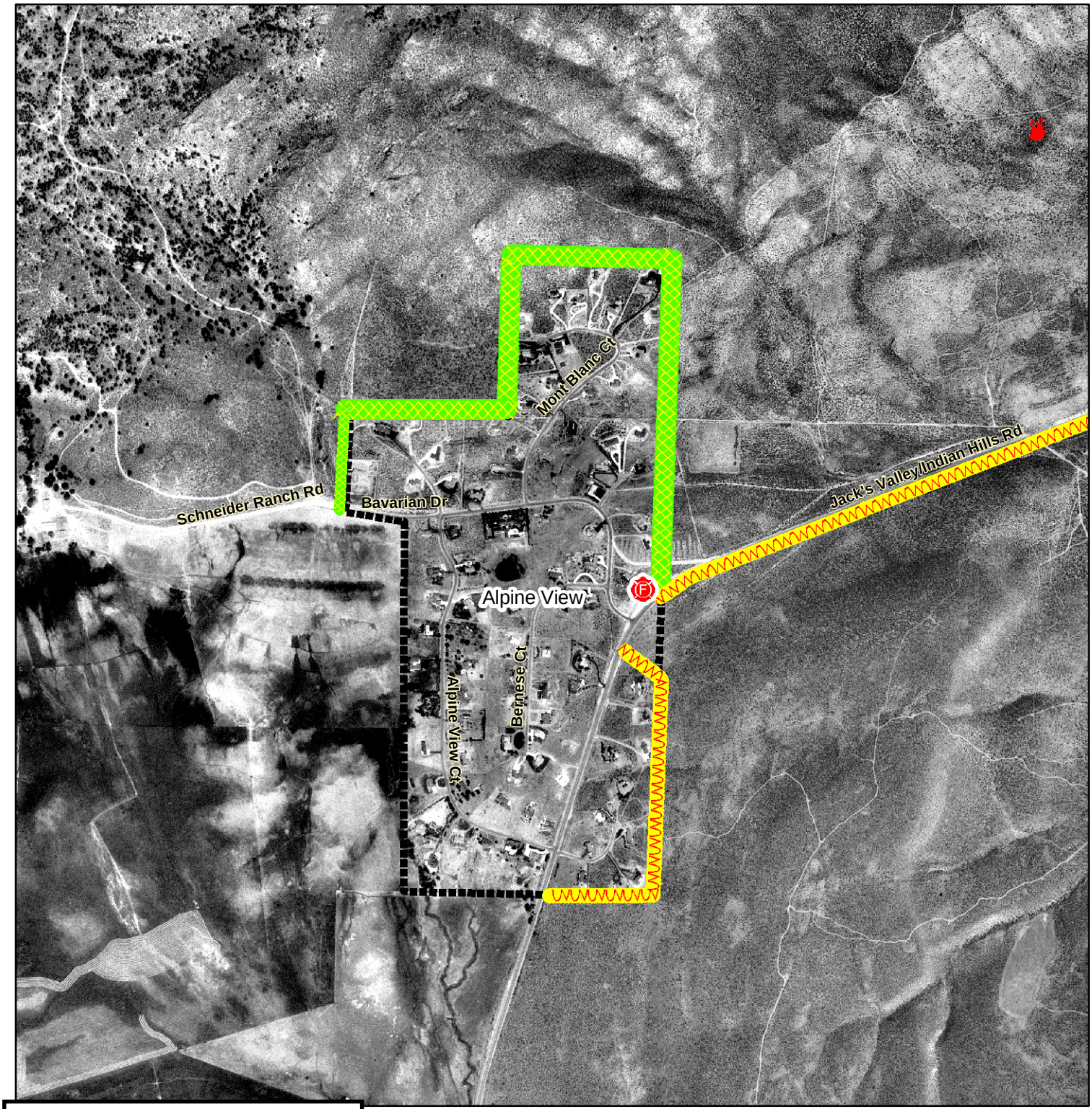
**D1. Lot Sizes**

| | | | | | |
|---|---|---|---|---|---|
| 0 | <1ac | 96 | >1ac <10ac | 0 | >10ac |

**D2. Defensible Space**

| | | | | | |
|---|---|---|---|---|---|
| 8 | not adequat | 88 | adequate | 92% | adequate |

**Score** **54** /128




**Legend**

- Community Boundary
- Existing 200'-400' Fuelbreak
- Existing 25' Fuelbreak
- Proposed 100'-200' Fuelbreak
- Fire Ignition
- Fire Station

Figure 5-1. Alpine View
Fire History, Suppression Resources
and Mitigation Projects

N
W E
S

0 500 1,000 2,000
Feet

Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600

***Nevada Community Wildfire Risk / Hazard Assessment Project***

# 6.0 BODIE FLATS

## 6.1 HAZARD AND RISK ASSESSMENT

The Bodie Flats community is located along US Highway 395, approximately 4.5 miles south of Gardnerville Nevada. The community is situated primarily on the eastern side of the highway and includes the Pine View Estates subdivision. On the west side of the highway the area called Carter's Station and approximately five homes on China Springs Road are also included in the community. The majority of the residences are located within the areas of Bodie Flat, Cedar Flat, and the canyon along US Highway 395. The major land ownership in the community consists of either private land or 99-year leases from the Washoe Tribe of Nevada and California. Approximately 160 residences were evaluated when the risk and hazard assessment was conducted for Bodie Flats. **The assessment resulted in classifying the Bodie Flats community in the Extreme Hazard category** (81 points). A summary of the factors that determine this hazard rating is included in Table 6-2. The primary hazard factors for the Bodie Flats area were limited signage on residences and residential streets, limited defensible space implementation, and high to extreme hazard fuels throughout a large portion of the community.

### *6.1.1 Community Design*

The Bodie Flats interface area is characterized as an intermix wildland-urban interface condition. Structures are scattered throughout the wildland area with no clear line of demarcation between wildland fuels and residences in the community. A majority of the homes assessed were on parcels of one acre or less and most structures are spaced close together (see Figure 6-1).

**Roads:** US Highway 395 is the primary road connecting the Bodie Flats community with other communities in Douglas County. Jolie Street is the primary entrance to the Pine View Estates. Jolie Street and Courtland Lane are the primary entrance and exit routes for residences in the Bodie Flats and Cedar Flats areas and are at least 20 feet wide. US Highway 395 is paved and at least 24 feet wide, adequate width for two-vehicle passage and fire suppression equipment to maneuver. South of the Pine View Estates, dead-end roads and driveways may limit the ability for fire suppression equipment to maneuver or turn around.

**Signage:** Street signs were present and visible along all streets in the Bodie Flats and Cedar Flat areas. A majority of street signs were either not present or not visible south of the Pine View Estates. Residential addresses were visible on approximately eighty percent of the homes surveyed. Clear and visible residential addresses and street signs are important to aid firefighting personnel in locating homes during low visibility conditions that may occur during a wildland fire.

**Utilities:** All utilities were noted to be above ground. Some power line corridors and propane tanks are in need of vegetation clearance. Reducing vegetation underneath and adjacent to power lines minimizes the possibility of power lines producing sparks during windstorms and starting fires in nearby vegetation.

### *6.1.2 Construction Materials*

A great majority of the homes in the community were built with fire-resistant siding and fire resistant composite roofing materials. Less than twenty percent of homes had unenclosed features such as porches, balconies, or decks that create drafts and provide areas where sparks and firebrands can be trapped, smolder, ignite, and rapidly spread fire to the home.

### *6.1.3 Defensible Space*

Approximately fifteen percent of the homes assessed have landscaping that meets the minimum defensible space requirement to help protect the home from damage or loss during a wildfire. In Bodie Flats the recommended minimum defensible space distance ranged between 100 and 200 feet depending upon slope.

### *6.1.4 Suppression Capabilities*

*Wildfire Protection Resources*

The Ruhenstroth Volunteer Fire Department (Station 10) of the East Fork Fire Protection District is responsible for wildfire and structure fire protection in Bodie Flats. At the time that interviews were conducted for this report the Ruhenstroth VFD reported eighteen members on its roster (East Fork Fire Protection District website). See Tables 4-2 and 4-3 for more information on the typical fire suppression response for first-alarm wildland-urban interface fires in Douglas County. Appendix E lists the type and number of fire suppression vehicles located at each EFFPD and Douglas County VFD station.

Because the Bodie Flats community is surrounded mostly by Indian allotment lands or public lands, the BLM/Interagency resources will respond to all wildland fire reports. The response will be initiated by the Sierra Front Interagency Dispatch Center.

*Water Sources and Infrastructure*

In the Pine View Estates subdivision, 500 gpm hydrants are available within 500 feet of structures. However, hydrants are not available in the rest of the Bodie Flats community, including the five residences on China Springs Road. The water system for Bodie Flats relies on a gravity system from a 120,000-gallon tank. The existing infrastructure for the water delivery system meets the 2000 Uniform Fire Code standards. Another nearby water source for Bodie Flats is a 50,000 gallon tank at Spring Valley/Double Springs, with a twenty minute turn-around distance.

### *6.1.5 Factors Affecting Fire Behavior*

Vegetation, dead and down fuels, and topographic features contribute to the potential fire hazard around wildland-urban interface communities. The fuel hazards were mapped for Bodie Flats and fuel hazard photos were taken to provide additional information for the vegetation type descriptions (see Figures 6-2 and 6-3).

The terrain in the northern portion of the community is generally flat with south and west facing slopes located north and east of the residences. The southern portion of the community is predominantly located on a steep southwest-facing canyon slope. Slopes range from flat at the northern end of the community to greater than forty percent at the

southern end. The predominant winds are from the south and southwest. There is a significant history of large fires and fire ignitions near the community.

The vegetative fuel density in the Bodie Flats community was generally classified as heavy with fuel loads ranging from one to ten tons per acre. The dominant vegetation types around Bodie Flats are sagebrush/perennial grass and pinyon/juniper. Fires in 1984 and 2000 burned the area southwest of the community and just into the north part of the community. Burned areas within the community are dominated by big sagebrush, Mormon tea, desert peach, rabbitbrush, and cheatgrass. The shrubs in these areas were one to two feet tall, widely spaced, and classified as a low fuel hazard.

In unburned areas the predominant vegetation was characterized by big sagebrush, Mormon tea, desert peach, currant, bitterbrush, rabbitbrush, and low sagebrush, with understory grass species including bottlebrush squirreltail, cheatgrass, basin wildrye, and Sandberg bluegrass. The density of the pinyon and juniper tree canopy varied from light to heavy. The fuel load was estimated between two and seven tons per acre. Where tree density is light, the fuel hazard was considered moderate and where the tree density was heavy, the fuel hazard was classified as extreme.

Vegetation in the southern portion of the community is similar to the unburned areas north of the community dominated by the same shrub, grass, and tree species. However as the elevation increases in the southern portion of the community the fuel density also increases. The fuel load ranged from five to ten tons per acre in this area and was classified as an extreme fuel hazard.

### *6.1.6 Fire Behavior and Worst Case Scenario*

The worst-case scenario for a major wildland fire in the Bodie Flats community would likely occur in the event of a fire starting near the south end of the community on a high hazard day with a dry lightning storm causing several other ignitions. Combined with a 25 mph or greater south wind, a fire could be pushed northward along the east side of US Highway 395 and into the homes interspersed with the dense sagebrush and pinyon/juniper vegetation. Extreme fire behavior could be exhibited due to moderate to steep south-facing slopes and high wind speed conditions. A fire under these conditions could burn from the south all the way through the Bodie Flats community and continue northward where it would threaten homes and lives in the Ruhenstroth community. The scenario would be worse if East Fork Fire and Paramedic Districts resources were unavailable due to assignment to an emergency situation elsewhere.

### *6.1.7 Ignition Risk Assessment*

Bodie Flats was given a high ignition risk rating due to high risks from lightning and power lines. A significant history of wildfire and fire ignitions exists on public lands and private lands surrounding the community. High ignition rates are likely due to the high fuel loads in and around the community, the tendency for lightning storms during the summer, and the number of people using the wildlands near Bodie Flats.

## 6.2 RISK AND HAZARD REDUCTION RECOMMENDATIONS

The Bodie Flats risk and hazard reduction recommendations focus on improving defensible space and promoting homeowner responsibilities. Other recommendations pertain to community coordination efforts that could be initiated to enhance the fire safe nature of the Bodie Flats community. Recommendations are detailed below.

### *6.2.1 Defensible Space Treatments*

Defensible space treatments are an essential first line of defense for residential structures. Significantly reducing or removing vegetation within a prescribed distance from structures (minimum of 100 feet to 200 feet depending upon slope) reduces fire intensity and improves firefighter and homeowner chances for successfully defending a structure against an oncoming wildfire.

*Property Owner Recommendations*

- Remove, reduce, and replace vegetation to create defensible space around homes according to the guidelines in Appendix D. This area should be kept:

  Lean – There are only small amounts of flammable vegetation,

  Clean – There is no accumulation of dead vegetation or other flammable debris,

  Green – Existing plants are healthy and green during the fire season.
- Remove debris and flammable materials from within the defensible space area.
- Store firewood a minimum distance of thirty feet from structures.
- Mow or remove brush for a distance of 25 feet along each side of wood or vinyl fences in the community.
- Cheatgrass or other annual grasses that have become dominant within the defensible space zone should be mowed or treated with an application of pre-emergent herbicide prior to seed set.[8] Treatments may need to be repeated the following year to ensure that the seed bank of unwanted grasses has been depleted. Refer to Appendix D for recommended seed mixes and planting guidelines that can be used in conjunction with removal of this annual grass.
- Maintain areas under wood decks and porches free of weeds and other flammable debris. Enclose these areas wherever possible.
- Clear all vegetation and combustible materials around propane tanks for a minimum of ten feet.
- Remove or properly board up abandoned trailers and mobile homes to prevent sparks from entering and igniting the structures.
- Install spark-arresting devices on chimneys.
- Thin pinyon and juniper trees in the defensible space area such that tree canopies are spaced a minimum distance of thirty feet from any other trees, shrubs, or residential structures. Limb branches of remaining pinyon and juniper trees within

[8] Extreme caution should be taken when using herbicides to completely follow all label instructions. Consult with University of Nevada Cooperative Extension specialists for assistance with appropriate herbicide products and application procedures.

the defensible space area a minimum of four feet from the ground, or no more than one-third of the tree height. Reduce the needle and cone duff from under the remaining trees to a depth no greater than one-inch.

- Irrigate all trees and shrubs in close proximity to structures to increase their fire resiliency, especially during drought conditions.
- Immediately dispose of cleared vegetation when implementing defensible space treatments. This material dries quickly and poses a fire hazard if left on site.
- Maintain this defensible space as needed to keep the space lean, clean, and green.

### *6.2.2 Fire Suppression Capabilities*

Coordination among local, state, and federal fire suppression agencies is important in the day-to-day fire prevention activities and becomes critical in the event of a wildland fire. During a fire event, firefighters from other communities and states may be dispatched to areas they have never been before. This is particularly true in areas like Bodie Flats, which may receive aid from outside fire suppression agencies in the event of a catastrophic wildland fire. The following recommendations related to actions homeowners can take to increase the quality of fire suppression response in their community.

*Property Owner Recommendation*

- Consider purchasing a fire retardant gel or foam product designed for homeowner use. These gels/foams can be applied to structures and vegetation to create an added layer of flame resistance in the event of a fire.

*Washoe Tribe Recommendation*

- Coordinate with Douglas County to increase street sign visibility and GPS location of roads for inclusion in the Douglas County GIS program databases.

*Douglas County Recommendation*

- Coordinate with the Washoe Tribe to increase street sign visibility and GPS location of roads for inclusion in the Douglas County GIS program databases.

### *6.2.3 Fuel Reduction Treatments*

Fuel reduction treatments are applied on a larger scale than defensible space treatments. By permanently changing the fuel structure over large blocks of land to one of a lower volume or reduced flammability (a fuel reduction treatment), the expected result in the event of a catastrophic wildfire would be one of reduced capacity for uncontrolled spread through the treatment area.

*Property Owner Recommendations*

- Remove shrubs within ten feet and pinyon and juniper trees within 25 feet from each side of private driveways longer than 200 feet. Flammable fuels should be replaced with fire-resistant species such as crested wheatgrass, irrigated deciduous shrubs, wildflowers, lawn, or by seeding with an appropriate pre-

suppression seed mix. Refer to Appendix D for recommended seed mixes and planting guidelines.

- Coordinate with the Bureau of Land Management to construct a shaded fuelbreak on the south side of the Bodie Flats community.

*Bureau of Land Management Recommendations*

- Construct and maintain a shaded fuelbreak at the south end of the Bodie Flats community in T.110N. R.21E. Section 15. The fuelbreak should be 200 feet in width on each side of the existing dirt road for approximately 2,500 feet. Shaded fuelbreak specifications include thinning trees such that canopies are spaced two times the distance of the height of the trees. Limb branches on remaining trees a minimum of four feet from the ground, or no more than one-third the height of the tree. Remove all shrubs within ten feet of all tree canopies. Increase the distance between shrubs such that canopies are spaced a distance twice the height of the shrubs.
- Coordinate with adjacent landowners to construct the proposed fuelbreak.

*Washoe Tribe Recommendations*

- Establish and promote a program for cleaning weeds and debris from around structures and fences, as well as reduce fuels on vacant lots in the Bodie Flats area.
- Coordinate with the Bureau of Land Management to construct a shaded fuelbreak on the south side of the Bodie Flats community.

*Douglas County, Nevada Department of Transportation, and Washoe Tribe Recommendation*

- In sagebrush areas, remove shrubs for a distance of 25-feet on each side of community roads. In areas where the vegetation is dominated by pinyon and juniper trees, remove trees and shrubs for a distance of 50-feet on each side of the community roads. Seed these fuel reduction areas with an appropriate pre-suppression seed mix. Refer to Appendix D for recommended seed mixes and planting guidelines.

*Utility Company Recommendation*

- Remove pinyon and juniper trees within fifteen feet of either side of power lines and poles throughout the Bodie Flats community.

### *6.2.4 Community Coordination*

Many of the most effective activities aimed at reducing the threat of wildfire for the Bodie Flats community require that individual property owners coordinate with each other and with local fire agencies. Defensible space, for example, is more effective in small communities when applied uniformly throughout entire neighborhoods. Public education and awareness, neighbors helping neighbors, and proactive individuals setting examples for others to follow are just a few of the approaches that will be necessary to meet the fire safe goals in the community. Disposal of biomass generated from defensible space and fuel reduction treatments can sometimes be most efficiently handled through community programs.

*Property Owner Recommendations*

- Assure that address signs are visible from the road. Address characters should be at least four inches high, reflective, and composed of non-flammable material. Improving visibility of addresses will make it easier for those unfamiliar with the area to navigate under smoky conditions during a wildland fire.
- Form a local chapter of the Nevada Fire Safe Council. The Nevada Fire Safe Council proposes to work on solutions that reduce the risk of loss of lives and property from wildfires in Nevada's communities. Through establishment of a local Chapter, communities become part of a large information-sharing network that receives notifications of programs and funding opportunities for fire mitigation projects such as those listed in this report. The Nevada Fire Safe Council will accept and manage grants and contracts on the Chapter's behalf through its non-profit status. The Nevada Fire Safe Council provides assistance and support to communities to complete fire safe plans, set priorities, educate and train community members, and promote success stories of its members. For more information on forming a chapter, contact:

  The Nevada Fire Safe Council
  1187 Charles Drive
  Reno, Nevada 89509
  www.nvfsc.org

*East Fork Fire and Paramedic District Recommendation*

- Distribute copies of the publication *"Living With Fire"* to all property owners who live in wildland-urban interface subdivisions in Bodie Flats. This publication is free of charge. Copies can be requested from the University of Nevada Cooperative Extension.

## 6.3 SUMMARY OF RECOMMENDATIONS

**Table 6-1. Bodie Flats Priority Recommendations to Reduce Wildfire Risks and Hazards**

| INVOLVED PARTY | RECOMMENDED TREATMENT | RECOMMENDATION DESCRIPTION |
|---|---|---|
| **Property Owners** | Defensible Space | Remove, reduce, and replace vegetation around homes according to the defensible space guidelines in Appendix D. |
| | Fire Suppression Capability | Consider purchasing a fire retardant gel or foam product designed for homeowner use. |
| | Fuels Reduction | Remove shrubs within ten feet and pinyon and juniper trees within 25 feet from each side of private driveways longer than 200 feet. |
| | Community Coordination | Assure that address signs are visible from the road. Address characters should be at least four inches high, reflective, and composed of non-flammable material.<br>Form a local chapter of the Nevada Fire Safe Council. |
| **Bureau of Land Management** | Fuels Reduction | Install a 200-foot wide shaded fuelbreak on each side of the existing dirt road at the south end of the Bodie Flats community (total width 400 feet). |
| **Washoe Tribe** | Fire Suppression Capability | Coordinate with Douglas County to increase street sign visibility and GPS location of roads for inclusion in the Douglas County GIS program databases. |
| | Fuels Reduction | Establish and promote a program for cleaning weeds and debris from around structures and fences, as well as reduce fuels on vacant lots in the Bodie Flats area.<br>Coordinate with the Bureau of Land Management to construct and maintain a shaded fuelbreak on the south side of the Bodie Flats community.<br>Remove pinyon and juniper trees within fifteen feet of either side of power lines and poles throughout the Bodie Flats community. |
| **Douglas County**<br>**Nevada Department of Transportation** | Fire Suppression Capability | Coordinate with the Washoe Tribe to increase street sign visibility and GPS location of roads for inclusion in the Douglas County GIS program databases. |
| | Fuels Reduction | Remove shrubs for a distance of 25-feet and trees for a distance of 50-feet on each side of community roads. |
| **Utility Company** | Fuels Reduction | Remove pinyon and juniper trees within fifteen feet of either side of power lines and poles throughout the Bodie Flats community. |
| **East Fork Fire and Paramedic Districts** | Fuels Reduction | Coordinate with the Bureau of Land Management to construct and maintain a shaded fuelbreak on the south side of the Bodie Flats community. |
| | Community Coordination | Distribute copies of the publication *"Living With Fire"* to all property owners. |

## Table 6-2 Bodie Flats Wildfire Hazard Rating Summary

**A. Urban Interface Condition** ***2***

**B. Community Design**

| | | |
|---|---|---|
| 1. Ingress / Egress | 1 | /5 |
| 2. Width of Road | 1 | /5 |
| 3. Accessibility | 1 | /3 |
| 4. Secondary Road | 1 | /5 |
| 5. Street Signs | 5 | /5 |
| 6. Address Signs | 3 | /5 |
| 7. Utilities | 3 | /5 |

**C. Construction Materials**

| | | |
|---|---|---|
| 1. Roofs | 1 | /10 |
| 2. Siding | 1 | /5 |
| 3. Unenclosed Structures | 3 | /5 |

**D. Defensible Space**

| | | |
|---|---|---|
| 1. Lot Size | 5 | /5 |
| 2. Defensible Space | 15 | /15 |

**F. Fire Behavior**

| | | |
|---|---|---|
| 1. Fuels | 5 | /5 |
| 2. Fire Behavior | 10 | /10 |
| 3. Slope | 7 | /10 |
| 4. Aspect | 7 | /10 |

**E. Suppression Capabilities**

| | | |
|---|---|---|
| 1. Water Source | 5 | /10 |
| 2. Department | 7 | /10 |

***TALLIES***

**164 Total Houses** **26 Residential Streets**

**B5. Street Signs**

8 not visible | 18 visible | 69% visible

**B6. Address Signs**

32 not visible | 132 visible | 80% visible

**C1. Roofs**

9 combust | 155 not combust | 95% not combust

**C2. Siding**

11 combust | 153 not combust | 93% not combust

**C3. Unenclosed Structures on Lot**

45 not enclosed | 119 enclosed | 27% not enclosed

**D1. Lot Sizes**

139 <1ac | 20 >1ac <10ac | 3 >10ac

**D2. Defensible Space**

125 not adequat | 39 adequate | 24% adequate

**Score** **81** /128

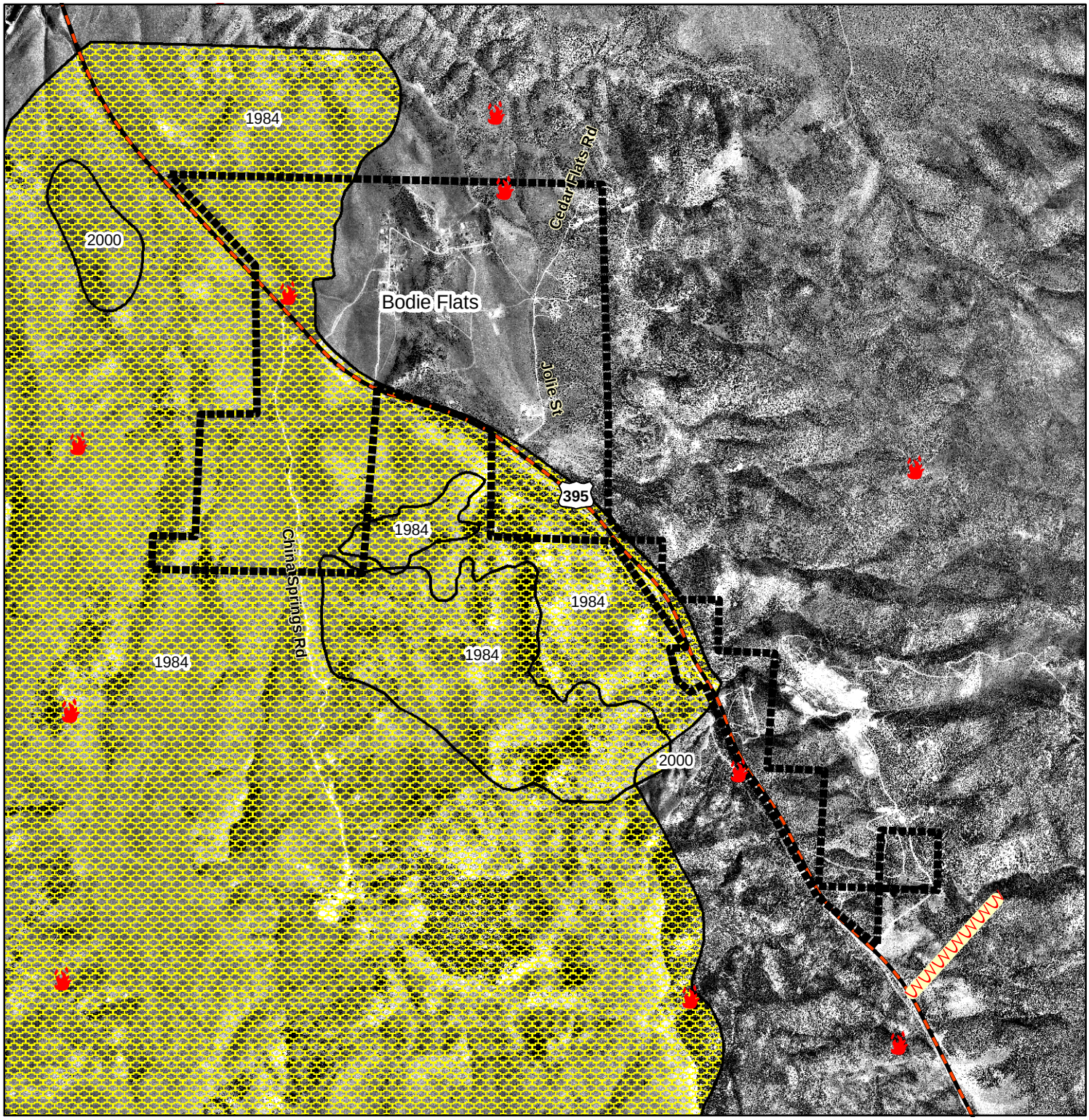



Figure 6-1. Bodie Flats
Fire History and Proposed Mitigation Projects

**Legend**

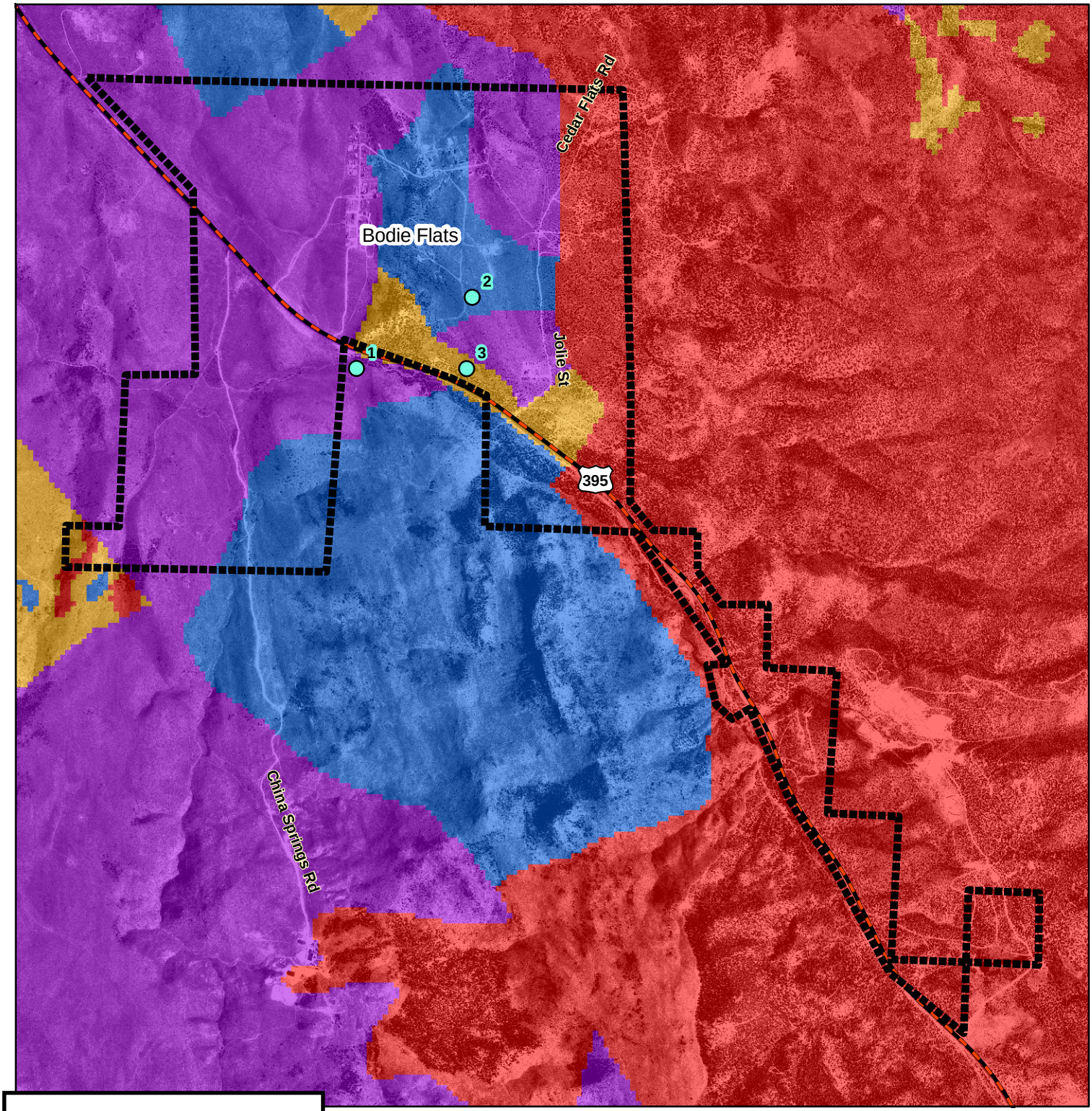
- Proposed Fuelbreak
- Community Boundary
- Fire Ignition
- Fire Boundary and Date
- Highways and State Routes

N
W E
S

0 1,000 2,000 4,000
Feet

Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600

***Nevada Community Wildfire Risk / Hazard Assessment Project***




**Legend**

- Community Boundary
- Highways and State Routes

**Fuel Hazard**

- Extreme
- High
- Moderate
- Low
- Photo Point

Figure 6-2. Bodie Flats
Fuel Hazard Classification

N
W E
S

0 0.25 0.5 1
Miles

Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600

***Nevada Community Wildfire Risk / Hazard Assessment Project***

**Figure 6-3. Bodie Flats Fuel Hazard Photo Points**

**Photo Point 1.** Bodie Flats Fuel Hazard Photo Point. 4303787N, 0269268E, 0°N. Three main fuel types were identified in the Bodie Flats community. Areas within previous burns are dominated by sagebrush and rabbitbrush. Fuel loads were estimated at one ton per acre and were classified as a low fuel hazard.

**Photo Point 2.** Bodie Flats Fuel Hazard Photo Point. 4304184N, 0269913E, 5°N. In unburned areas with low tree density, the dominant shrub species include big sagebrush, rabbitbrush, and Mormon tea. Bottlebrush squirreltail, Sandberg bluegrass, and cheatgrass are the primary grass species. Fuel loads were estimated at two tons per acre and the fuel hazard classified as moderate.

**Photo Point 3.** Bodie Flats Fuel Hazard Photo Point. 4303786N, 0269883E, 140°SE. Pinyon and juniper trees form a closed tree canopy in some of the unburned areas around the community. Where the tree canopy exists, dominant shrub species such as big sagebrush and rabbitbrush are present at lower densities. Fuel loads in this fuel type were estimated at four to seven tons per acre and were classified as an extreme fuel hazard as shown in the background of this photograph.

# 7.0 CHINA SPRINGS

## 7.1 HAZARD AND RISK ASSESSMENT

China Springs is located in central Douglas County, west of US Highway 395, and approximately seven miles south of Gardnerville, Nevada. The community is located along China Springs Road 2.3 miles south of US Highway 395. The China Springs Youth Camp is situated between several hills with different aspects. An average of sixty youth and adult workers live at the China Springs Youth Camp year-round. The Carson Valley Trap and Sporting Clay facility is located north of the Youth Camp along China Springs Road. **The risk and hazard assessment resulted in classifying China Springs in the High Hazard category** (66 points). A summary of the factors that determine this hazard rating is included in Table 7-2. The primary factors affecting the High Hazard score were limited ingress and egress to the community and the potential for hazardous fire behavior due to topography and fuel loads.

### *7.1.1 Community Design*

China Springs was characterized as a rural wildland-urban interface condition. The rural condition is described as scattered small clusters of structures exposed to wildland fuels, often with miles between the clusters (see Figure 7-1).

**Roads:** China Springs has one paved road in and out of the community, China Springs Road. This road is between twenty and 24 feet wide and has a road grade less than five percent. The limited ingress and egress to the community could limit fire suppression and evacuation activities during a wildland fire.

**Signage:** China Springs Road had visible street signs. Clear and visible residential addresses and street signs are important to aid firefighting personnel in locating homes during low visibility conditions that may occur during a wildland fire.

**Utilities:** Above ground electrical and above ground propane tanks were the primary utilities serving China Springs. The above ground power line was properly cleared of trees beneath the lines.

### *7.1.2 Construction Materials*

All of the structures in the community were built with heat or flame resistant siding materials, and all of the structures had fire resistant roofing materials such as steel or composition roofing.

### *7.1.3 Defensible Space*

Most of the facilities at the Youth Camp had adequate defensible space, except for the girl's dormitory.

### *7.1.4 Suppression Capabilities*

*Wildfire Protection Resources*

The Ruhenstroth Volunteer Fire Department (Station 10) of the East Fork Fire Protection District provides wildfire and structure fire protection for China Springs. At the time of the assessment, the Ruhenstroth VFD listed eighteen volunteers on its roster (East Fork Fire Protection District website). See Tables 4-2 and 4-3 for more information on the typical fire suppression response for first-alarm wildland-urban interface fires in Douglas County. Appendix E lists the type and number of fire suppression vehicles located at each EFFPD and Douglas County VFD station.

*Water Sources and Infrastructure*

Water availability for fire suppression in China Springs includes gravity fed hydrants within 500 feet of structures in the China Springs Youth Camp. There is an emergency generator on site for the well that supplies a 50,000-gallon tank. There are possible helicopter dip sites at the Carson River, northwest of the community.

### *7.1.5 Factors Affecting Fire Behavior*

Vegetation, dead and down fuels, and topographic features contribute to the potential fire hazard around wildland-urban interface communities. The fuel hazards were mapped for China Springs, and fuel hazard photos were taken to provide additional information for the vegetation type descriptions (see Figures 7-2 and 7-3).

China Springs is situated amongst hills with all aspects. Slopes vary from five to thirty percent and the predominant wind directions are from the south and west.

Three major fuel types were identified near the China Springs community including cheatgrass burned areas, unburned pinyon/juniper, and unburned sagebrush/rabbitbrush. The Indian Creek II fire in 1984 decreased the fuel density compared to the unburned areas. The dominant species in the burned areas includes big sagebrush, rabbitbrush, bitterbrush, bottlebrush squirreltail, crested wheatgrass, and cheatgrass. Occasional pinyon and juniper trees were noted to be scattered throughout the burn. The fuel hazard was classified as low and the fuel load was estimated at less than one ton per acre.

Closed-canopy singleleaf pinyon and Utah juniper trees with a sparse understory of big sagebrush, bitterbrush, bottlebrush squirreltail, and cheatgrass characterize unburned islands of vegetation around the Youth Camp. The fuel density was heavy in the area surrounding the residences, estimated at ten to twenty tons per acre and was rated an extreme fuel hazard.

Unburned sagebrush areas include big sagebrush, low sagebrush, bitterbrush, rabbitbrush, and horsebrush. Shrubs were generally six inches to two feet tall and spaced one to three feet apart. Dominant grass species include bottlebrush squirreltail, Indian ricegrass, Sandberg bluegrass, and Thurber's needlegrass. The fuel load was estimated to be two to three tons per acre and considered a moderate fuel hazard.

### *7.1.6 Fire Behavior Worst Case Scenario*

The worst-case scenario for China Springs would likely occur in late afternoon on a high hazard day during a dry lightning storm with numerous ignitions in the hills surrounding the facility. An ignition southeast of the community could rapidly spread through the dense pockets of unburned pinyon and juniper vegetation to the Youth Camp. Downslope and erratic winds from the east or southeast would exacerbate the situation. The scenario would be worse if mutual aid resources were unavailable due to assignment of an emergency situation elsewhere. If a wildfire were to block China Springs Road, evacuation and fire suppression could be greatly inhibited.

### *7.1.7 Ignition Risk Assessment*

China Springs has a high ignition risk rating due in part to the large number of fire ignitions that have occurred in the last twenty years around the community. There is an extensive fire history for the community and adjacent areas (see Figure 3-2).

## 7.2 RISK AND HAZARD REDUCTION RECOMMENDATIONS

The China Springs risk and hazard reduction recommendations address the primary concern regarding protection of existing and future development in the wildland-urban interface area. Other recommendations pertain to community coordination and public education efforts that could be undertaken to enhance fire safety in China Springs.

### *7.2.1 Defensible Space Treatments*

Defensible space treatments are an essential first line of defense for residential structures. Significantly reducing or removing vegetation within a prescribed distance from structures (minimum of 100 to 200 feet depending upon slope) reduces fire intensity and improves firefighter and homeowner chances for successfully defending a structure against an oncoming wildfire.

*China Springs Youth Camp Nevada State Lands Division Recommendation*

- Remove, reduce, and replace vegetation around Youth Camp structures according to the guidelines in Appendix D. This area should be kept:

  Lean – There are only small amounts of flammable vegetation,

  Clean – There is no accumulation of dead vegetation or other flammable debris,

  Green – Existing plants are healthy and green during the fire season.

### *7.2.2 Fuel Reduction Treatments*

Fuel reduction treatments are applied on a larger scale than defensible space treatments. By permanently changing the fuel structure over large blocks of land to one of lower volume or reduced flammability (a fuel reduction treatment), the expected result in the event of a catastrophic wildfire would be one of reduced capacity for uncontrolled spread through the treatment area.

*China Springs Youth Camp Nevada State Lands Division Recommendation*

- Construct and maintain a 200-foot wide fuelbreak south of the girl's dormitory at the China Springs Youth Camp for a distance of 500 feet. Thin pinyon and juniper trees to a maximum density of 25 trees per acre. Limb branches of remaining trees six feet from the ground or no more than one-third the height of the tree. Remove all shrubs within ten feet of tree canopies and thin brush such that canopies are spaced twice the height of the shrubs (see Figure 7-1).

## 7.3 SUMMARY OF RECOMMENDATIONS

**Table 7-1. China Springs Priority Recommendations to Reduce Wildfire Risks and Hazards**

| INVOLVED PARTY | RECOMMENDED TREATMENT | RECOMMENDATION DESCRIPTION |
|---|---|---|
| **China Springs Youth Camp** | Defensible Space | Remove, reduce, and replace vegetation around structures according to the defensible space guidelines in Appendix D. |
| **Nevada Division of State Lands** | Fuels Reduction | Construct and maintain a 200-foot wide fuelbreak south of the girl's dormitory at the China Springs Youth Camp for a distance of 500 feet. |

## Table 7-2 China Springs Wildfire Hazard Rating Summary

**A. Urban Interface Condition** ***4***

**B. Community Design**

| | | |
|---|---|---|
| 1. Ingress / Egress | 5 | /5 |
| 2. Width of Road | 3 | /5 |
| 3. Accessibility | 1 | /3 |
| 4. Secondary Road | 3 | /5 |
| 5. Street Signs | 1 | /5 |
| 6. Address Signs | 5 | /5 |
| 7. Utilities | 1 | /5 |

**C. Construction Materials**

| | | |
|---|---|---|
| 1. Roofs | 1 | /10 |
| 2. Siding | 1 | /5 |
| 3. Unenclosed Structures | 1 | /5 |

**D. Defensible Space**

| | | |
|---|---|---|
| 1. Lot Size | 5 | /5 |
| 2. Defensible Space | 1 | /15 |

**F. Fire Behavior**

| | | |
|---|---|---|
| 1. Fuels | 3 | /5 |
| 2. Fire Behavior | 7 | /10 |
| 3. Slope | 10 | /10 |
| 4. Aspect | 7 | /10 |

**E. Suppression Capabilities**

| | | |
|---|---|---|
| 1. Water Source | 1 | /10 |
| 2. Department | 10 | /10 |

***TALLIES***

**7 Total Houses** **1 Residential Streets**

**B5. Street Signs**

0 not visible | 1 visible | 100% visible

**B6. Address Signs**

6 not visible | 1 visible | 14% visible

**C1. Roofs**

0 combust | 7 not combust | 100% not combust

**C2. Siding**

0 combust | 7 not combust | 100% not combust

**C3. Unenclosed Structures on Lot**

1 not enclosed | 6 enclosed | 14% not enclosed

**D1. Lot Sizes**

7 <1ac | 0 >1ac <10ac | 0 >10ac

**D2. Defensible Space**

1 not adequat | 6 adequate | 86% adequate

**Score** **66** /128

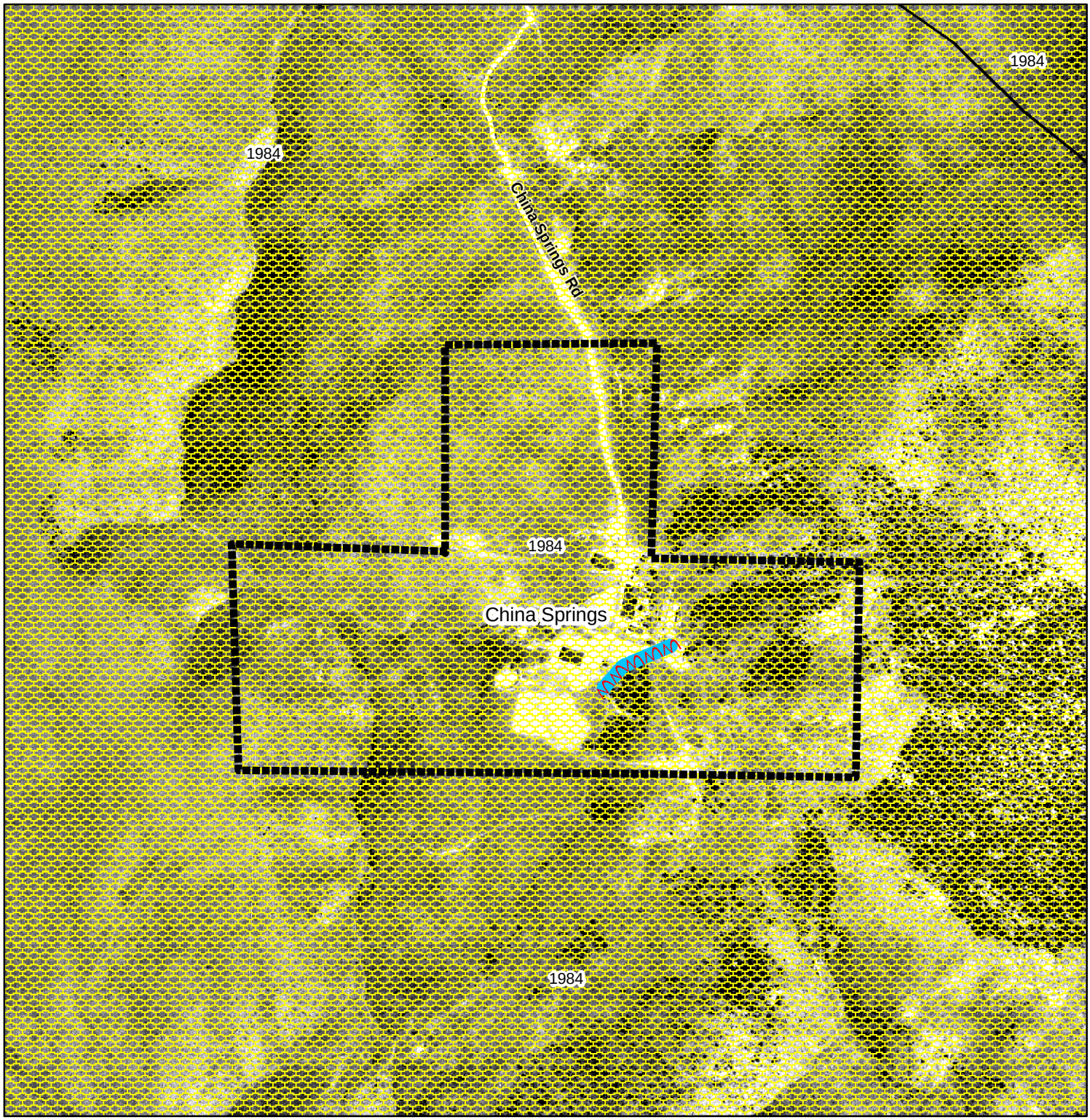



Figure 7-1. China Springs
Fire History and Proposed Mitigation Projects

N
W E
S

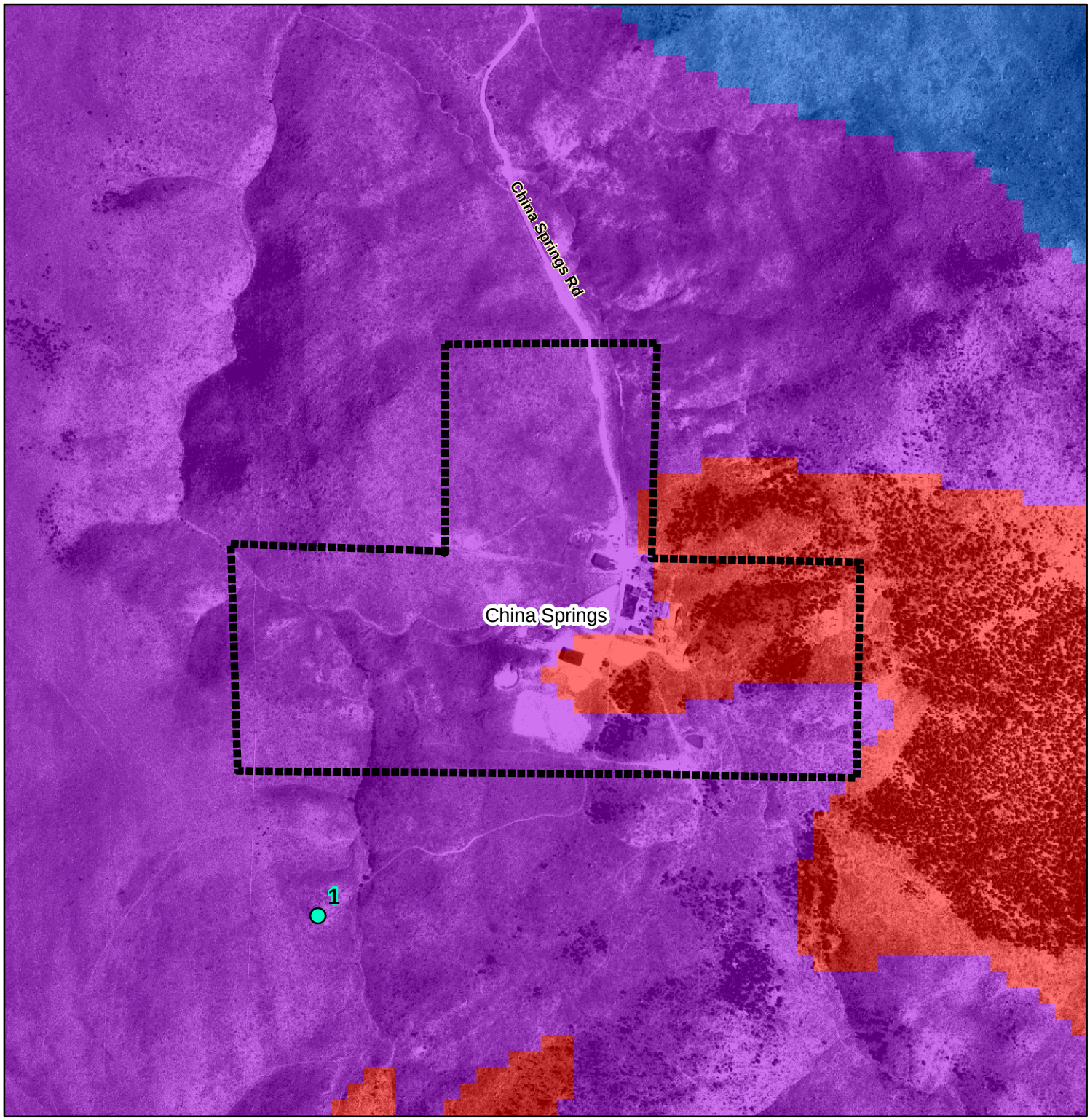
**Legend**

- Proposed Fuelbreak
- Community Boundary
- Fire Boundary and Date

0 500 1,000 2,000
Feet

Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600

***Nevada Community Wildfire Risk / Hazard Assessment Project***




**Legend**

- Community Boundary

**Fuel Hazard**

- Extreme
- High
- Moderate
- Low
- Photo Point

Figure 7-2. China Springs
Fuel Hazard Classification

N
W E
S

0 500 1,000 2,000
Feet

Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600

***Nevada Community Wildfire Risk / Hazard Assessment Project***

**Figure 7-3. China Springs Fuel Hazard Photo Points**

**Photo Point 1.** China Springs Fuel Hazard Photo Point. 4299927N, 02688430E, 75°NE. The three predominant vegetation types around China Springs includes sagebrush, pinyon and juniper, and one burned area dominated by sagebrush and cheatgrass. Fuel loads in the burned sagebrush areas are less than one ton per acre and considered a low fuel hazard. Fuel loads in the unburned sagebrush were estimated to be between two and three tons per acre and considered to be a moderate fuel hazard. Fuel loads in the pinyon and juniper areas range between ten and twenty tons per acre and are considered an extreme fuel hazard.

# 8.0 DRESSLERVILLE COLONY

## 8.1 SWCA HAZARD AND RISK ASSESSMENT

In 2002, SWCA Environmental Consultants completed an assessment entitled "Wildfire Hazard Assessment and Mitigation Plan for the Dresslerville Colony, Washoe Tribe of Nevada and California," on behalf of the Bureau of Indian Affairs, Western Nevada Agency. The pertinent information for this report is summarized from the SWCA Dresslerville assessment.

The 795-acre Dresslerville Colony is located along US Highway 395, approximately one mile south of Gardnerville and is bordered by the Gardnerville Ranchos community to the west. The Colony is situated on the west side of the highway and is dissected by the east fork of the Carson River. This assessment included 144 single-family residences in the Dresslerville Colony. **The assessment resulted in classifying the Dresslerville Colony in the Moderate Hazard category** (adapted from the Wildfire Hazard Assessment and Mitigation Plan for the Dresslerville Colony, Washoe Tribe of Nevada and California, January 2003). The primary hazard factors for the Dresslerville Colony were limited address signage on residences and residential streets in addition to limited defensible space implementation throughout the community.

### *8.1.1 Community Design*

The Dresslerville Colony demonstrated the characteristics of the classic wildland-urban interface condition. In many areas, subdivisions border wildland fuels with a clear line of demarcation between the fuels and the residences. A majority of the homes assessed were on parcels of one acre or less. As such, most structures are spaced close together (see Figure 8-1).

**Roads:** Dresslerville (Wat`sheamu) and Washoe (Memdewee) Roads are the primary roads connecting the Dresslerville Colony with other communities in Douglas County.

**Utilities:** Power lines in the Dresslerville Colony were noted to be above ground. Reducing vegetation underneath and adjacent to power lines minimizes the possibility of power lines producing sparks during windstorms and starting fires in nearby vegetation.

### *8.1.2 Construction Materials*

Residences in the community were built with class C rated wood siding, which burns in less than twenty minutes. Most homes were updated with Class B roofing material in 1995. None of the homes observed had unenclosed balconies, porches, decks, or other architectural features that create drafts and provide areas where sparks and firebrands can be trapped, smolder, ignite, and rapidly spread fire to the home.

### *8.1.3 Defensible Space*

Approximately 86 percent of the homes assessed had landscaping that meets the minimum defensible space requirement to help protect the home from damage or loss during a wildfire. In the Dresslerville Colony the recommended minimum defensible space distance ranged between thirty and 100 feet depending upon vegetation type.

### *8.1.4 Suppression Capabilities*

*Wildfire Protection Resources*

The Gardnerville Ranchos Volunteer Fire Department, East Fork Fire and Paramedic Districts Station 7 (combination career-volunteer), and the Bureau of Land Management Carson Field Office provide structure and wildland fire protection to the Dresslerville Colony. Station 7 responded to over 500 calls in 2003. The Gardnerville Ranchos VFD reported thirty volunteers at the time of the assessment (East Fork Fire Protection District website). See Tables 4-2 and 4-3 for more information on the typical fire suppression response for first-alarm wildland-urban interface fires in Douglas County. Appendix E lists the type and number of fire suppression vehicles located at each EFFPD career staffed and VFD station.

*Water Sources and Infrastructure*

Hydrants are available within 500 feet of residences in the northern section of the Colony, where most of the homes are located. The Carson River is a possible helicopter dip spot.

### *8.1.5 Factors Affecting Fire Behavior*

Vegetation, dead and down fuels, and topographic features contribute to the potential fire hazard around wildland-urban interface communities. The terrain throughout the Colony is flat as it is situated on the Carson River floodplain. The predominant winds are from the west. There is a history of wildfire near the community as evidenced by a 1984 fire that burned within one mile southeast of structures in the Colony.

Three predominant vegetation types were identified in the community including sagebrush/annual grass scrub, native riparian, and irrigated agriculture. The dominant shrub species in the sagebrush/annual grass type are sagebrush, rabbitbrush, and bitterbrush with a grass understory of cheatgrass, Indian ricegrass, needlegrass, and Sandberg bluegrass. The shrubs generally ranged between one and three feet in height and the fuel hazard in these areas was considered moderate.

The predominant species in the riparian vegetation type include willow, cottonwood, and sedges. The fuel type was considered a low fuel hazard. The irrigated agricultural lands were either alfalfa or pasture grasses. Due to the annual (or more frequent) harvest of the vegetation and the irrigated, fire-resistant, qualities of the vegetation these lands were rated as a low fuel hazard.

### *8.1.6 Previous Fire Hazard Reduction Projects*

In 2004, the Washoe Tribe Environmental Protection Department constructed a twenty to thirty-foot wide fuelbreak south of the main cluster of homes in the Dresslerville community.

The fuelbreak was constructed by mowing sagebrush to a six-inch height along the Washoe Tribe property boundary.

### *8.1.7 Fire Behavior and Worst Case Scenario*

The RCI Project Team described a worst-case scenario for the Dresslerville Colony as an event that would likely occur with a fire starting south of the main cluster of residences on a high hazard day. With strong winds, 25 mph or greater from the south or southwest, a fire could quickly burn through the moderate hazard sagebrush vegetation and threaten homes. The scenario would be worse if East Fork Fire and Paramedic Districts resources were unavailable due to assignment to an emergency situation elsewhere.

### *8.1.8 Ignition Risk Assessment*

Dresslerville has a low potential for ignition based on the number of ignitions and fire history for the area. Ditch burning and large equipment have been the primary human-caused ignition risks near the community.

## 8.2 SWCA RISK AND HAZARD REDUCTION RECOMMENDATIONS

Risk and hazard reduction recommendations developed by SWCA for the Dresslerville community focus on improving defensible space and promoting homeowner responsibilities. Other recommendations pertain to community coordination efforts that could be initiated to enhance the fire safe nature of the Dresslerville Colony. The RCI Project Team concurred with these recommendations.

### *8.2.1 Defensible Space*

*Property Owner Recommendation*

- Implement defensible space to a minimum distance of 70 feet for 16 structures in the community.

### *8.2.2 Community Coordination*

*Washoe Tribe and Property Owner Recommendation*

- Clearly identify all streets with signs that have reflective letters four inches in height. Clearly mark all residences with the appropriate address.

*Washoe Tribe Recommendations*

- Widen Dula'Uk Way to 24 feet and resurface with an aggregate or pave.
- Improve a 0.25 length of road from Pellow Drive to Memdewee Run.

### *8.2.3 Fuel Reduction Treatments*

*Bureau of Indian Affairs, Washoe Tribe, and Property Owner Recommendations*

- Construct and maintain a 200-foot wide and 2.5 mile long fuelbreak [greenstrip] around the western, southern, and northern perimeters of the community. The

specifications include removing all vegetation down to bare soil and seeding with perennial native grasses. Recommended seed mixtures and planting guidelines are provided in Appendix D.

## 8.3 RCI Risk and Hazard Reduction Recommendations

### *8.3.1 Fuel Reduction Treatments*

*Utility Company Recommendation*

- Remove shrubs within fifteen feet of power poles and trim tree limbs within fifteen feet of power lines throughout the Dresslerville Colony.

*Washoe Tribe Recommendation*

- Remove or mow vegetation within ten feet of fire hydrants throughout the Dresslerville Colony.

### *8.3.2 Community Coordination*

*Washoe Tribe Recommendation*

- Form a local chapter of the Nevada Fire Safe Council. The Nevada Fire Safe Council proposes to work on solutions that reduce the risk of loss of lives and property from wildfires in Nevada's communities. Through establishment of a local Chapter, communities become part of a large information-sharing network that receives notifications of programs and funding opportunities for fire mitigation projects such as those listed in this report. The Nevada Fire Safe Council will accept and manage grants and contracts on the Chapter's behalf through its non-profit status. The Nevada Fire Safe Council provides assistance and support to communities to complete fire safe plans, set priorities, educate and train community members, and promote success stories of its members. For more information on forming a chapter, contact:

  The Nevada Fire Safe Council
  1187 Charles Drive
  Reno, Nevada 89509
  www.nvfsc.org

*East Fork Fire and Paramedic Districts and Washoe Tribe Recommendations*

- Distribute copies of the publication *"Living With Fire"* to all homeowners in the Dresslerville Colony. This publication is free of charge. Copies can be requested from the University of Nevada Cooperative Extension.

## 8.4 SUMMARY OF RECOMMENDATIONS

**Table 8-1. SWCA Dresslerville Priority Recommendations to Reduce Wildfire Risks and Hazards**

| INVOLVED PARTY | RECOMMENDED TREATMENT | RECOMMENDATION DESCRIPTION |
|---|---|---|
| **Property Owners** | Defensible Space | Remove, reduce, and replace vegetation around homes to create a minimum of seventy feet of defensible space. |
| | Community Coordination | Clearly identify all streets with signs that have reflective letters four inches in height. Clearly mark all residences with the appropriate address. |
| | Fuels Reduction | Cooperate with the Washoe Tribe and BIA to construct and maintain a 200-foot wide and 2.5 mile long fuelbreak. |
| **Washoe Tribe** | Community Coordination | Clearly identify all streets with signs having letters four inches in height and reflective. Clearly mark all residences with the appropriate address.<br>Widen Dula'Uk Way to 24 feet and resurface with an aggregate or pave.<br>Improve a 0.25 length of road from Pellow Drive to Memdewee Run. |
| | Fuels Reduction | Construct and maintain a 200-foot wide and 2.5 mile long fuelbreak around the western, southern, and northern perimeters of the community. |
| **Bureau of Indian Affairs** | Fuels Reduction | Construct and maintain a 200-foot wide and 2.5 mile long fuelbreak around the western, southern, and northern perimeters of the community. |

**Table 8-2. RCI Dresslerville Priority Recommendations to Reduce Wildfire Risks and Hazards**

| INVOLVED PARTY | RECOMMENDED TREATMENT | RECOMMENDATION DESCRIPTION |
|---|---|---|
| **Washoe Tribe** | Fuels Reduction | Remove or mow vegetation within ten feet of fire hydrants throughout the Dresslerville Colony. |
| | Community Coordination | Form a local chapter of the Nevada Fire Safe Council.<br>Cooperate with EFFPD to distribute copies of the publication *"Living With Fire"* to all homeowners. |
| **Utility Company** | Fuels Reduction | Remove shrubs within fifteen feet of power poles and trim tree limbs within fifteen feet of power lines throughout the Dresslerville Colony. |
| **East Fork Fire and Paramedic Districts** | Community Coordination | Distribute copies of the publication *"Living With Fire"* to all homeowners. |

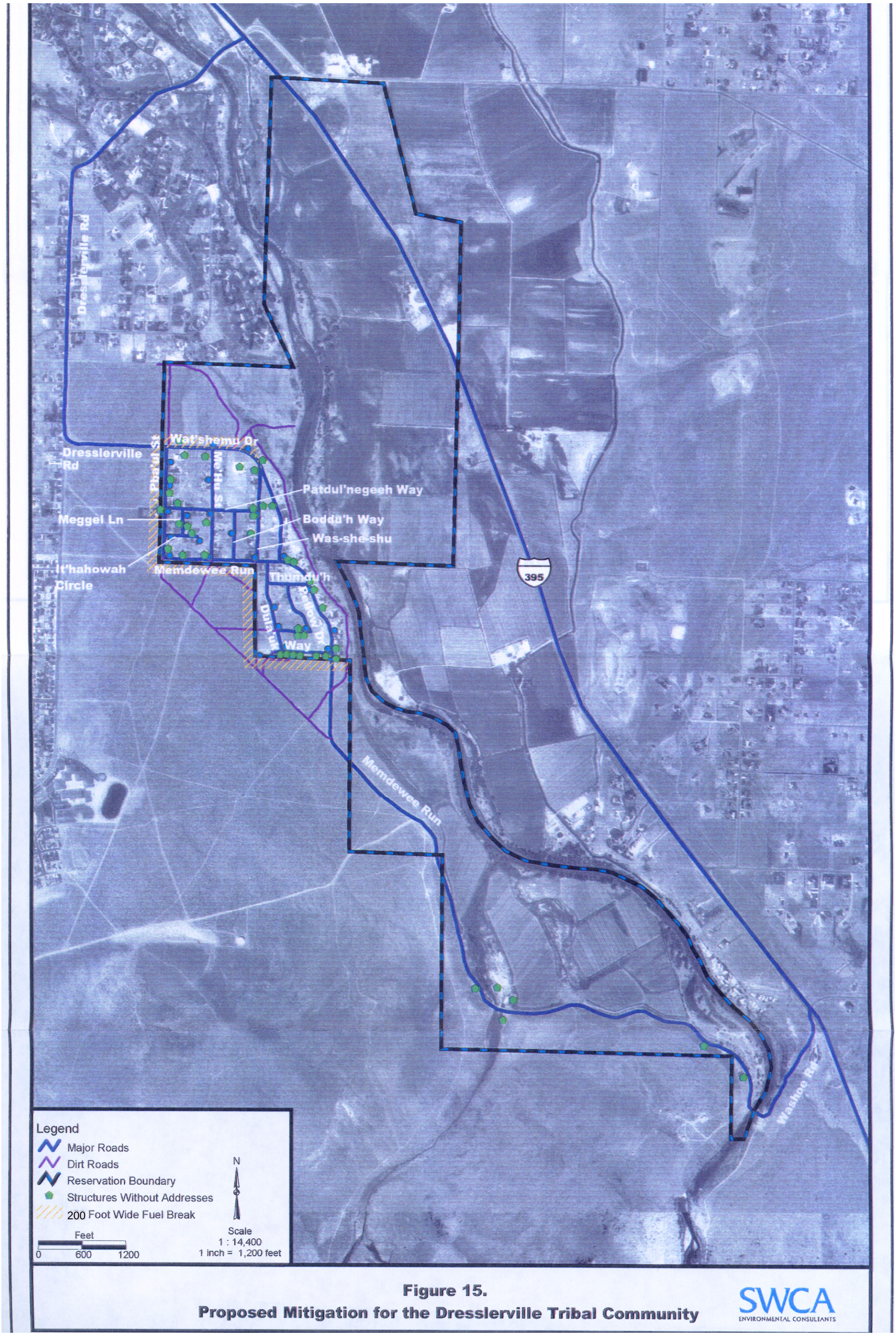



Figure 8-1. Dresslerville SWCA
Proposed Mitigation Project

# 9.0 EAST VALLEY

## 9.1 HAZARD AND RISK ASSESSMENT

The East Valley community is located in central Douglas County between the communities of Gardnerville and Fish Springs. The community is situated on a west-facing alluvial fan and benches above the agricultural lands and floodplain. The majority of homes in the area are relatively new and additional development is currently occurring in the community. The community is bordered by public lands to the north and east and by agricultural lands to the west. Approximately 500 homes were observed in the community during the assessment. **The hazard assessment resulted in classifying East Valley in the Low Hazard category** (38 points). A summary of the factors that determine this hazard rating is included in Table 9-2. The primary hazard factor for the East Valley community was the larger lot sizes with continuous expanses of vegetation between homes.

### *9.1.1 Community Design*

The East Valley interface area is characterized as an intermix wildland-urban interface condition. Structures are scattered throughout the wildland area with no clear line of demarcation between wildland fuels and residences in the community. The majority of lots assessed were on parcels between one and ten acres (see Figure 9-1).

**Roads:** Toler Avenue, East Valley Road, and Fish Springs Road are the primary roads providing access between the East Valley community and other communities in Douglas County. The roads are paved and are between twenty and 24 feet in width and provide adequate access for fire suppression vehicles. Most of the secondary community roads have adequate turn around space for fire suppression equipment, and the majority of community roads have less than a five percent gradient.

**Signage:** Street names were adequately identified with reflective lettering. Residential addresses were visible on most of the homes assessed. Clear and visible residential addresses are important to aid firefighting personnel in locating homes during low visibility conditions that occur during a wildland fire.

**Utilities:** Both overhead and underground power lines are present within the community. Power line right-of-ways were properly maintained, which minimizes the possibility of power lines sparking during windstorms and starting fires in nearby vegetation.

### *9.1.2 Construction Materials*

Approximately eight percent of the homes assessed have wood shake roofing materials. The remainder of the homes observed were built with fire resistant siding materials and non-combustible roofing materials such as metal, tile, or asphalt composite materials. About ten percent of the homes observed have unenclosed balconies, porches, decks, or other architectural features that create drafts and provide areas where sparks and firebrands can be trapped, smolder, ignite, and rapidly spread fire to the home.

.

### *9.1.3 Defensible Space*

A majority of the homes in the interface had landscaping that would meet the minimum defensible space requirement to help protect the home from damage or loss during a wildfire.

### *9.1.4 Suppression Capabilities*

*Wildfire Protection Resources*

East Valley is provided wildland and structure fire protection by the Fish Springs Volunteer Fire Department (Station 9) and the Gardnerville Volunteer Fire Department (Station 2) of the East Fork Fire and Paramedic Districts. See Tables 4-2 and 4-3 for more information on the typical fire suppression response for first-alarm wildland-urban interface fires in Douglas County. Appendix E lists the type and number of fire suppression vehicles located at each EFFPD career staffed and VFD station.

*Water Sources and Infrastructure*

Water availability for fire suppression in East Valley includes two 50,000-gallon tanks equipped with a gravity fed hydrant. There is also a 240,000 gallon static fill tank located on Jo Lane that can be used as a drafting source (Blackbull Wildfire Services 2004a). There is no emergency generator for the pumps on the wells that fill the tanks. There are no hydrants available for structure protection in the community. The Carson River and various reservoirs throughout the community may be used for helicopter dip sites.

### *9.1.5 Factors Affecting Fire Behavior*

Vegetation, dead and down fuels, and topographic features contribute to the potential fire hazard around wildland-urban interface communities. The terrain around East Valley is generally flat with slopes less than eight percent. The community is situated partially on west facing alluvial fans and floodplain.

The vegetative fuel density in the East Valley community was moderate, estimated at two to four tons per acre. Fuels in the community consisted primarily of sagebrush and horsebrush, with a cheatgrass, bottlebrush squirreltail, mustard, and Russian thistle understory. Typical shrub heights ranged between one and three feet. The fire behavior potential in East Valley was determined to be moderate due to the moderate fuel hazard combined with flat terrain and high wind exposure. Fire ignitions have occurred within the vicinity of the community from both human and lightning causes. The predominant wind direction is from the south/southwest especially in the late afternoon.

### *9.1.6 Fire Behavior Worst Case Scenario*

The worst-case scenario for East Valley would likely occur in the event of a lightning or human-caused ignition within the community. With south or southwest winds exceeding 25 miles per hour, a fire could rapidly spread through tall brush fuels (one to three feet high) and quickly threaten structures. Extensive wood fencing throughout the community would contribute to the potential fuel load. The vinyl fencing investments throughout the community would be at risk of destruction should a wildfire occur in the community. The

scenario would be worse if EFFPD resources were unavailable due to previous assignment to an emergency situation elsewhere.

### *9.1.7 Ignition Risk Assessment*

East Valley has been rated with a moderate ignition risk. While there is an ignition history reported for the area (Figure 9-1), there is no significant wildfire history in the immediately adjacent area, possibly due to the low to moderate fuel hazards. Ditch burning is another human-caused ignition risk that occurs near the community.

## 9.2 RISK AND HAZARD REDUCTION RECOMMENDATIONS

The East Valley risk and hazard reduction recommendations address the primary concern regarding protection of existing and future development in the wildland-urban interface area. Other recommendations pertain to community coordination and public education efforts that could be undertaken to enhance fire safety in East Valley.

### *9.2.1 Defensible Space Treatments*

Defensible space treatments are an essential first line of defense for residential structures. Significantly reducing or removing vegetation within a prescribed distance from structures (100 to 200 feet depending on slope and vegetation type) reduces fire intensity and improves firefighter and homeowner chances for successfully defending a structure against an oncoming wildfire.

*Property Owner Recommendations*

- Remove, reduce, and replace vegetation around homes according to the guidelines in Appendix D. This area should be kept:

  Lean – There are only small amounts of flammable vegetation,

  Clean – There is no accumulation of dead vegetation or other flammable debris,

  Green – Existing plants are healthy and green during the fire season.

- Remove debris and flammable materials from within the defensible space area.
- Cheatgrass or other annual grasses that have become dominant within the defensible space zone should be mowed or treated with an application of pre-emergent herbicide prior to seed set.[9] Treatments may need to be repeated the following year to ensure that the seed bank of unwanted grasses has been depleted. Refer to Appendix D for approved seed mixes and planting guidelines that can be used in conjunction with removal of this annual grass.
- Store firewood a minimum distance of thirty feet from structures.
- Maintain areas under wood decks and porches free of weeds and other flammable debris. Enclose these areas wherever possible.

[9] Extreme caution should be taken when using herbicides to completely follow all label instructions. Consult with University of Nevada Cooperative Extension specialists for assistance with appropriate herbicide products and application procedures.

- Remove shrubs within 25 feet and cheatgrass within ten feet of wood and vinyl fences throughout the community. Either maintain this area free of weeds and annual vegetation or plant fire resistant grass and forb species referenced in Appendix D.
- Install spark-arresting screens on chimneys.
- Annually remove vegetation and debris along irrigation ditches to reduce the fuel load.
- Immediately dispose of cleared vegetation when implementing defensible space treatments. The material dries quickly and poses a fire hazard if left on site.
- Maintain this defensible space as needed to keep the space lean, clean, and green.

### *9.2.2 Fuel Reduction Treatments*

Fuel reduction treatments are applied on a larger scale than defensible space treatments. By permanently changing the fuel structure over large blocks of land to one of a lower volume or reduced flammability (a fuel reduction treatment), the expected result in the event of a catastrophic wildfire would be one of reduced capacity for uncontrolled spread through the treatment area.

*Utility Company Recommendation*

- Reduce vegetation a minimum distance of fifteen feet from all utility poles to reduce the risk of loss during a fire and reduce the chance of sparks igniting nearby vegetation.

*Douglas County Roads Department Recommendation*

- Remove shrubs and weeds for a distance of 25 feet along Buckeye Road, East Valley Road, Amber Way, Borda Way, Toler Avenue, Fish Springs Road, and Jo Lane. Reseed if necessary to control cheatgrass and other invasive weeds. Recommended seed mixtures and planting guidelines are included in Appendix D.

### *9.2.3 Community Coordination*

Many of the most effective activities aimed at reducing the threat of wildfire for the East Valley community require that individual property owners coordinate with each other and with local fire authorities. Address signage and defensible space, for example, are more effective in small communities when applied uniformly throughout entire neighborhoods. Public education and awareness, neighbors helping neighbors, and proactive individuals setting examples for others to follow are just a few of the approaches that will be necessary to meet the fire safe goals in the community. Disposal of biomass generated from defensible space and fuel reduction treatments can sometimes be most efficiently handled through community programs.

*Property Owner Recommendations*

- Assure residential addresses are visible from the road. Address characters should be at least four inches high and reflective. Improving visibility of addresses will

make it easier for those unfamiliar with the area to navigate an area during a wildland fire.

- Form a local chapter of the Nevada Fire Safe Council. The Nevada Fire Safe Council proposes to work on solutions that reduce the risk of loss of lives and property from wildfires in Nevada's communities. Through establishment of a local Chapter, communities become part of a large information-sharing network that receives notifications of programs and funding opportunities for fire mitigation projects such as those listed in this report. The Nevada Fire Safe Council will accept and manage grants and contracts on the Chapter's behalf through its non-profit status. The Nevada Fire Safe Council provides assistance and support to communities to complete fire safe plans, set priorities, educate and train community members, and promote success stories of its members. For more information on forming a chapter, contact:

  The Nevada Fire Safe Council
  1187 Charles Drive
  Reno, Nevada 89509
  www.nvfsc.org

*East Fork Fire and Paramedic Districts Recommendation*

- Distribute copies of the publication *"Living With Fire"* to all property owners who live in wildland-urban interface areas in East Valley. This publication is free of charge. Copies can be requested from the University of Nevada Cooperative Extension.

## 9.3 SUMMARY OF RECOMMENDATIONS

**Table 9-1. East Valley Priority Recommendations to Reduce Wildfire Risks and Hazards**

| INVOLVED PARTY | RECOMMENDED TREATMENT | RECOMMENDATION DESCRIPTION |
|---|---|---|
| **Property Owners** | Defensible Space | Remove, reduce, and replace vegetation around homes according to the defensible space guidelines in Appendix D. |
| | Community Coordination | Assure addresses are visible from the road on all homes within the community.<br>Form a local chapter of the Nevada Fire Safe Council. |
| **Douglas County** | Fuels Reduction | Remove shrubs and weeds for a distance of 25 feet along primary roads in the community. |
| **Utility Company** | Fuels Reduction | Reduce vegetation a minimum distance of fifteen feet from all utility poles to reduce the risk of loss during a fire and reduce the chance of sparks igniting nearby vegetation. |
| **East Fork Fire and Paramedic Districts** | Community Coordination | Distribute copies of the publication *"Living With Fire"* to all property owners. |

## Table 9-2 East Valley Wildfire Hazard Rating Summary

**A. Urban Interface Condition** ***2***

**B. Community Design**

| | | |
|---|---|---|
| 1. Ingress / Egress | 1 | /5 |
| 2. Width of Road | 3 | /5 |
| 3. Accessibility | 1 | /3 |
| 4. Secondary Road | 1 | /5 |
| 5. Street Signs | 1 | /5 |
| 6. Address Signs | 3 | /5 |
| 7. Utilities | 1 | /5 |

**C. Construction Materials**

| | | |
|---|---|---|
| 1. Roofs | 1 | /10 |
| 2. Siding | 1 | /5 |
| 3. Unenclosed Structures | 1 | /5 |

**D. Defensible Space**

| | | |
|---|---|---|
| 1. Lot Size | 3 | /5 |
| 2. Defensible Space | 1 | /15 |

**F. Fire Behavior**

| | | |
|---|---|---|
| 1. Fuels | 3 | /5 |
| 2. Fire Behavior | 3 | /10 |
| 3. Slope | 1 | /10 |
| 4. Aspect | 7 | /10 |

**E. Suppression Capabilities**

| | | |
|---|---|---|
| 1. Water Source | 5 | /10 |
| 2. Department | 1 | /10 |

***TALLIES***

**504 Total Houses** **54 Residential Streets**

**B5. Street Signs**

1 not visible | 53 visible | 98% visible

**B6. Address Signs**

66 not visible | 438 visible | 87% visible

**C1. Roofs**

45 combust | 459 not combust | 91% not combust

**C2. Siding**

4 combust | 500 not combust | 99% not combust

**C3. Unenclosed Structures on Lot**

56 not enclosed | 448 enclosed | 11% not enclosed

**D1. Lot Sizes**

110 <1ac | 389 >1ac <10ac | 5 >10ac

**D2. Defensible Space**

51 not adequat | 453 adequate | 90% adequate

**Score** **38** /128

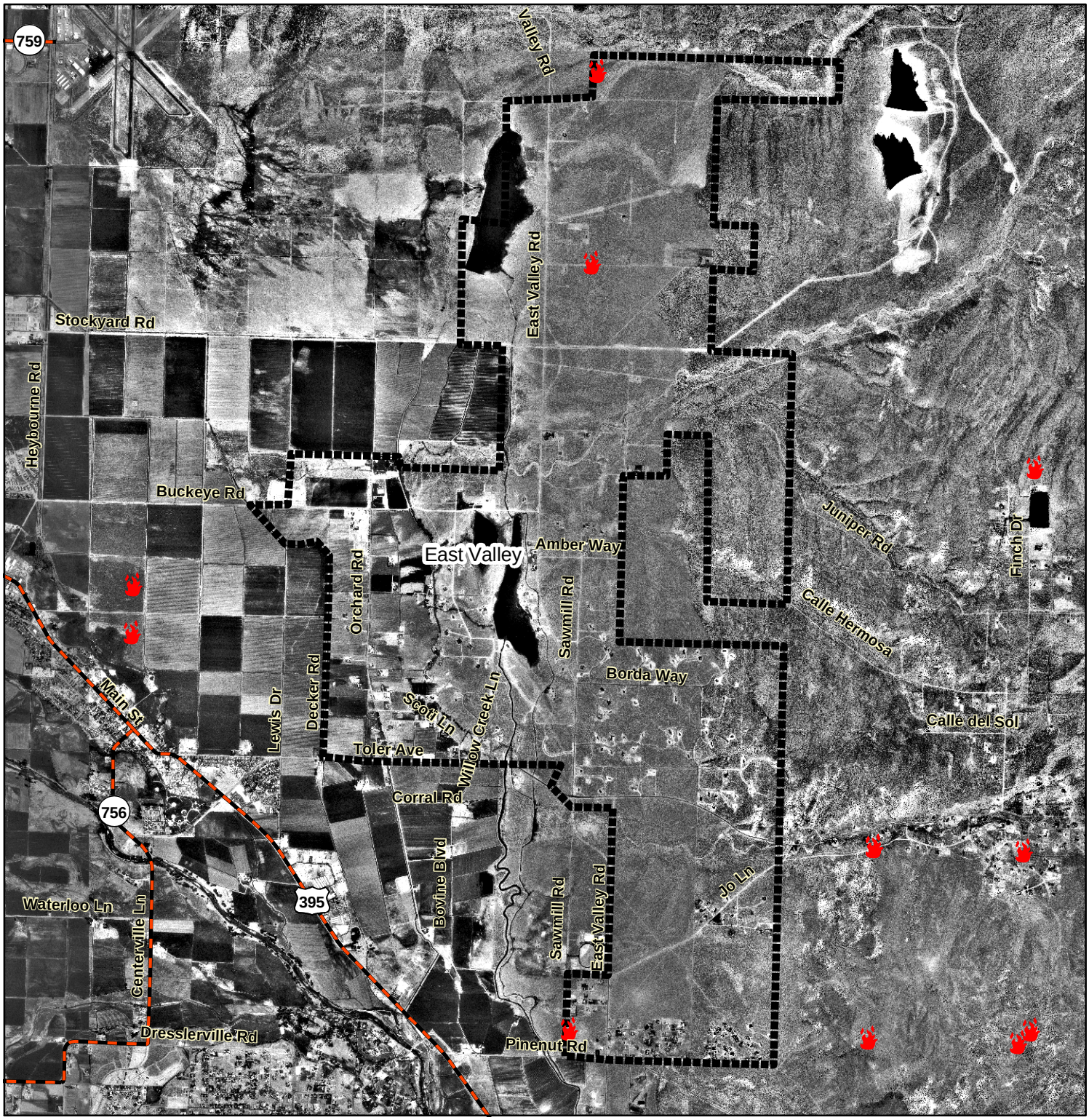



Figure 9-1. East Valley
Fire History

N
W E
S

**Legend**

- Community Boundary
- Fire Ignition
- Highways and State Routes

0 0.5 1 2
Miles

Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600

***Nevada Community Wildfire Risk / Hazard Assessment Project***

# 10.0 FISH SPRINGS

## 10.1 BLACKBULL WILDFIRE SERVICES HAZARD AND RISK ASSESSMENT

In 2004, Blackbull Wildfire Services completed an assessment entitled "Community Wildfire Threat Reduction and Project Implementation Plan for Fish Springs, September 2004," on behalf of the Nevada Fire Safe Council. The pertinent information for this report is summarized from the Blackbull Fish Springs assessment.

Fish Springs is a community of approximately 700 residents located five miles east of Gardnerville, Nevada. The majority of the residences are located along the valley floor (4,900 feet elevation) and are surrounded by public land. **The assessment resulted in classifying the Fish Springs community in the High Hazard category.**[10] The primary hazard factor for the Fish Springs area was the high fuel hazard vegetation.

### *10.1.1 Community Design*

The Fish Springs interface area is characterized by an intermix wildland-urban interface condition. Structures are scattered throughout the wildland area with no clear line of demarcation between wildland fuels and residences in the community. (Figure 10-1).

**Roads:** Fish Springs Road is the primary road connecting the Fish Springs community with other communities in Douglas County.

**Utilities:** All utilities were noted to be above ground. Reducing vegetation underneath and adjacent to power lines minimizes the possibility of power lines producing sparks during windstorms and starting fires in nearby vegetation.

### *10.1.2 Defensible Space*

A majority of homes in the community lacked proper defensible space or vegetation clearance. In Fish Springs the recommended minimum defensible space distance ranged between 100 and 200 feet depending upon slope.

### *10.1.3 Suppression Capabilities*

*Wildfire Protection Resources*

The Fish Springs Volunteer Fire Department (Station 9) of the East Fork Fire and Paramedic Districts is responsible for wildfire and structure fire protection in the Fish Springs community. At the time of the assessment, the Fish Springs VFD listed twenty volunteers on its roster (East Fork Fire Protection District website). See Tables 4-2 and 4-3 for more information on the typical fire suppression response for first-alarm wildland-urban interface fires in Douglas County. Appendix E lists the type and number of fire suppression vehicles located at each EFFPD and Douglas County VFD station.

[10] The rating for Fish Springs was adapted from National Fire Protection Association Form 1144.

The BLM / Interagency wildland fire resources will also respond to all wildland fire reports within the Fish Springs community. The BLM stations a wildland fire engine at the Fish Springs Volunteer Fire Department to respond to threats to the adjacent public land. The response will be initiated by the Sierra Front Interagency Dispatch Center.

*Water Sources and Infrastructure*

No hydrants are available within the community; however, an 18,00-gallon tank is available as a drafting source at the VFD. There is also a 240,000 static fill tank located on Jo Lane in the East Valley community that can be used as a drafting source with less than a twenty-minute turn around time.

*Community Preparedness*

The Fish Springs community has shown interest in forming a local chapter of the Nevada Fire Safe Council; however, a chapter had not yet been formed at the time of the assessment. There is currently no evacuation plan for residents of the community, nor do the emergency and disaster plans provide information on safe zones within the community.

### *10.1.4 Factors Affecting Fire Behavior*

Vegetation, dead and down fuels, and topographic features contribute to the potential fire hazard around wildland-urban interface communities. The terrain in the community is generally flat with a box canyon near Burro Court and slopes of all aspects surrounding the edges of the community. There is a significant history of large fires and fire ignitions near the community.

The vegetation in the Fish Springs community was generally classified as a high hazard fuel type, dominated primarily by pinyon pine, Utah juniper, and big sagebrush.

### *10.1.5 Previous Fire Hazard Reduction Projects*

In 2004 the BLM Carson Field Office funded a Student Conservation Association Fire Education Corp Team that completed a home demonstration project in the Fish Springs community. The Team made the residential site "fire wise" by removing and thinning hazardous fuels within a distance of fifty feet of the residence. Other homeowners were provided with defensible space educational materials and evaluations of defensible space conditions.

The Bureau of Land Management Carson City Field Office is implementing a fuel reduction treatment at the south end of the Fish Springs community along Pine Nut Road II from Out-R-Way to Lena Lane (Figure 10-2). The project area was first initiated by opening the area to public woodcutting between October 2004 and January 2005. Project specifications for the two treatment areas include reducing tree and shrub cover by approximately 90 percent using mechanical mastication. The mastication treatment is currently underway and will be completed in May 2005.

Additional fuel reduction treatments are scheduled to be completed in 2005 on private lands in the Bluebird Way-Wheaton Lane area of Fish Springs. A perimeter shaded fuelbreak and interior road treatments are planned. Trees will be thinned to approximately 40 trees per

acres, brush removed, and limbs removed within four feet of the ground on remaining trees within the proposed treatment areas.

### *10.1.6 Fire Behavior and Worst Case Scenario*

The worst-case scenario for the Fish Springs community would consist of several lightning or possibly human-caused ignitions starting west, southwest, or south of the southern end of the community, near Wheaton Lane. Fire ignitions could quickly threaten the community if they started in the afternoon of a windy, low humidity, day when helicopter or air tanker resources are already committed to other fires.

### *10.1.7 Ignition Risk Assessment*

The risk assessment assigned Fish Springs a high ignition risk rating. A significant history of wildfire and fire ignitions exists in the public lands and private lands surrounding the community. High ignition rates are likely due to the high fuel loads in and around the community, the tendency for lightning storms during the summer, and the high number of people using the wildlands near Fish Springs.

## 10.2 RISK AND HAZARD REDUCTION RECOMMENDATIONS

The Fish Springs risk and hazard reduction recommendations focus on improving defensible space and promoting homeowner responsibilities. Other recommendations pertain to community coordination efforts that could be initiated to enhance the fire safe nature of the Fish Springs community. Recommendations are detailed below.

### *10.2.1 Defensible Space*

In addition to the following recommendations developed by Blackbull (2004), the RCI Project Team strongly recommends adding recommendations that pertain to defensible space. Defensible space treatments are an essential first line of defense for residential structures. Significantly reducing or removing vegetation within a prescribed distance from structures (minimum of 100 feet to 200 feet depending upon slope) reduces fire intensity and improves firefighter and homeowner chances for successfully defending a structure against an oncoming wildfire.

*Property Owner Recommendations*

- Remove, reduce, and replace vegetation to create defensible space around homes according to the guidelines in Appendix D. This area should be kept:

  Lean – There are only small amounts of flammable vegetation,

  Clean – There is no accumulation of dead vegetation or other flammable debris,

  Green – Existing plants are healthy and green during the fire season.
- Remove debris and flammable materials from within the defensible space area.
- Store firewood a minimum distance of thirty feet from structures.
- Mow or remove brush for a distance of 25 feet along each side of wood or vinyl fences in the community.

- Cheatgrass or other annual grasses that have become dominant within the defensible space zone should be mowed or treated with an application of pre-emergent herbicide prior to seed set.[11] Treatments may need to be repeated the following year to ensure that the seed bank of unwanted grasses has been depleted. Refer to Appendix D for recommended seed mixes and planting guidelines that can be used in conjunction with removal of this annual grass.
- Maintain areas under wood decks and porches free of weeds and other flammable debris. Enclose these areas wherever possible.
- Clear all vegetation and combustible materials around propane tanks for a minimum of ten feet.
- Remove or properly board up abandoned trailers and mobile homes to prevent sparks from entering and igniting the structures.
- Install spark-arresting devices on chimneys.
- Thin pinyon and juniper trees in the defensible space area such that tree canopies are spaced a minimum distance of thirty feet from any other trees, shrubs, or residential structures. Limb branches of remaining pinyon and juniper trees within the defensible space area a minimum of four feet from the ground, or no more than one-third of the tree height. Reduce the needle and cone duff from under the remaining trees to a depth no greater than one-inch.
- Irrigate all trees and shrubs in close proximity to structures to increase their fire resiliency, especially during drought conditions.
- Immediately dispose of cleared vegetation when implementing defensible space treatments. This material dries quickly and poses a fire hazard if left on site.
- Maintain this defensible space as needed to keep the space lean, clean, and green.

### *10.2.2 Fire Suppression Capabilities*

*East Fork Fire and Paramedic Districts Recommendations*

- Inventory the known water sources and place signs identifying them as a fire suppression apparatus drafting source. Install additional 8,000 to 10,000-gallon dry hydrants in various locations throughout the community.
- Develop a pre-attack plan for the Fish Springs community. The plan should include information regarding the location of water sources, helibases, evacuation plans, resident safety zones, locations of recent fuel reduction projects, and other fire protection facility information.

[11] Extreme caution should be taken when using herbicides to completely follow all label instructions. Consult with University of Nevada Cooperative Extension specialists for assistance with appropriate herbicide products and application procedures.

### *10.2.3 Fuel Reduction Treatments*

*Bureau of Land Management Recommendation*

- Complete construction of the planned fuel reduction treatments along Out-R-Way and Lena Lane (Figure 10-2).

*Nevada Fire Safe Council and Bureau of Land Management Recommendation*

- Complete construction of the planned fuel reduction treatments in the Bluebird Way-Wheaton Lane area of the Fish Springs community.

### *10.2.4 Community Coordination*

*Property Owner Recommendation*

- Form a local chapter of the Nevada Fire Safe Council. The Nevada Fire Safe Council proposes to work on solutions that reduce the risk of loss of lives and property from wildfires in Nevada's communities. Through establishment of a local Chapter, communities become part of a large information-sharing network that receives notifications of programs and funding opportunities for fire mitigation projects such as those listed in this report. The Nevada Fire Safe Council will accept and manage grants and contracts on the Chapter's behalf through its non-profit status. The Nevada Fire Safe Council provides assistance and support to communities to complete fire safe plans, set priorities, educate and train community members, and promote success stories of its members. For more information on forming a chapter, contact:

  The Nevada Fire Safe Council
  1187 Charles Drive
  Reno, Nevada 89509
  www.nvfsc.org

*East Fork Fire and Paramedic Districts Recommendations*

- Develop a community fire notification and evacuation plan for the Fish Springs Community, including notification plans for homeowners and recreation users. Install permanent signs clearly showing ingress and egress routes within the community in areas of high use by mountain bikers and ATV users.
- Prepare a community-wide fire safe plan including information on individual home preparedness, fire awareness, and fire prevention education for homeowners and recreation users.

## 10.3 SUMMARY OF RECOMMENDATIONS

**Table 10-1. Fish Springs Priority Recommendations to Reduce Wildfire Risks and Hazards**

| INVOLVED PARTY | RECOMMENDED TREATMENT | RECOMMENDATION DESCRIPTION |
|---|---|---|
| **Property Owners** | Defensible Space | Remove, reduce, and replace vegetation around homes to create a minimum of seventy feet of defensible space. |
| | Community Coordination | Form a local chapter of the Nevada Fire Safe Council. |
| **BLM** | Fuels Reduction Treatments | Complete construction of the planned fuel reduction treatments along Out-R-Way and Lena Lane. |
| **Nevada Fire Safe Council**<br><br>**BLM** | Fuels Reduction Treatments | Complete construction of the planned fuel reduction treatments in the Bluebird Way-Wheaton Lane area. |
| **East Fork Fire and Paramedic Districts** | Fire Suppression Capability | Inventory known water sources and install additional 8,000 to 10,000-gallon dry hydrants in various locations throughout the community.<br><br>Develop a pre-attack plan for the Fish Springs community. |
| | Community Coordination | Develop a community fire notification and evacuation plan and install permanent signs showing clear ingress and egress routes within the community.<br><br>Prepare a community-wide fire safe plan for the community. |

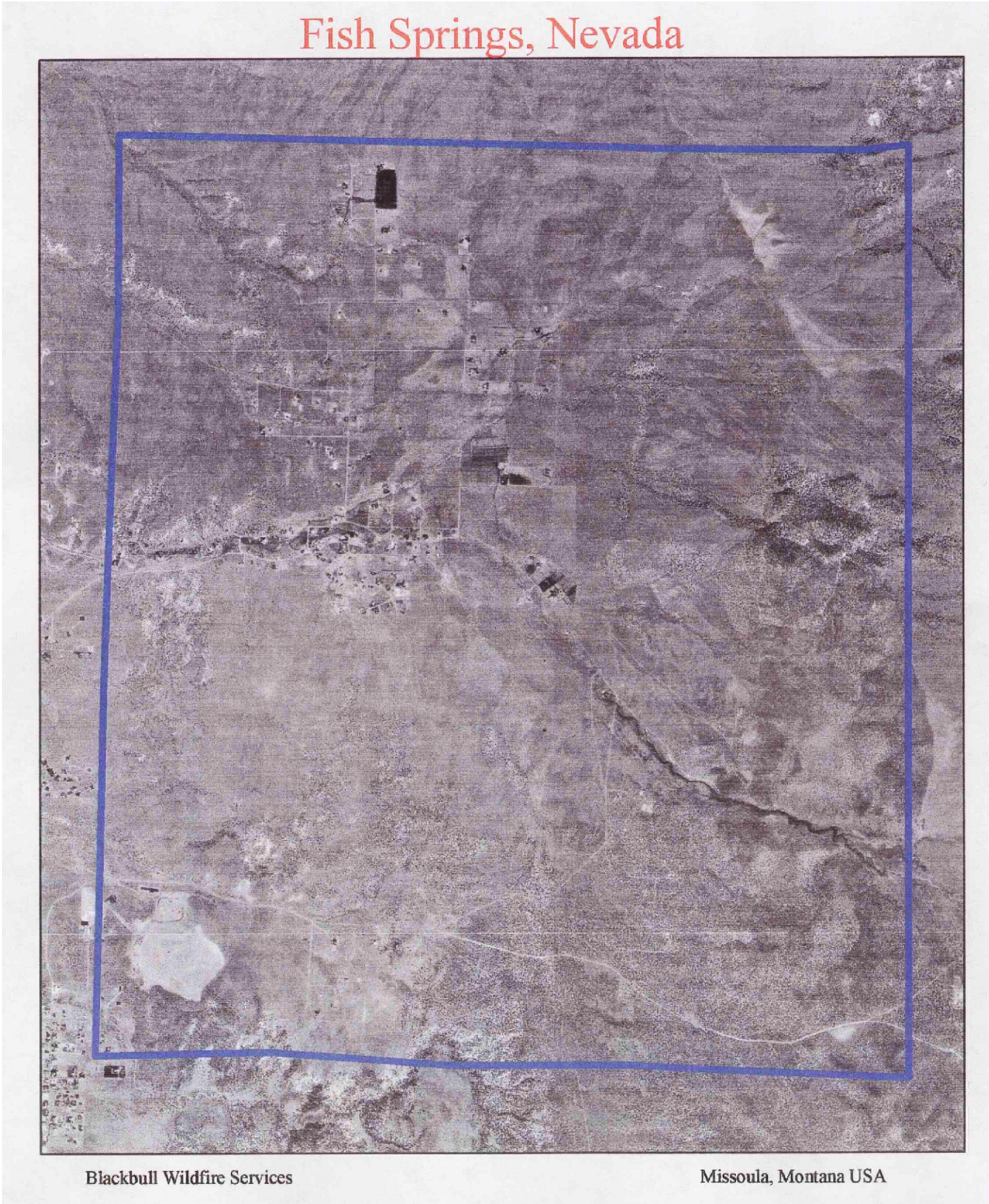



Figure 10-1. Fish Springs Community

Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600



Source: Blackbull Wildfire Services Community Wildfire Threat Reduction and Project Implementation Plan for Fish Springs, September 2004

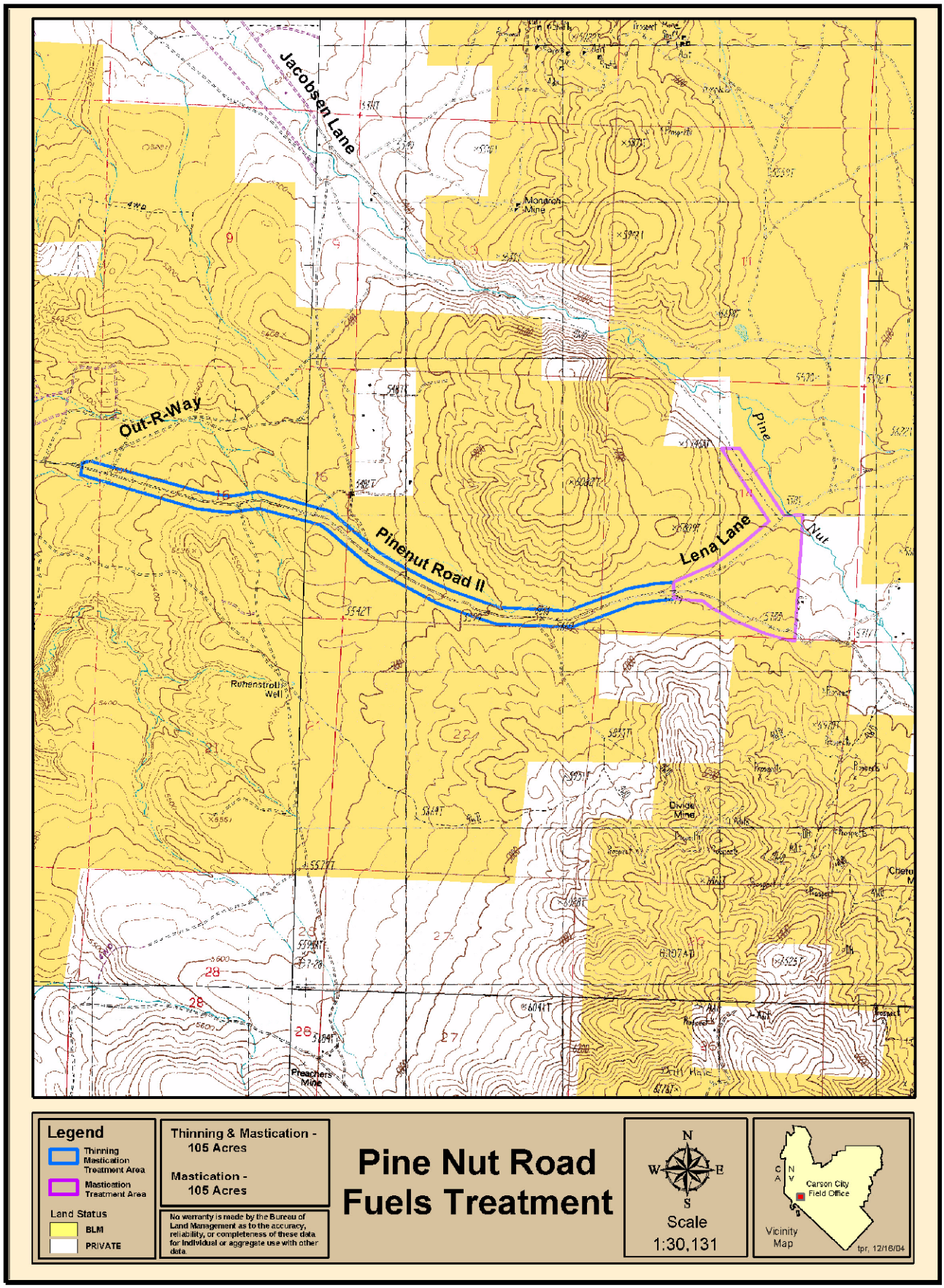



Figure 10-2. Fish Springs
BLM Planned Mitigation Project

Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600



Source: Bureau of Land Management Carson City Office

# 11.0 GARDNERVILLE

## 11.1 HAZARD AND RISK ASSESSMENT

The town of Gardnerville is located in northern Douglas County, adjacent to and south of the town of Minden, Nevada. Gardnerville is bordered to the east, west, and south by irrigated pasture and haylands. A total of 64 residences were evaluated along the wildland-urban interface in Gardnerville during this assessment. **The risk/hazard assessment resulted in classifying Gardnerville in the Low Hazard category** (26 points). The low community hazard score is attributed primarily to the presence of irrigated agricultural lands, which serve as a greenstrip around much of the interface area in the community. A summary of the factors that determine this hazard rating is included in Table 11-2. The specific findings for each of the wildland fire assessment parameters are reported below.

### *11.1.1 Community Design*

The urban interface condition in Gardnerville is characterized as the classic interface condition. In many areas subdivisions border wildland fuels with a clear line of demarcation between the fuels and the residences. Lot sizes are primarily less than one acre throughout Gardnerville (see Figure 11-1).

**Roads:** The primary access route through Gardnerville is US Highway 395, which is a paved highway greater than 24 feet wide. Other primary access roads for residences on the southwest side of the highway include Centerville Lane and Waterloo Lane. Primary access roads for residences east of Highway 395 include Toler Lane, Lampe Lane, Gilman Avenue, and Virginia Ranch Road. Most of the primary roads are between twenty and 24 feet wide and allow adequate room for fire suppression equipment to maneuver.

**Signage:** Most streets in Gardnerville have standard metal street signs that are highly visible and easy to read. Residential addresses are easily visible on all homes in the Gardnerville interface. The clear and visible signage throughout the Gardnerville area should assist fire suppression personnel in locating residences during poor visibility conditions that occurs during a wildland fire.

**Utilities:** The utilities that serve Gardnerville are a combination of above ground and below ground power lines. In general utilities have adequately maintained right-of-ways and pose only a low ignition risk to the community.

### *11.1.2 Construction Materials*

A majority of the homes observed in the interface area were built with fire resistant siding materials. A great majority of the homes had fire resistant roofing materials such as composition shingles, metal, or tile roofing. About half of the homes observed have unenclosed balconies, porches, decks, or other architectural features that create drafts and provide areas where sparks and firebrands can be trapped, smolder, ignite, and rapidly spread fire to the home.

### *11.1.3 Defensible Space*

The majority of the homes had landscaping that would meet the defensible space requirement to protect the home from damage or minimize loss during a wildfire.

### *11.1.4 Suppression Capabilities*

*Wildfire Protection Resources*

The Gardnerville Volunteer Fire Department (Station 2) of the East Fork Fire and Paramedic Districts provides wildfire and structure fire protection for Gardnerville. In 2003, the Gardnerville VFD responded to more than 300 calls (East Fork Fire Protection District website). See Tables 4-2 and 4-3 for more information on the typical fire suppression response for first-alarm wildland-urban interface fires in Douglas County. Appendix E lists the type and number of fire suppression vehicles located at each EFFPD and Douglas County VFD station.

*Water Sources and Infrastructure*

Hydrants are available within 500 feet of residences throughout the towns of Minden and Gardnerville. The hydrant system is connected between the two towns and is tied into five water storage tanks for a total potential water supply of 4.5 million gallons. Emergency generators are available on the pumps that supply the water storage tanks. The Carson River and ponds located around the community may be available for use as helicopter dip sites.

### *11.1.5 Factors Affecting Fire Behavior*

Vegetation, dead and down fuels, and topographic features contribute to the potential fire hazard around wildland-urban interface communities. Gardnerville is located on an old Carson River terrace. The topography is flat. The entire interface area of Gardnerville was described as homes adjacent to irrigated or abandoned pasture and hayland. The presence of these agricultural lands serves as a greenstrip between any native vegetation and homes. Due to the annual (or more frequent) harvest of the vegetation, and the irrigated, fire-resistant, qualities of the vegetation, these lands were rated as a low fuel hazard.

### *11.1.6 Fire Behavior Worst-case Scenario*

The worst-case fire behavior scenario would likely occur on a high hazard summer day, in a year with normal to above normal precipitation and high grass and weed production in abandoned agricultural lands north of the Corley Ranch. An ignition near the intersection of Virginia Ranch Road and Mathias Parkway, fueled by strong south or southwest winds could spread through the abandoned pastureland east of the community and threaten homes.

### *11.1.7 Ignition Risk Assessment*

Gardnerville has been rated with a low ignition risk. While there is a history of a few lightning-ignited fires in the agricultural lands within a mile of the community (see Figure 11-1), there is no significant wildfire history in the immediately adjacent area.

## 11.2 RISK AND HAZARD REDUCTION RECOMMENDATIONS

The Gardnerville risk and hazard reduction recommendations address the primary concern regarding protection of existing and future development in the wildland-urban interface area. Other recommendations pertain to community coordination and public education efforts that could be undertaken to enhance fire safety in Gardnerville.

### *11.2.1 Defensible Space Treatments*

Defensible space treatments are an essential first line of defense for residential structures. Significantly reducing or removing vegetation within a prescribed distance from structures (a minimum of thirty feet, or more depending on slope and vegetation type) reduces fire intensity and improves firefighter and homeowner chances for successfully defending a structure against an oncoming wildfire.

*Property Owner Recommendations*

- Remove, reduce, and replace vegetation around homes according to the guidelines in Appendix D. This area should be kept:

  Lean – There are only small amounts of flammable vegetation,

  Clean – There is no accumulation of dead vegetation or other flammable debris,

  Green – Existing plants are healthy and green during the fire season.
- Remove debris and flammable materials from within the defensible space area.
- Store firewood a minimum distance of thirty feet from structures.
- Maintain areas under wood decks and porches free of weeds and other flammable debris. Enclose these areas wherever possible.
- Remove shrubs within 25 feet and grass within ten feet of wood and vinyl fences throughout the community. Either maintain this area free of weeds and annual vegetation or plant fire resistant grass and wildflower species referenced in Appendix D.
- Install spark-arresting screens on chimneys.
- Annually remove vegetation and debris along irrigation ditches to reduce the fuel load.
- Mow or remove brush growing against wood fences in the community.
- Immediately dispose of cleared vegetation when implementing defensible space treatments. The material dries quickly and poses a fire hazard if left on site.
- Maintain this defensible space as needed to keep the space lean, clean, and green.

### *11.2.2 Fire Suppression Capabilities*

*East Fork Fire and Paramedic Districts Recommendation*

- Remove fuels within ten feet of fire hydrants to improve visibility and access.

## 11.3 SUMMARY OF RECOMMENDATIONS

**Table 11-1. Gardnerville Priority Recommendations to Reduce Wildfire Risks and Hazards**

| INVOLVED PARTY | RECOMMENDED TREATMENT | RECOMMENDATION DESCRIPTION |
|---|---|---|
| **Property Owners** | Defensible Space | Remove, reduce, and replace vegetation around homes according to the defensible space guidelines in Appendix D.<br>Remove shrubs within 25 feet and annual grasses and weeds within ten feet of wood and vinyl fences throughout the community. |
| **East Fork Fire and Paramedic Districts** | Fire Suppression Capability | Remove fuels within ten feet of fire hydrants to improve visibility and access. |

## Table 11-2 Gardnerville Wildfire Hazard Rating Summary

**A. Urban Interface Condition** ***1***

**B. Community Design**

| | | |
|---|---|---|
| 1. Ingress / Egress | 1 | /5 |
| 2. Width of Road | 1 | /5 |
| 3. Accessibility | 1 | /3 |
| 4. Secondary Road | 1 | /5 |
| 5. Street Signs | 1 | /5 |
| 6. Address Signs | 1 | /5 |
| 7. Utilities | 1 | /5 |

**C. Construction Materials**

| | | |
|---|---|---|
| 1. Roofs | 1 | /10 |
| 2. Siding | 1 | /5 |
| 3. Unenclosed Structures | 3 | /5 |

**D. Defensible Space**

| | | |
|---|---|---|
| 1. Lot Size | 5 | /5 |
| 2. Defensible Space | 1 | /15 |

**F. Fire Behavior**

| | | |
|---|---|---|
| 1. Fuels | 1 | /5 |
| 2. Fire Behavior | 3 | /10 |
| 3. Slope | 1 | /10 |
| 4. Aspect | 1 | /10 |

**E. Suppression Capabilities**

| | | |
|---|---|---|
| 1. Water Source | 1 | /10 |
| 2. Department | 1 | /10 |

***TALLIES***

**64 Total Houses** **7 Residential Streets**

**B5. Street Signs**

0 not visible | 7 visible | 100% visible

**B6. Address Signs**

0 not visible | 64 visible | 100% visible

**C1. Roofs**

1 combust | 63 not combust | 98% not combust

**C2. Siding**

0 combust | 64 not combust | 100% not combust

**C3. Unenclosed Structures on Lot**

29 not enclosed | 35 enclosed | 45% not enclosed

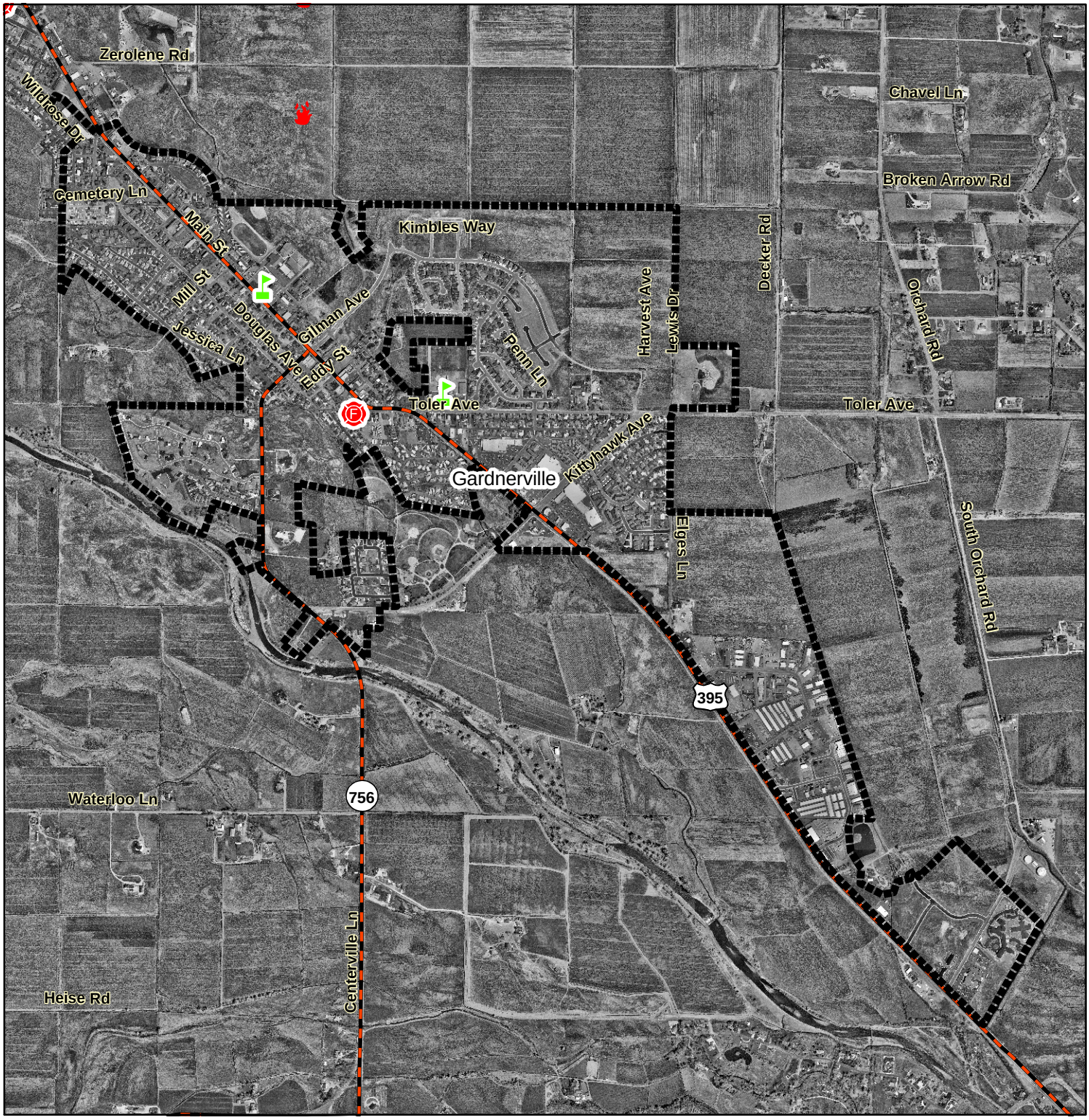
**D1. Lot Sizes**

61 <1ac | 3 >1ac <10ac | 0 >10ac

**D2. Defensible Space**

4 not adequat | 60 adequate | 94% adequate

**Score** **26** /128




**Legend**

- Schools
- Community Boundary
- Fire Station
- Fire Ignition
- Highways and State Routes

Figure 11-1. Gardnerville
Fire History, Suppression Resources,
and Critical Features

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Feet

Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600

***Nevada Community Wildfire Risk / Hazard Assessment Project***

# 12.0 GARDNERVILLE RANCHOS

## 12.1 HAZARD AND RISK ASSESSMENT

The community of Gardnerville Ranchos is located 0.6 miles southwest of the Town of Gardnerville, Nevada. The Ranchos, as the community is usually referred to, is situated on flat benches and along the Carson River floodplain. During the assessment the RCI Project Team evaluated 270 residences along the interface. **The hazard assessment resulted in classifying the Gardnerville Ranchos community in the Low Hazard category** (35 points). A summary of the factors that contribute to this hazard rating is included in Table 12-2. The low rating is attributed the widespread presence of defensible space around homes, ignition-resistant or non-combustible construction materials, and fire safe community design.

### *12.1.1 Community Design*

The Gardnerville Ranchos community exhibits the characteristics of a classic wildland-urban interface community. In many areas subdivisions border wildland fuels with a clear line of demarcation between the fuels and the residences. Lot sizes are primarily less than one acre throughout the Ranchos (see Figure 12-1).

**Roads:** Centerville Lane, Kimmerling Lane, and Riverview Drive are the primary roads providing ingress and egress for the community. The primary and secondary roads in the community are generally greater than 24 feet wide, paved, and have a gradient less than five percent. The secondary roads are either loop roads or have cul-de-sac terminus points that provide adequate room for fire suppression apparatus to turn around.

**Signage:** A majority of streets had signs that are easily visible from the road. Residential addresses were easily visible form the road for most of the homes assessed. Clear and visible signage is important to aid fire suppression personnel in locating residences during poor visibility conditions that occur during a wildland fire.

**Utilities:** Utilities were a combination of above ground and below ground power, and utilities have adequately maintained right-of-ways and pose only a low ignition risk to the community.

### *12.1.2 Construction Materials*

All of the homes in the interface were built with treated wood siding materials, stucco, vinyl, brick, or other fire resistant siding materials. Approximately forty percent of homes had flammable wood shake roofs. Very few of the homes observed have unenclosed balconies, porches, decks, or other architectural features that create drafts and provide areas where sparks and firebrands can be trapped, smolder, ignite, and rapidly spread fire to the home.

### *12.1.3 Defensible Space*

Almost all of the homes assessed had landscaping that meets the minimum recommended defensible space to help protect the home from damage or loss during a wildfire.

### *12.1.4 Suppression Capabilities*

*Wildfire Protection Resources*

The Gardnerville Ranchos Volunteer Fire Department and East Fork Fire and Paramedic Districts combination career-volunteer staffed department provide structure and wildland fire protection to the Gardnerville Ranchos. Station 7 responded to over 500 calls in 2003. The Gardnerville Ranchos VFD reported thirty volunteers at the time of the assessment (East Fork Fire Protection District website). See Tables 4-2 and 4-3 for more information on the typical fire suppression response for first-alarm wildland-urban interface fires in Douglas County. Appendix E lists the type and number of fire suppression vehicles located at each EFFPD and Douglas County VFD station.

*Water Sources and Infrastructure*

Hydrants are available within 500 feet of residences in the newer subdivisions, however hydrants are not available for older homes on the west side of the community. There are two water storage tanks (2.5 million-gallons) that supply the hydrant system and are available for drafting sources. There are emergency generators for the well pumps that supply the tanks. The Carson River is a possible helicopter dip spot.

### *12.1.5 Factors Affecting Fire Behavior*

Vegetation, dead and down fuels, and topographic features contribute to the potential fire hazard around wildland-urban interface communities. The Gardnerville Ranchos community lies on an old river terrace, which means the topography is generally flat. The predominant wind direction is from the south and southwest. There is a history of wildfire near the community as evidenced by a 1984 fire that burned within two miles of the community. The fuel hazards were mapped for the Ranchos, and fuel hazard photos were taken to provide additional information for the vegetation type descriptions (see Figures 12-2 and 12-3).

There are two major vegetation types along the Gardnerville Ranchos wildland-urban interface: pasture lands and shrublands. Irrigated pasture, hayland, and abandoned agricultural lands border the north, west, and south sides of the community. The Carson Valley Golf Course, located on the northeast side of the community on Riverview Drive, and the agricultural lands create greenstrips that provide a buffer between wildland fuels and homes.

On the southeast side of the community, homes are located adjacent to wildland vegetation. In these areas the vegetative fuels consist of sagebrush, rabbitbrush, desert peach, bitterbrush, and Mormon tea. Ground fuels consist of cheatgrass, tumble mustard, bottlebrush squirreltail, and filaree. The vegetative fuel density in these areas is low within 200 feet of residential fences due to a previous fire or other disturbance. The fuel loads were estimated at one ton per acre and were considered a low fuel hazard.

Further south of the disturbed area the vegetation is dominated by shrubs that are three to four foot tall including Wyoming big sagebrush, Mormon tea, and rabbitbrush. Cheatgrass, desert needlegrass, and bottlebrush squirreltail comprise in the understory. Fuel loads were estimated to be three to six tons per acre and were considered a moderate fuel hazard.

### *12.1.6 Fire Behavior Worst Case Scenario*

The worst-case scenario for the Gardnerville Ranchos community would likely involve a fire ignition in the southern portion of the community. With south or southwest winds exceeding 25 miles per hour, a fire could spread northeast toward homes. In general, the widespread implementation of defensible space in this area reduces the risk of a fire directly threatening homes; however, many homes are at risk of ignition from firebrands coming in contact with wood shingle roofing material.

### *12.1.7 Ignition Risk Assessment*

The ignition risk assessment assigned the Gardnerville Ranchos with a high potential for ignition based on number of ignitions and fire history for the area. Off-road-vehicles are a likely ignition source for fires as the Humboldt-Toiyabe Dresslerville OHV Area is located less than one mile south of the community. Ditch burning is another human-caused ignition risk that occurs near the community.

## 12.2 RISK AND HAZARD REDUCTION RECOMMENDATIONS

The Gardnerville Ranchos risk and hazard reduction recommendations address the primary concern regarding protection of existing and future development in the wildland-urban interface area. Other recommendations pertain to community coordination and public education efforts that could be undertaken to enhance fire safety in the Ranchos.

### *12.2.1 Defensible Space Treatments*

Defensible space treatments are an essential first line of defense for residential structures. Significantly reducing or removing vegetation within a prescribed distance from structures (30 feet to 200 feet depending upon slope and vegetative fuel type) reduces fire intensity and improves firefighter and homeowner chances for successfully defending a structure against an oncoming wildfire.

*Property Owner Recommendation*

- Remove, reduce, and replace vegetation around homes according to the guidelines in Appendix D. This area should be kept:

  Lean – There are only small amounts of flammable vegetation,

  Clean – There is no accumulation of dead vegetation or other flammable debris,

  Green – Existing plants are healthy and green during the fire season.
- Maintain the area beneath unenclosed wood decks and porches free of weeds and flammable debris. Enclose these areas wherever possible.
- Mow or remove brush growing against wood fences in the community.
- Store firewood a minimum distance of thirty feet from structures.
- Cheatgrass or other annual grasses that have become dominant within the defensible space zone should be mowed or treated with an application of pre-

emergent herbicide prior to seed set.[12] Treatments may need to be repeated the following year to ensure that the seed bank of unwanted grasses has been depleted. Refer to Appendix D for recommended seed mixes and planting guidelines that can be used in conjunction with removal of this annual grass.

- Immediately remove cleared vegetation to an approved disposal site when implementing defensible space treatments. This material dries quickly and presents a fire hazard if left on site.
- Maintain this defensible space as needed to keep the space lean, clean, and green.

### *12.2.2 Fuel Reduction Treatments*

Fuel reduction treatments are applied on a larger scale than defensible space treatments. By permanently changing the fuel structure over large blocks of land to one of lower volume or reduced flammability (a fuel reduction treatment), the expected result in the event of a catastrophic wildfire would be one of reduced capacity for uncontrolled spread through the treatment area.

*Property Owner and Gardnerville Ranchos GID Recommendation*

- Construct and maintain two 100-foot wide fuelbreaks for a combined distance of approximately two miles behind wood fences along the south side of the community, for a total treatment of approximately 24 acres (see Figure 12-1). Remove all shrubs with mechanical mastication equipment and plant fire-resistant perennial grasses and wildflowers. Appropriate seed mixtures and seeding specifications are provided in Appendix D.

*East Fork Fire and Paramedic Districts and Ranchos GID Recommendation*

- Cooperate with property owners to construct and maintain two 100-foot wide fuelbreaks for a distance of approximately two miles behind wood fences along the south side of the community, for a total treatment of approximately 24 acres (see Figure 12-1). Remove all shrubs with mechanical mastication equipment, and plant fire-resistant perennial grasses and wildflowers. Appropriate seed mixtures and seeding specifications are provided in Appendix D.

### *12.2.3 Community Coordination*

Many of the most effective activities aimed at reducing the threat of wildfire for the Gardnerville Ranchos community require that individual property owners coordinate with each other and with local fire authorities. Defensible space, for example, is more effective in small communities when applied uniformly throughout entire neighborhoods. Public education and awareness, neighbors helping neighbors, and proactive individuals setting examples for others to follow are just a few of the approaches that will be necessary to meet the fire safe goals in the community. Disposal of biomass generated from defensible space and fuel reduction treatments can sometimes be most efficiently handled through community programs.

[12] Extreme caution should be taken when using herbicides to completely follow all label instructions. Consult with University of Nevada Cooperative Extension specialists for assistance with appropriate herbicide products and application procedures.

*Property Owner Recommendation*

- Form a local chapter of the Nevada Fire Safe Council. The Nevada Fire Safe Council proposes to work on solutions that reduce the risk of loss of lives and property from wildfires in Nevada's communities. Through establishment of a local Chapter, communities become part of a large information-sharing network that receives notifications of programs and funding opportunities for fire mitigation projects such as those listed in this report. The Nevada Fire Safe Council will accept and manage grants and contracts on the Chapter's behalf through its non-profit status. The Nevada Fire Safe Council provides assistance and support to communities to complete fire safe plans, set priorities, educate and train community members, and promote success stories of its members. For more information on forming a chapter, contact:

  The Nevada Fire Safe Council
  1187 Charles Drive
  Reno, Nevada 89509
  www.nvfsc.org

*East Fork Fire and Paramedic Districts Recommendation*

- Distribute copies of the publication *"Living With Fire"* to all property owners in wildland-urban interface areas of the Gardnerville Ranchos. This publication is free of charge. Copies can be requested from the University of Nevada Cooperative Extension.

## 12.3 SUMMARY OF RECOMMENDATIONS

**Table 12-1. Gardnerville Ranchos Flats Priority Recommendations to Reduce Wildfire Risks and Hazards**

| INVOLVED PARTY | RECOMMENDED TREATMENT | RECOMMENDATION DESCRIPTION |
|---|---|---|
| **Property Owners** | Defensible Space | Remove, reduce, and replace vegetation around homes according to the defensible space guidelines in Appendix D. |
| | Fuels Reduction | Construct and maintain two fuelbreaks, each 100-foot wide, for a combined distance of two miles behind wood fences along the south side of the community. |
| | Community Coordination | Form a local chapter of the Nevada Fire Safe Council. |
| **Gardnerville Ranchos General Improvement District** | Fuels Reduction | Coordinate with property owners to construct and maintain two fuelbreaks, each 100-foot wide, for a distance of two miles behind wood fences along the south side of the community. |
| **East Fork Fire and Paramedic Districts** | Fuels Reduction | Cooperate with property owners to construct and maintain two fuelbreaks, each 100-foot wide, behind wood fences along the south side of the community. |
| | Community Coordination | Distribute copies of the publication *"Living With Fire"* to all property owners. |

## Table 12-2 Gardnerville Ranchos Wildfire Hazard Rating Summary

**A. Urban Interface Condition** ***1***

**B. Community Design**

| | | |
|---|---|---|
| 1. Ingress / Egress | 1 | /5 |
| 2. Width of Road | 1 | /5 |
| 3. Accessibility | 1 | /3 |
| 4. Secondary Road | 1 | /5 |
| 5. Street Signs | 1 | /5 |
| 6. Address Signs | 1 | /5 |
| 7. Utilities | 1 | /5 |

**C. Construction Materials**

| | | |
|---|---|---|
| 1. Roofs | 10 | /10 |
| 2. Siding | 1 | /5 |
| 3. Unenclosed Structures | 1 | /5 |

**D. Defensible Space**

| | | |
|---|---|---|
| 1. Lot Size | 5 | /5 |
| 2. Defensible Space | 1 | /15 |

**F. Fire Behavior**

| | | |
|---|---|---|
| 1. Fuels | 1 | /5 |
| 2. Fire Behavior | 3 | /10 |
| 3. Slope | 1 | /10 |
| 4. Aspect | 1 | /10 |

**E. Suppression Capabilities**

| | | |
|---|---|---|
| 1. Water Source | 1 | /10 |
| 2. Department | 3 | /10 |

***TALLIES***

**270 Total Houses** **20 Residential Streets**

**B5. Street Signs**

1 not visible | 19 visible | 95% visible

**B6. Address Signs**

7 not visible | 263 visible | 97% visible

**C1. Roofs**

105 combust | 165 not combust | 61% not combust

**C2. Siding**

0 combust | 270 not combust | 100% not combust

**C3. Unenclosed Structures on Lot**

2 not enclosed | 268 enclosed | 1% not enclosed

**D1. Lot Sizes**

267 <1ac | 3 >1ac <10ac | 0 >10ac

**D2. Defensible Space**

4 not adequat | 266 adequate | 99% adequate

**Score** **35** /128

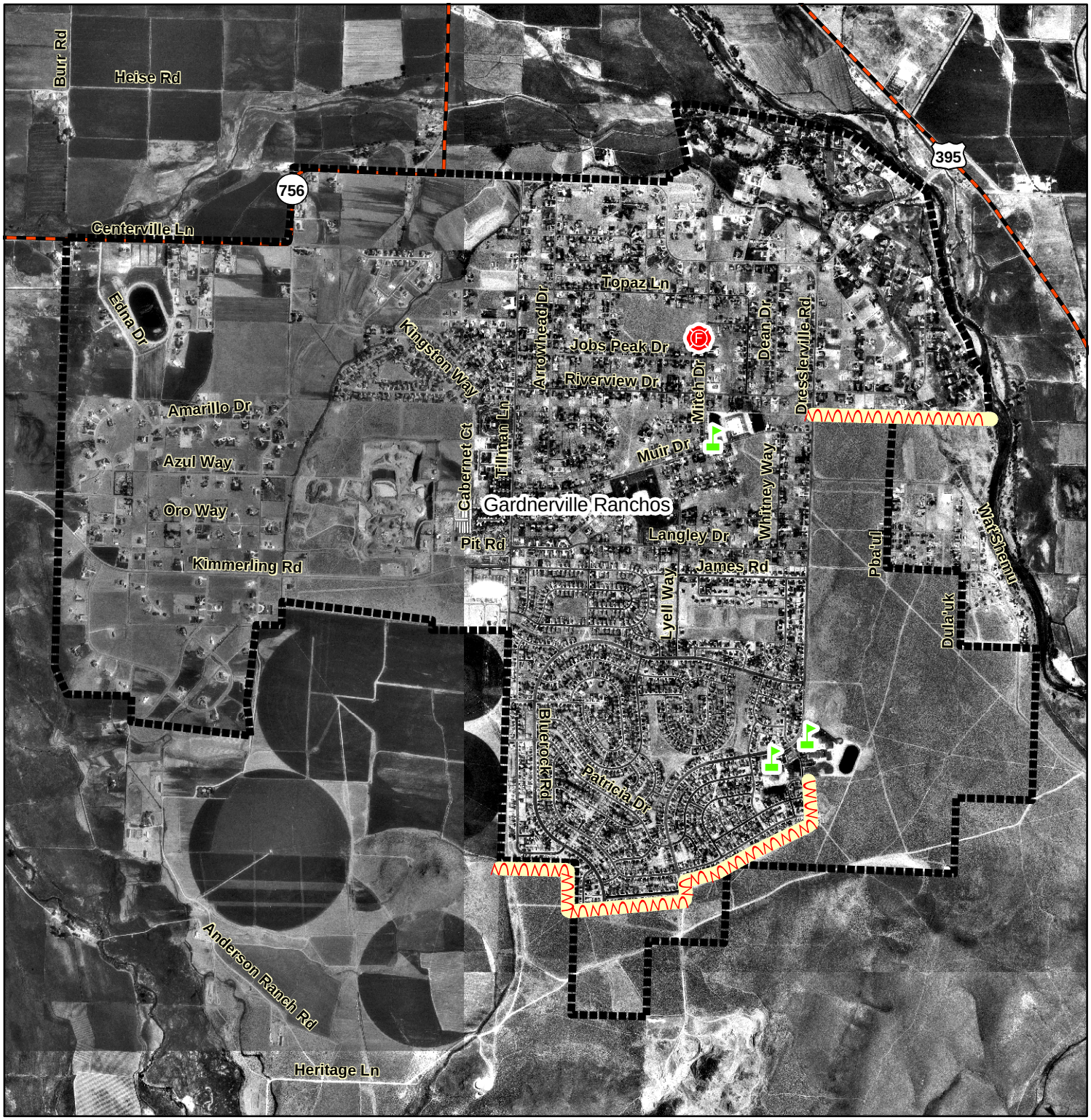


Figure 12-1. Gardnerville Ranchos Suppression Resources, Critical Features, and Proposed Mitigation Projects

**Legend**

- Proposed Fuelbreak
- School
- Community Boundary
- Fire Station
- Highways and State Routes

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Feet

Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600

***Nevada Community Wildfire Risk / Hazard Assessment Project***

# 13.0 GENOA

## 13.1 HAZARD AND RISK ASSESSMENT

The town of Genoa is located in the northwest portion of Douglas County along Foothill Road (State Route 206) at the base of the Carson Range. The town of Genoa (historically Mormon Station) is considered the oldest town in the state of Nevada. The Genoa community includes the incorporated town of Genoa, homes and subdivisions located adjacent to the town boundaries, and the Genoa Lake Estates. Approximately 200 residences were assessed in the Genoa wildland-urban interface areas. **The hazard assessment resulted in classifying the Genoa community in the High Hazard category** (72 points). Summaries of the factors that determine these hazard ratings are included in Table 13-2. The high hazard rating is attributed to the large number of homes with inadequate defensible space and address identification as well as high and extreme hazard fuel conditions and potential for hazardous fire behavior.

### *13.1.1 Community Design*

Genoa is a community with both intermix and classic wildland-urban interface conditions. The intermix condition is described as structures scattered throughout the wildland area with no clear line of demarcation between wildland fuels and residential structures in the community. In the areas of classic interface condition, homes border wildland fuels with a clear line of demarcation between the fuels and the residences. Most of the residences observed in Genoa were on parcels of between one and ten acres. See Figure 13-1 for a detailed graphic of the community.

**Roads:** Foothill Road (State Route 206) and Genoa Lane are the primary roads connecting Genoa with other towns in Douglas County. These primary access roads are all at least 24 feet wide, paved, and have adequate turnaround space for fire suppression equipment. The secondary roads in the older sections of town are generally narrow and may limit fire suppression equipment maneuverability and two-vehicle passage; however, the roads end with adequate turnaround space and road grades are generally less than five percent.

**Signage:** A majority of streets had signs that were easily visible from the road. Addresses were visible only on approximately two-thirds of the homes. Clear and visible street signs and residential addresses are important to aid firefighting personnel in locating at risk areas of a community during low visibility conditions that occur during a wildfire.

**Utilities:** Utilities were a combination of above ground and below ground power. Power line corridors have not been properly maintained. Vegetation clearance is needed to minimize wildfire damage to electric utilities and reduce the possibility that sparks created by electric utilities could start a fire in adjacent vegetation.

### *13.1.2 Construction Materials*

Ninety-five percent of the homes in the Genoa interface were built with treated wood siding materials, stucco, vinyl, brick, or other fire resistant siding materials. Ninety-two percent of homes had fire-resistant roofing materials such as composition roofing or metal.

Approximately twenty percent of the homes observed have unenclosed balconies, porches, decks or other architectural features that create drafts and provide areas where sparks and firebrands can be trapped, smolder, ignite, and rapidly spread fire to the home.

### *13.1.3 Defensible Space*

Approximately forty percent of the homes assessed in the Genoa wildland-urban interface had defensible space within the minimum recommended distance depending upon slope and vegetative fuel type to help protect the home from damage or loss during a wildfire.

### *13.1.4 Suppression Capabilities*

*Wildfire Protection Resources*

The Genoa Volunteer Fire Department (Station 3) of the East Fork Fire and Paramedic Districts provides structure and wildland fire protection to the town of Genoa. Station 3 responded to 104 calls in 2000 (East Fork Fire Protection District website). See Tables 4-2 and 4-3 for more information on the typical fire suppression response for first-alarm wildland-urban interface fires in Douglas County. Appendix E lists the type and number of fire suppression vehicles located at each EFFPD and Douglas County VFD station.

*Water Sources and Infrastructure*

Hydrants are available within 1,000 feet of residences in the town of Genoa and the Genoa Lakes subdivision. However, hydrants are not available for older homes on the west side of the community and residences on the ranches and ranchettes on the east side of the community. Two tanks with a cumulative capacity of 850,000 gallons supply the hydrant system and are available for drafting sources. No emergency generators are available for the well pumps that supply the tanks. Possible helicopter dip sites include the Carson River and golf course water hazards.

### *13.1.5 Factors Affecting Fire Behavior*

Vegetation, down and dead fuels, and topography contribute to the potential fire hazard around wildland-urban interface communities. The fuel hazards were mapped for Genoa and fuel hazard photos were taken to illustrate the relationship between vegetation types, slope, aspect, and overall fuel hazard (see Figures 13-2 and 13-3). The town of Genoa is situated at 4,800 feet at the base of the eastern-slope of the Carson Range. Steep canyons including Sierra, Schoolhouse, and Genoa Canyons lie directly west of the community. Predominant winds are from the south and downslope from the west. Slopes within the community range between two and 25 percent.

The predominant vegetation types on the west side of Genoa are Jeffrey pine/bitterbrush/ sagebrush, bitterbrush/sagebrush, sagebrush/perennial grass, and irrigated pastureland. The irrigated pastureland and Carson River riparian areas border the east and southeast sides of the community. In the Jeffrey Pine vegetation type on the west side of the community, rabbitbrush, bitterbrush, big sagebrush, and desert peach were the primary shrubs with cheatgrass and perennial grass ground fuels. The fuel load was estimated at four to sixteen tons per acre and considered an extreme fuel hazard. The irrigated pastureland and riparian areas were considered a low fuel hazard.

In the bitterbrush/sagebrush vegetation type along the southwest side of the community, the dominant shrubs species included big sagebrush, bitterbrush, desert peach, elderberry, and mountain mahogany with a grass understory of cheatgrass, bottlebrush squirreltail, and Sherman big bluegrass. Shrub heights ranged between two and eight feet in height. The fuel load was estimated at five to six tons per acre and was considered an extreme fuel hazard due to the vertical and horizontal continuity of the fuel.

In the sagebrush/perennial grass vegetation type, located at the south end of the community, big sagebrush, bitterbrush, and mountain mahogany were the dominant shrub species with bottlebrush squirreltail, cheatgrass, and bluegrass species comprising the ground fuels. The fuel load in this type was estimated at four to six tons per acre and considered a high fuel hazard.

The native vegetation surrounding homes in the Genoa Lakes subdivision consisted of big sagebrush, bitterbrush, and rabbitbrush with a cheatgrass understory. Fuels were estimated to range between two and four tons per acre and were considered a moderate fuel hazard.

A large percentage of the land surrounding homes on the east side of Genoa was irrigated agricultural land, which serves as a greenstrip for the community. The vegetative fuels were considered to be light with an estimated fuel load of less than one ton per acre. Due to the annual (or more frequent) harvest of the vegetation, and the irrigated, fire-resistant, qualities of the vegetation these lands were rated as a low fuel hazard.

### *13.1.6 Fire Behavior Worst Case Scenario*

The area surrounding Genoa has an extensive wildfire history, primarily from dry lightning strikes during summer thunderstorms. A 250-acre fire occurred on the west side of the community in 1957 and another 316-acre fire occurred in 1984 less than one-mile south of Genoa. The worst-case scenario for the community would likely involve a dry lightning storm in the afternoon of a high hazard day. If an ignition were to occur on the east-facing slope, west of Genoa, strong, westerly downslope winds greater than 25 miles per hour could push the fire downslope through brush and timber. A crown fire could quickly threaten residences and businesses in town. This situation would be worse if it were to occur during one of the many events like the Candy Dance and Fourth of July when several thousand tourists are in town. Fire suppression resources could be delayed and evacuation could be extremely difficult if these situations were to occur simultaneously.

### *13.1.7 Ignition Risk Assessment*

Genoa has a high potential for ignition due to wildfire and ignition history, and a high potential for structure loss due to dense vegetation, heavy fuel loads, and mountainous topography. The primary ignition risk in Genoa is lightning, although human caused ignitions are unpredictable and can occur at any time.

## 13.2 RISK AND HAZARD REDUCTION RECOMMENDATIONS

The Genoa risk and hazard reduction recommendations address the primary concern regarding protection of existing and future development in the wildland-urban interface area. Other recommendations pertain to community coordination and public education efforts that could be undertaken to enhance fire safety in Genoa.

### *13.2.1 Defensible Space Treatments*

Defensible space treatments are an essential first line of defense for residential structures. Significantly reducing or removing vegetation within a prescribed distance from structures (30 to 200 feet depending upon slope and vegetative fuel type) reduces fire intensity and improves firefighter and homeowner chances for successfully defending a structure against an oncoming wildfire.

*Property Owner Recommendations*

- Remove, reduce, and replace vegetation around homes according to the guidelines in Appendix D. This area should be kept:

  Lean – There are only small amounts of flammable vegetation,

  Clean – There is no accumulation of dead vegetation or other flammable debris,

  Green – Existing plants are healthy and green during the fire season.
- Maintain this defensible space as needed to keep the space lean, clean, and green.
- Immediately remove cleared vegetation to an approved disposal site when implementing defensible space treatments. This material dries quickly and presents a fire hazard if left on site.
- Maintain the area beneath unenclosed wood decks and porches free of weeds and flammable debris. Enclose these areas wherever possible.
- Clear all vegetation and combustible materials around propane tanks for a minimum distance of ten feet.
- Mow or remove brush growing within 25 feet of wood fences in the community and grass within ten feet.
- Store firewood a minimum distance of thirty feet from structures.
- Install spark-arresting screens on chimneys.
- Annually remove vegetation and debris along irrigation ditches to reduce the fuel load.
- Remove pine needles, leaves, and debris from roofs and rain gutters.
- Prune tree branches within fifteen feet of chimneys and structures.
- Limb branches of conifers a minimum of fifteen feet up from the ground, or no more than one-third of the total tree height to reduce ladder fuels. All dead and diseased branches and duff should be removed from beneath remaining trees.
- Irrigate all trees and large shrubs in close proximity to structures to increase their fire resiliency, which is especially important during drought conditions.
- Cheatgrass or other annual grasses that have become dominant within the defensible space zone should be mowed or treated with an application of pre-emergent herbicide prior to seed set.[13] Treatments may need to be repeated the

[13] Extreme caution should be taken when using herbicides to completely follow all label instructions. Consult with University of Nevada Cooperative Extension specialists for assistance with appropriate herbicide products and application procedures.

following year to ensure that the seed bank of unwanted grasses has been depleted. Refer to Appendix D for recommended seed mixes and planting guidelines that can be used in conjunction with removal of this annual grass.

### *13.2.2 Fuel Reduction Treatments*

Fuel reduction treatments are applied on a larger scale than defensible space treatments. By permanently changing the fuel structure over large blocks of land to one of lower volume or reduced flammability (a fuel reduction treatment), the expected result in the event of a catastrophic wildfire would be one of reduced capacity for uncontrolled spread through the treatment area.

*Property Owner Recommendations*

- Reduce vegetative fuels for a distance of ten feet on both sides of private driveways longer than 200 feet. Remove highly flammable shrub species and replace with fire-resistant species such as crested wheatgrass, lawn, or a pre-suppression seed mix. Recommended seed mixtures and seeding specifications are provided in Appendix D.
- Coordinate with EFFPD and the US Forest Service to construct and maintain a proposed fuelbreak on the west side of the community.

*East Fork Fire and Paramedic Districts and US Forest Service Recommendations*

- Coordinate with property owners to construct a 400-foot wide shaded fuelbreak for a distance of approximately four miles on the west side of the community, for a total treatment of approximately 185 acres (see Figure 13-1). Remove small trees and shrubs within thirty feet of tree driplines. For shrubs outside the drip line, thin shrubs to a canopy spacing twice the height of the shrubs. Thin trees stands to a minimum basal area of 60 to 80 sq. ft. per acre. For example, where trees in the stand are of an average diameter of 14 inches (DBH), tree spacing should be reduced to approximately 65 trees per acre, with a minimum spacing of 25 feet between tree boles. If the average diameter of trees in the stand is 24 inches (DBH), tree spacing should be reduced to 22 trees per acre, with a minimum spacing of 45 feet between tree boles. Prune lower limbs within fifteen of the ground, but do not remove limbs from more than one-third the height of the tree. Refer to Appendix D for more information on tree spacing between boles for various basal areas and tree diameters.
- The biomass generated from construction of the fuelbreak should be removed and disposed of at an appropriate site (piled and burned or transported off the site). The fuelbreak should be managed and retreated as necessary to maintain the desired plant density and spacing.

*Douglas County Recommendation*

- Remove brush for a distance of 25 feet on the west side of Foothill Road from Jacks Valley Road south to Fairview Lane. Remove all shrubs with mechanical mastication equipment, and plant fire-resistant perennial grasses and wildflowers. Appropriate seed mixtures and seeding specifications are provided in Appendix D.

*Utility Company Recommendation*

- Remove trees or trim any branches within fifteen feet of either side of power lines and poles throughout Genoa.

### *13.2.3 Community Coordination*

Many of the most effective activities aimed at reducing the threat of wildfire for the Genoa community require that individual property owners coordinate with each other and with local fire authorities. Defensible space, for example, is more effective in small communities when applied uniformly throughout entire neighborhoods. Public education and awareness, neighbors helping neighbors, and proactive individuals setting examples for others to follow are just a few of the approaches that will be necessary to meet the fire safe goals in the community. Disposal of biomass generated from defensible space and fuel reduction treatments can sometimes be most efficiently handled through community programs.

*Property Owner Recommendations*

- Assure that address signs are visible from the road. Address characters should be at least four inches high, reflective, and composed of non-flammable material. Improving visibility of addresses will make it easier for those unfamiliar with the area to navigate under smoky conditions that can occur during a wildland fire.
- Form a local chapter of the Nevada Fire Safe Council. The Nevada Fire Safe Council proposes to work on solutions that reduce the risk of loss of lives and property from wildfires in Nevada's communities. Through establishment of a local Chapter, communities become part of a large information-sharing network that receives notifications of programs and funding opportunities for fire mitigation projects such as those listed in this report. The Nevada Fire Safe Council will accept and manage grants and contracts on the Chapter's behalf through its non-profit status. The Nevada Fire Safe Council provides assistance and support to communities to complete fire safe plans, set priorities, educate and train community members, and promote success stories of its members. For more information on forming a chapter, contact:

  The Nevada Fire Safe Council
  1187 Charles Drive
  Reno, Nevada 89509
  www.nvfsc.org

*East Fork Fire and Paramedic Districts Recommendation*

- Distribute copies of the publication *"Living With Fire"* to all property owners who live in Genoa. This publication is free of charge. Copies can be requested from the University of Nevada Cooperative Extension.

## 13.3 SUMMARY OF RECOMMENDATIONS

**Table 13-1. Genoa Priority Recommendations to Reduce Wildfire Risks and Hazards**

| INVOLVED PARTY | RECOMMENDED TREATMENT | RECOMMENDATION DESCRIPTION |
|---|---|---|
| **Property Owners** | Defensible Space | Remove, reduce, and replace vegetation around homes according to the defensible space guidelines in Appendix D. |
| | Fuels Reduction | Reduce vegetative fuels for a distance of ten feet on both sides of private driveways longer than 200 feet.<br>Coordinate with the EFFPD and the US Forest Service to construct and maintain a fuelbreak on the west side of the community. |
| | Community Coordination | Assure that address signs are visible from the road. Address characters should be at least four inches high, reflective, and composed of non-flammable material.<br>Form a local chapter of the Nevada Fire Safe Council. |
| **US Forest Service**<br>**East Fork Fire and Paramedic Districts** | Fuels Reduction | Coordinate with property owners to construct and maintain a 400-foot wide fuelbreak on the west side of the community. |
| | Community Coordination | Distribute copies of the publication *"Living With Fire"* to all property owners. |
| **Douglas County** | Fuels Reduction | Remove brush for a distance of 25 feet on the west side of Foothill Road from Jacks Valley Road south to Fairview Lane. |
| **Utility Company** | Fuels Reduction | Remove trees or trim any branches within fifteen feet of either side of power lines and poles throughout Genoa. |

## Table 13-2 Genoa Wildfire Hazard Rating Summary

**A. Urban Interface Condition** ***2***

**B. Community Design**

| | | |
|---|---|---|
| 1. Ingress / Egress | 1 | /5 |
| 2. Width of Road | 1 | /5 |
| 3. Accessibility | 1 | /3 |
| 4. Secondary Road | 1 | /5 |
| 5. Street Signs | 3 | /5 |
| 6. Address Signs | 5 | /5 |
| 7. Utilities | 3 | /5 |

**C. Construction Materials**

| | | |
|---|---|---|
| 1. Roofs | 1 | /10 |
| 2. Siding | 1 | /5 |
| 3. Unenclosed Structures | 1 | /5 |

**D. Defensible Space**

| | | |
|---|---|---|
| 1. Lot Size | 3 | /5 |
| 2. Defensible Space | 7 | /15 |

**F. Fire Behavior**

| | | |
|---|---|---|
| 1. Fuels | 5 | /5 |
| 2. Fire Behavior | 10 | /10 |
| 3. Slope | 10 | /10 |
| 4. Aspect | 10 | /10 |

**E. Suppression Capabilities**

| | | |
|---|---|---|
| 1. Water Source | 2 | /10 |
| 2. Department | 7 | /10 |

***TALLIES***

**200 Total Houses** **37 Residential Streets**

**B5. Street Signs**

5 not visible | 32 visible | 86% visible

**B6. Address Signs**

62 not visible | 138 visible | 69% visible

**C1. Roofs**

16 combust | 184 not combust | 92% not combust

**C2. Siding**

11 combust | 189 not combust | 95% not combust

**C3. Unenclosed Structures on Lot**

41 not enclosed | 159 enclosed | 21% not enclosed

**D1. Lot Sizes**

80 <1ac | 120 >1ac <10ac | 0 >10ac

**D2. Defensible Space**

120 not adequat | 80 adequate | 40% adequate

**Score** **72** /128

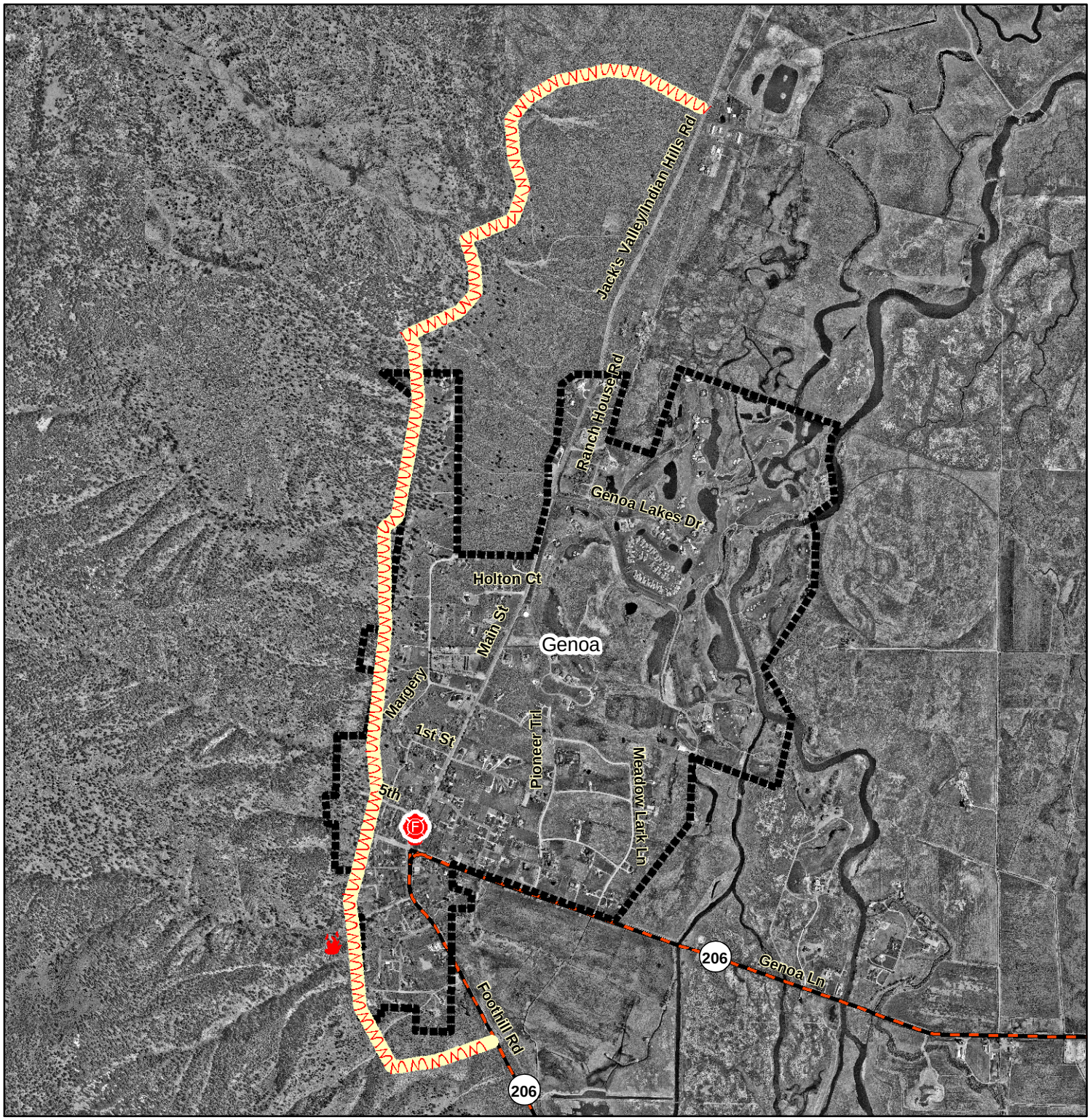



Figure 13-1. Genoa
Fire History, Suppression Resources,
and Proposed Mitigation Projects

**Legend**

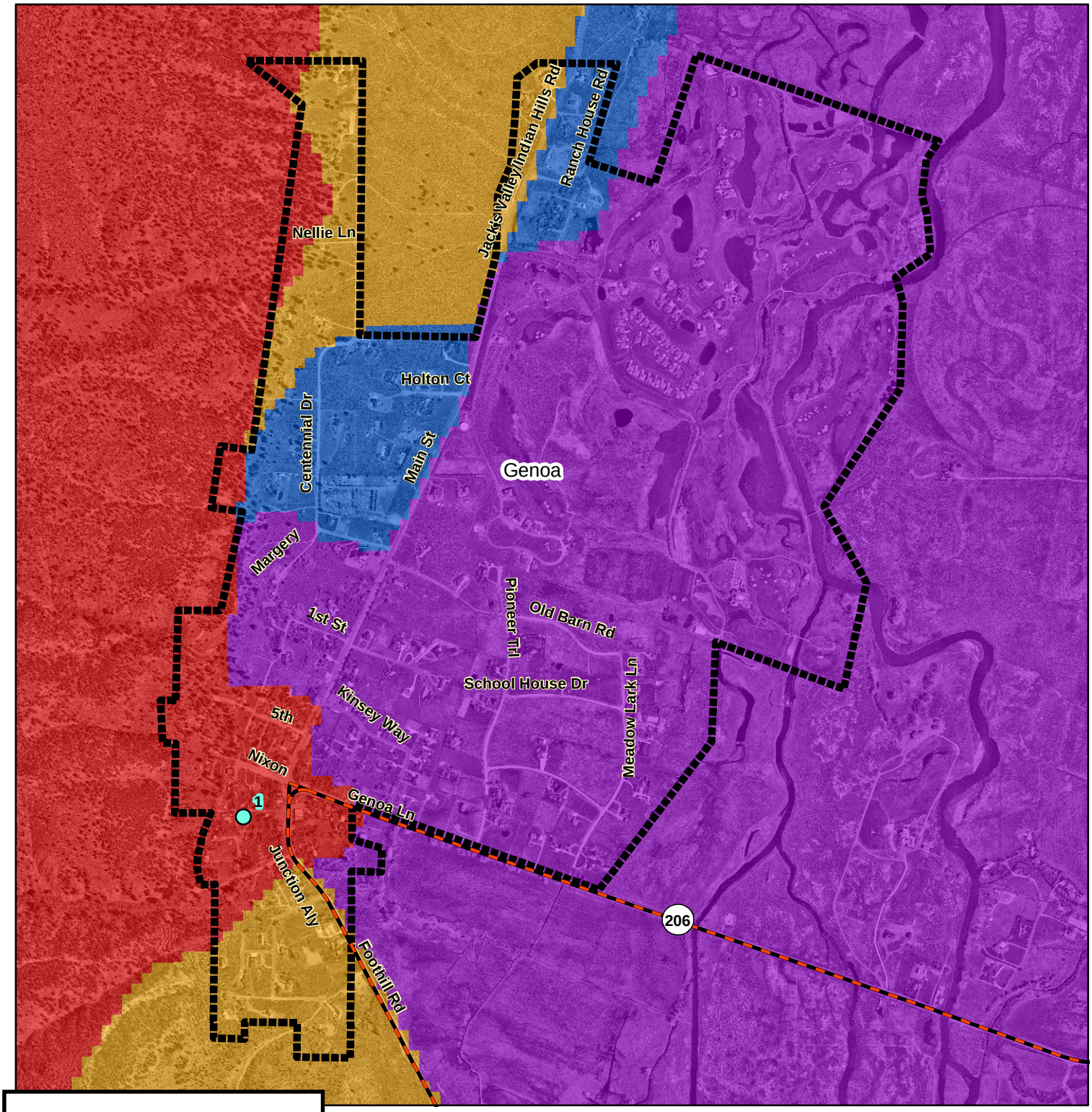
- Proposed Fuelbreak
- Community Boundary
- Fire Station
- Fire Ignition
- Highways and State Routes

N
W E
S

0 1,000 2,000 4,000
Feet

Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600

***Nevada Community Wildfire Risk / Hazard Assessment Project***




**Legend**

- Community Boundary
- Highways and State Routes

**Fuel Hazard**

- Extreme
- High
- Moderate
- Low
- Photo Point

Figure 13-2. Genoa
Fuel Hazard Classification

N
W E
S

0 500 1,000 2,000
Feet

Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600

***Nevada Community Wildfire Risk / Hazard Assessment Project***

**Figure 13-3. Genoa Fuel Hazard Photo Points**

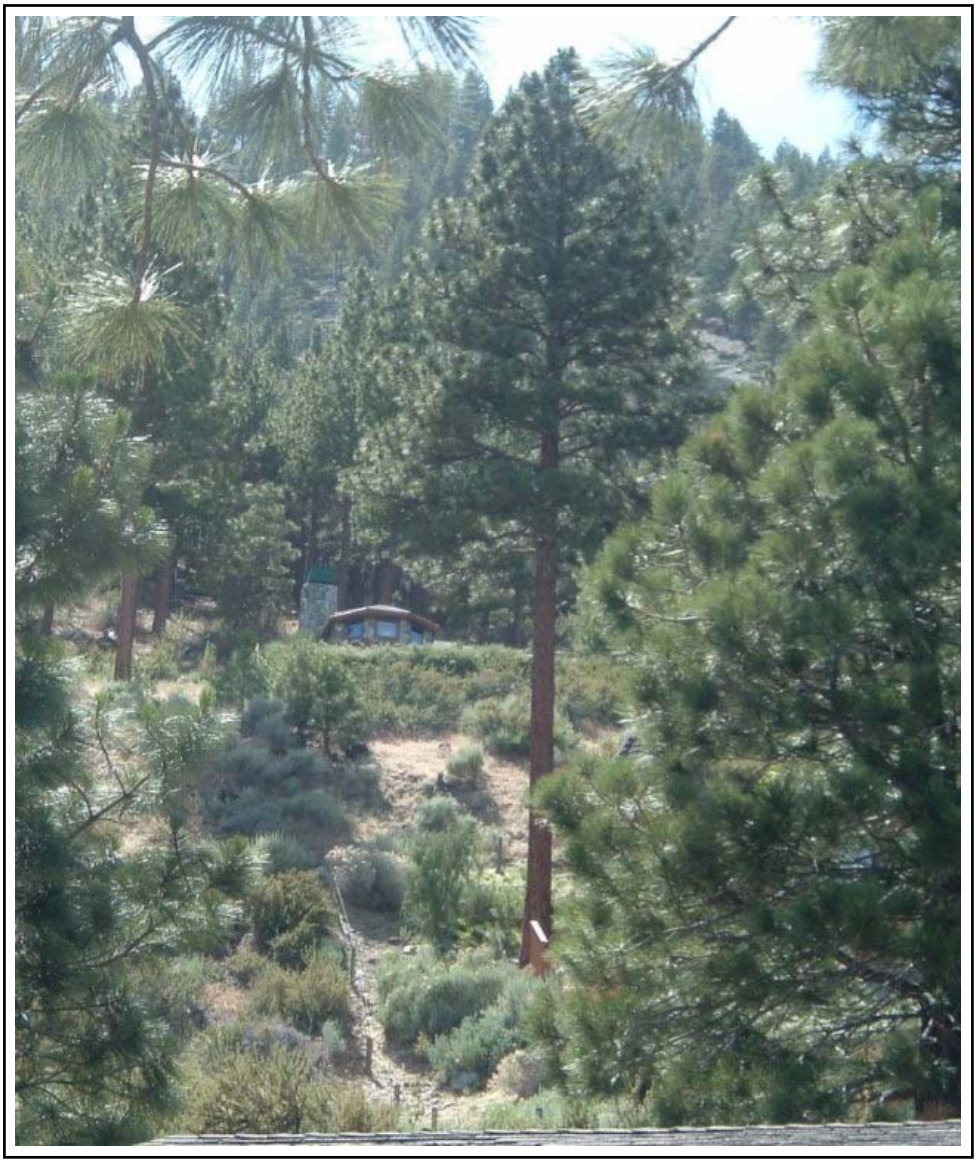


**Photo Point 1.** Genoa Fuel Hazard Photo Point. 4320950N, 0253402E, 285°W. On the west side of Genoa the vegetation consists of Jeffrey pine with an understory of bitterbrush, big sagebrush, and desert peach. The fuel load was estimated at four to sixteen tons per acre and considered an extreme fuel hazard.

# 14.0 HOLBROOK JUNCTION

## 14.1 RCI HAZARD AND RISK ASSESSMENT

In 2003, Resource Concepts, Inc. completed an assessment entitled "Community Fire Safe Plan for the Holbrook Junction Community Douglas County, Nevada," on behalf of the Nevada Fire Safe Council. The pertinent information for this report is summarized from the RCI Holbrook Junction assessment.

The Holbrook Junction Community is located at Holbrook Junction where US Highway 395 intersects State Route 208, approximately sixteen miles south of Gardnerville, Nevada and two miles north of Topaz Lake. Much of the area surrounding the community is public land administered by the US Forest Service, Bureau of Land Management, and Bureau of Indian Affairs 99-year leases held in trust by the Washoe Tribe of Nevada and California. Approximately fifty residences were evaluated when the risk and hazard assessment was conducted for Holbrook Junction. **The assessment resulted in classifying the Holbrook Junction community in the High Hazard category** (adapted from RCI 2003). The primary hazard factors for the Holbrook Junction area were limited address signage on some residences and limited implementation of defensible space throughout the community.

### *14.1.1 Community Design*

The Holbrook Junction interface area is characterized by the intermix wildland-urban interface condition. Structures are scattered throughout the wildland area with no clear line of demarcation between wildland fuels and residences in the community. A majority of the homes assessed were on parcels between 2.5 and ten acres with the exception of a small trailer park (see Figure 14-1).

**Roads:** US Highway 395 and State Route 208 are the primary roads connecting the Holbrook Junction community with other communities in Douglas County. US Highway 395 and State Route 208 are paved and at least 24 feet wide, an adequate width for two-vehicle passage and a fire suppression equipment maneuverability. Penrod Lane, Reese Road, and Highland Way are the primary entrance and exit routes for the community. The roads in the community are either gravel or paved and range between eighteen and thirty feet in width. Several of the secondary roads terminate in dead ends or small cul-de-sacs and do not provide adequate turn around space for fire suppression vehicles. Many driveways are very narrow and do not provide adequate room for fire suppression vehicles to maneuver.

**Signage:** Street signs were present and visible along all streets in the Holbrook Junction community. Residential addresses were visible on a majority of homes surveyed; however, many of the addresses were small and painted on wooden signs that would be difficult to see during smoky conditions. Clear and visible residential addresses and street signs are important to aid firefighting personnel in locating homes during low visibility conditions that may occur during a wildland fire.

**Utilities:** All utilities were noted to be above ground. Improper maintenance of power line corridors and vegetation clearance around propane tanks was observed in some parts of the community. Reducing vegetation underneath and adjacent to power lines

minimizes the possibility of power lines producing sparks during windstorms and starting fires in nearby vegetation.

### *14.1.2 Construction Materials*

A great majority of the homes in the community were built with fire-resistant roofing materials such as composition roofing, metal, or tile. Most of the homes observed had Class C wood siding materials (burns in less than twenty minutes). Less than twenty percent of homes observed had unenclosed balconies, porches, decks or other architectural features that create drafts and provide areas where sparks and firebrands can be trapped, smolder, ignite, and rapidly spread fire to the home.

### *14.1.3 Defensible Space*

Approximately 25 percent of the homes assessed had landscaping that meets the minimum defensible space requirement to help protect the home from damage or loss during a wildfire. In Holbrook Junction the recommended minimum defensible space distance ranged between 100 and 200 feet depending upon slope.

### *14.1.4 Suppression Capabilities*

*Wildfire Protection Resources*

Both the East Fork Fire and Paramedic Districts Topaz Ranch Estates Volunteer Fire Department Station 4 (a combination career/volunteer station with two career members) and the Topaz Lake Volunteer Fire Department Station 5 provide wildland and structure fire protection to Holbrook Junction. The Topaz Ranch Estates VFD responded to 213 emergency calls in 2001. Station 4 actively conducts "Compost your Combustibles" and reflective address sign programs (East Fork Fire and Paramedic Districts website). See Tables 4-2 and 4-3 for more information on the typical fire suppression response for first-alarm wildland-urban interface fires in Douglas County. Appendix E lists the type and number of fire suppression vehicles located at each EFFPD and Douglas County VFD station.

The Interagency wildland fire resources will also respond to all wildland fire reports within the vicinity of the Holbrook Junction community. The response will be initiated by the Sierra Front Interagency Dispatch Center.

*Water Sources and Infrastructure*

Water availability for fire suppression in Holbrook Junction includes two, static 50,000-gallon tanks: one near the junction of US Highway 395 and Leviathan Mine Road in the Spring Valley/Double Springs community (five miles north), and the other near Penrod Lane in the Holbrook Junction Community. The tanks are not connected to wells and must be filled each fire season. No fire hydrants are available in the Holbrook Junction community. Two tanks on wells are also located in Topaz Ranch Estates including one 210,000-gallon tank and one 660,000-gallon tank (three miles east). Hydrants are also available at Topaz Lodge, approximately three miles south of Holbrook Junction. Topaz Lake may be used as a helicopter dip site and drafting source (approximately six mile round trip).

*Community Preparedness*

The Holbrook Junction community formed a local chapter of the Nevada Fire Safe Council in October of 2003. There is currently no evacuation plan for residents of the community, nor do the emergency and disaster plans provide information on safe zones within the community.

### *14.1.5 Factors Affecting Fire Behavior*

Vegetation, dead and down fuels, and topographic features contribute to the potential fire hazard around wildland-urban interface communities. The fuel hazards were mapped for Holbrook Junction and fuel hazard photos were taken to provide additional information for the vegetation type descriptions (see Figures 14-2 and 14-3).

The majority of the terrain is gently sloping (less than eight percent slope) with steeper slopes greater than twenty percent on the west side of the community. The predominant winds are from the west and southwest, and downslope winds are common, especially in the late afternoon during the summer months. Numerous fires have occurred within the vicinity of the community from both human and lightning causes. The 9,283-acre Gate Complex Fire occurred south of the community in 2002. A 7,443-acre fire occurred northeast of the community in 1996 and a 307-acre fire and the sixteen-acre Wildoat Fire occurred east of the community in 1994. Numerous other fires have occurred south of the community between 1950 and 1975.

The predominant vegetation in the community is characterized by a pinyon pine overstory with an understory of big sagebrush, bitterbrush, needlegrass, bottlebrush squirreltail, cheatgrass, and various forbs. The pinyon pines were generally twenty feet in height with tree canopies spaced less than ten feet apart. The pinyon pine woodlands were considered a high to extreme fuel hazard. In the southeast portion of the community, sagebrush and crested wheatgrass are the dominant species. In this area of the community the fuel hazard was considered moderate.

### *14.1.6 Previous Fire Hazard Reduction Projects*

Several fuel reduction projects have been conducted within and adjacent to the Holbrook Junction community (Figure 14-4). The US Forest Service has installed a fifty to 100-foot wide firebreak adjacent to a 900-foot wide shaded fuelbreak on National Forest lands abutting the south side of the community. The trees and shrubs were removed using mechanical mastication equipment. The Forest Service also installed a 300-foot wide fuelbreak along the north perimeter of the community and two fuel treatment areas where trees were thinned to a spacing of thirty feet between canopies.

Projects funded through the Nevada Division of Forestry Forest Stewardship Program and the Stewardship Incentive Cost-Share Program in the Holbrook Junction community in 2002 treated 27 parcels for defensible space to varying degrees depending upon homeowner preference. The treatments included thinning, removing lower limbs of trees, diseased trees, shrubs, and other ladder fuels.

In 2004, a Nevada Division of Forestry grant provided funding to complete the first half of a shaded fuelbreak on the west side of the Holbrook Junction community (10.5 acres). A Great Basin Institute hand crew constructed the shaded fuelbreak by thinning trees to approximately 40 trees per acre and hand grubbing about 60 percent of the brush for a

width of 150 feet. Slash from the fuel reduction was chipped onsite and transported to the Spring Valley/Double Springs community fuels disposal site.

The Bureau of Land Management has provided funding to finish the west side shaded fuelbreak in the fall of 2005. The US Forest Service has given permission for temporary slash disposal on a parcel adjacent to the community. Other planned treatments for 2005 include additional fuel reduction along interior roads and adjacent to US Hwy 395.

### *14.1.7 Fire Behavior and Worst Case Scenario*

The worst-case scenario for a wildland fire in the Holbrook Junction community would involve a wind-driven wildland fire ignited south of the community on the east-facing slope. If the fire were to occur in the mid-afternoon on a high hazard day with south or southwest winds in excess of 25 miles per hour, the fire would likely burn northward and quickly threaten residences in the community. Due to the high fuel loads and fuel bed continuity, extreme fire behavior could be exhibited under high wind speed conditions. The scenario would be worse if East Fork Fire and Paramedic Districts resources were unavailable due to assignment to an emergency situation elsewhere.

### *14.1.8 Ignition Risk Assessment*

Holbrook Junction has a high ignition risk rating. A significant history of wildfire and fire ignitions exists in the public lands and private lands surrounding the community. High ignition rates are likely due to the high fuel loads in and around the community, the tendency for lightning storms during the summer, and the number of people using the wildlands near Holbrook Junction.

## 14.2 RISK AND HAZARD REDUCTION RECOMMENDATIONS

The Holbrook Junction risk and hazard reduction recommendations focus on improving defensible space and promoting homeowner responsibilities. Other recommendations pertain to community coordination efforts that could be initiated to enhance the fire safe nature of the Holbrook Junction community. Recommendations are detailed below.

### *14.2.1 Defensible Space*

*Property Owner Recommendations*

Implement defensible space according to the vegetation type surrounding the structure. Refer to Appendix D for specific defensible space recommendations.

- Homes within the extreme hazard areas should be treated with a minimum defensible space distance of 30-feet with an additional fuel reduction treatment area of 120 feet extending beyond the 30-foot distance.
- Homes within the moderate hazard areas should install a minimum 30-foot defensible space distance around homes with an additional 100-foot treatment area of brush thinning.

### *14.2.2 Fire Suppression Capabilities*

Proper maintenance, storage, and acquisition of fire suppression equipment along with regular and appropriate firefighter training increases fire suppression capability for those areas where fire protection is available.

*East Fork Fire and Paramedic Districts Recommendation*

- Coordinate with the Nevada Division of Forestry to seasonally station an additional wildfire engine and crew at Station #4 (Topaz Ranch Estates VFD).

*Property Owner Recommendation*

- Coordinate with the Nevada Fire Safe Council and the UNR Cooperative Extension Service to encourage homeowners to retrofit their driveways and create adequate turnarounds or horseshoe driveways to improve access for firefighting equipment. This includes reinforcing all driveway culverts that do not currently support the weight of the Type I fire engines.

*Douglas County Roads Department Recommendation*

- Coordinate with the affected landowners to construct the approved road (Shelby Lane) between Reese and Penrod Lanes to improve emergency evacuation and firefighter access.

### *14.2.3 Fuel Reduction Treatments*

Fuel reduction treatments are applied on a larger scale than defensible space treatments. By permanently changing the fuel structure over large blocks of land to one of a lower volume or reduced flammability (a fuel reduction treatment), the expected result in the event of a catastrophic wildfire would be one of reduced capacity for uncontrolled spread through the treatment area. Construct shaded fuelbreaks in the locations indicated in Figure 14-2 according to the specifications listed below.

*Property Owner Recommendations*

- Construct and maintain a 200-foot wide shaded fuelbreak for the length of Penrod Lane. Cut all pinyon trees within fifty feet of both sides of the road, and thin trees to a canopy spacing of one and one-half (1½) times the height of the trees for an additional fifty feet on each side of the road. Thin all shrubs in the fuelbreak area such that canopies are spaced by a distance two times the height of the shrubs.
- Reduce tree and shrub densities on all private land parcels forming the north and west boundaries of the community. Thin trees to a minimum canopy spacing distance of 1½ times the height of the trees.
- Remove shrubs and other vegetative fuels within thirty feet of each side of Reese Lane and plant the area with crested wheatgrass.
- Remove all trees within a minimum distance of thirty feet of each side of the driveway. Reduce shrub density within 100 feet of each side of private driveways within the community.

- Construct and maintain a 100-foot wide shaded fuelbreak around the perimeter of the trailer park. Prune branches of remaining trees to a minimum height of four feet above ground.

*Nevada Fire Safe Council and Bureau of Land Management Recommendation*

- Complete construction of the 150-foot wide shaded fuelbreak by the fall of 2005.

*Douglas County Recommendation*

- Coordinate with Douglas County to revise annual road maintenance plans to include removal and thinning of overhanging vegetation within county road right-of-ways to meet the specifications in the *Fire Safe Plan* (RCI 2003).

*Utility Company Recommendation*

- Continue clearing all trees underneath and adjacent to overhead power lines and poles. This includes the poles and lines to individual parcels. Trees that can touch or blow into the power lines create a hazard that can easily be removed and maintained.

### *14.2.4 Community Coordination*

Many of the most effective activities aimed at reducing the threat of wildfire for the Holbrook community require that individual property owners coordinate with each other and with local fire authorities. Address signage and defensible space, for example, are more effective in communities when applied uniformly throughout entire neighborhoods. Public education and awareness, neighbors helping neighbors, and proactive individuals setting examples for others to follow are just a few of the approaches that will be necessary to meet the fire safe goals in the community. Disposal of biomass generated from defensible space and fuel reduction treatments can sometimes be most efficiently handled through community programs.

*Property Owner and East Fork Fire and Paramedic Districts Recommendations*

- Increase wildfire issue awareness through distribution of the Holbrook Junction Community Fire Safe Plan, community newsletters, publications, and public awareness meetings.
- Initiate a local community and VFD project to install roadside metal address signs with four-inch reflective lettering at all residences to assist emergency responders in locating residences.

## 14.3 SUMMARY OF RECOMMENDATIONS

**Table 14-1. Holbrook Junction Priority Recommendations to Reduce Wildfire Risks and Hazards**

| INVOLVED PARTY | RECOMMENDED TREATMENT | RECOMMENDATION DESCRIPTION |
|---|---|---|
| **Property Owners** | Defensible Space | Remove, reduce, and replace vegetation around homes to create defensible space. |
| | Fire Suppression Capability | Retrofit driveways and create adequate turnarounds or horseshoe driveways to improve access for firefighting equipment. |
| | Fuels Reduction | Remove all trees within a minimum distance of thirty feet of each side of the driveway. Reduce fuels within 100 feet of each side of private driveways within the community.<br>Coordinate with the local fire suppression agencies to install proposed fuel reduction treatments. |
| | Community Coordination | Post addresses that are clearly visible from the road on all homes within the community.<br>Increase wildfire issue awareness through distribution of the Holbrook Junction Community Fire Safe Plan, community newsletters, publications, and public awareness meetings. |
| **Utility Company** | Fuels Reduction | Remove pinyon and juniper trees within fifteen feet of either side of power lines and poles throughout the Holbrook Junction community. |
| **East Fork Fire and Paramedic Districts** | Fire Suppression Capability | Coordinate with the Nevada Division of Forestry to seasonally station an additional wildfire engine and crew at Station #4 (Topaz Ranch Estates VFD). |
| **Nevada Fire Safe Council**<br>**BLM** | Fuels Reduction | Complete construction of the 150-foot wide shaded fuelbreak on the west side of the community. |
| **Douglas County Roads Department** | Fire Suppression Capability | Coordinate with the affected landowners to construct and maintain the approved road (Shelby Lane) between Reese and Penrod Lanes to improve emergency evacuation and firefighter access. |
| **East Fork Fire and Paramedic Districts** | Fuels Reduction | Coordinate with private landowners to construct and maintain shaded fuelbreaks and fuel reduction treatments throughout the community.<br>Coordinate with Douglas County to revise annual road maintenance plans to include removal and thinning of overhanging vegetation within county road right-of-ways. |

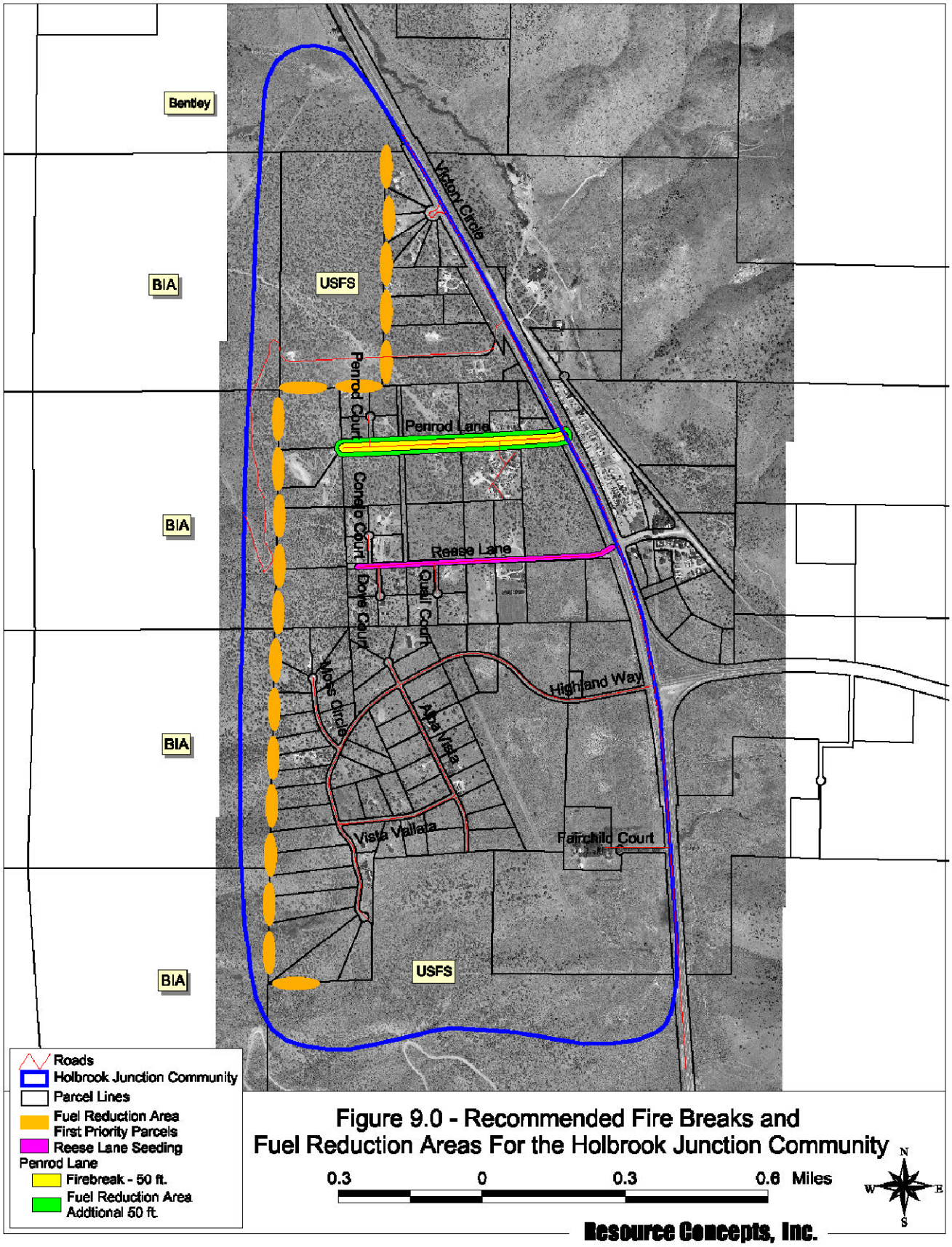
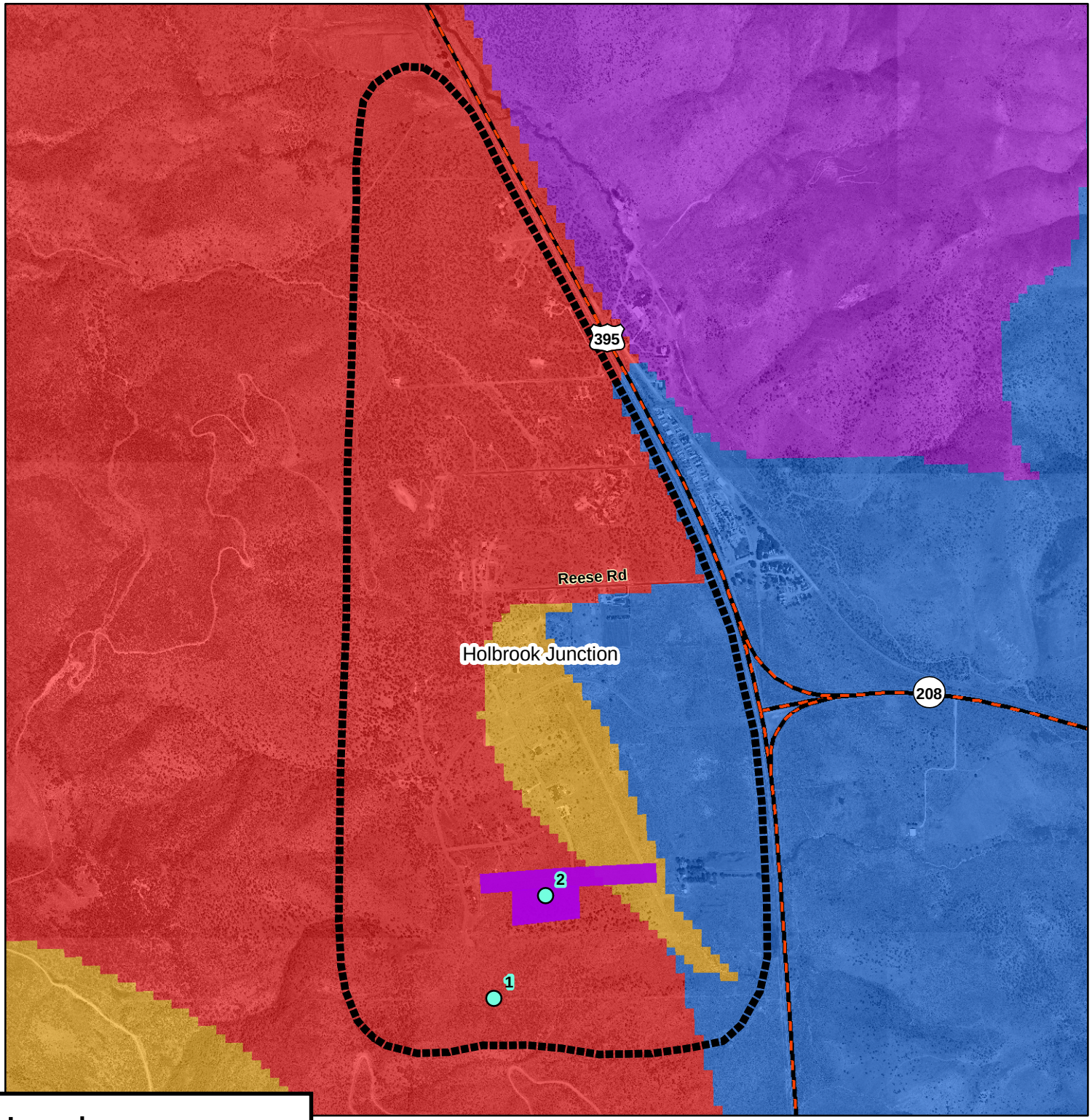



Figure 14-1. Holbrook Junction
Planned and Partially Completed Mitigation Projects (RCI 2002)

Source: Resource Concepts, Inc. 2002. Community Fire Safe Plan for the Holbrook Junction Community, Douglas County, Nevada. Prepared for the Nevada Fire Safe Council. October 2002.

Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600

***Nevada Community Wildfire Risk / Hazard Assessment Project***




**Legend**

- Community Boundary
- Highways and State Routes

**Fuel Hazard**

- Extreme
- High
- Moderate
- Low
- Photo Point

Figure 14-2. Holbrook Junction
Fuel Hazard Classification

N
W E
S

0 500 1,000 2,000
Feet

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***Nevada Community Wildfire Risk / Hazard Assessment Project***

**Figure 14-3. Holbrook Junction Fuel Hazard Photo Points**

**Photo Point 1.** Holbrook Junction Fuel Hazard Photo Point. 4288739N, 0276959E, 12°N. The extreme hazard pinyon pine/sagebrush/bitterbrush and moderate hazard sagebrush/crested wheatgrass vegetation types are the main fuel types identified in the Holbrook Junction community.

**Photo Point 2.** Holbrook Junction Fuel Hazard Photo Point. 4289084N, 0277140E, 90°E. South of the community, the US Forest Service has installed a 100-foot wide firebreak adjacent to a 900-foot wide shaded fuelbreak. The firebreak is dominated by lupine, bottlebrush squirreltail, and cheatgrass and was considered a low fuel hazard.

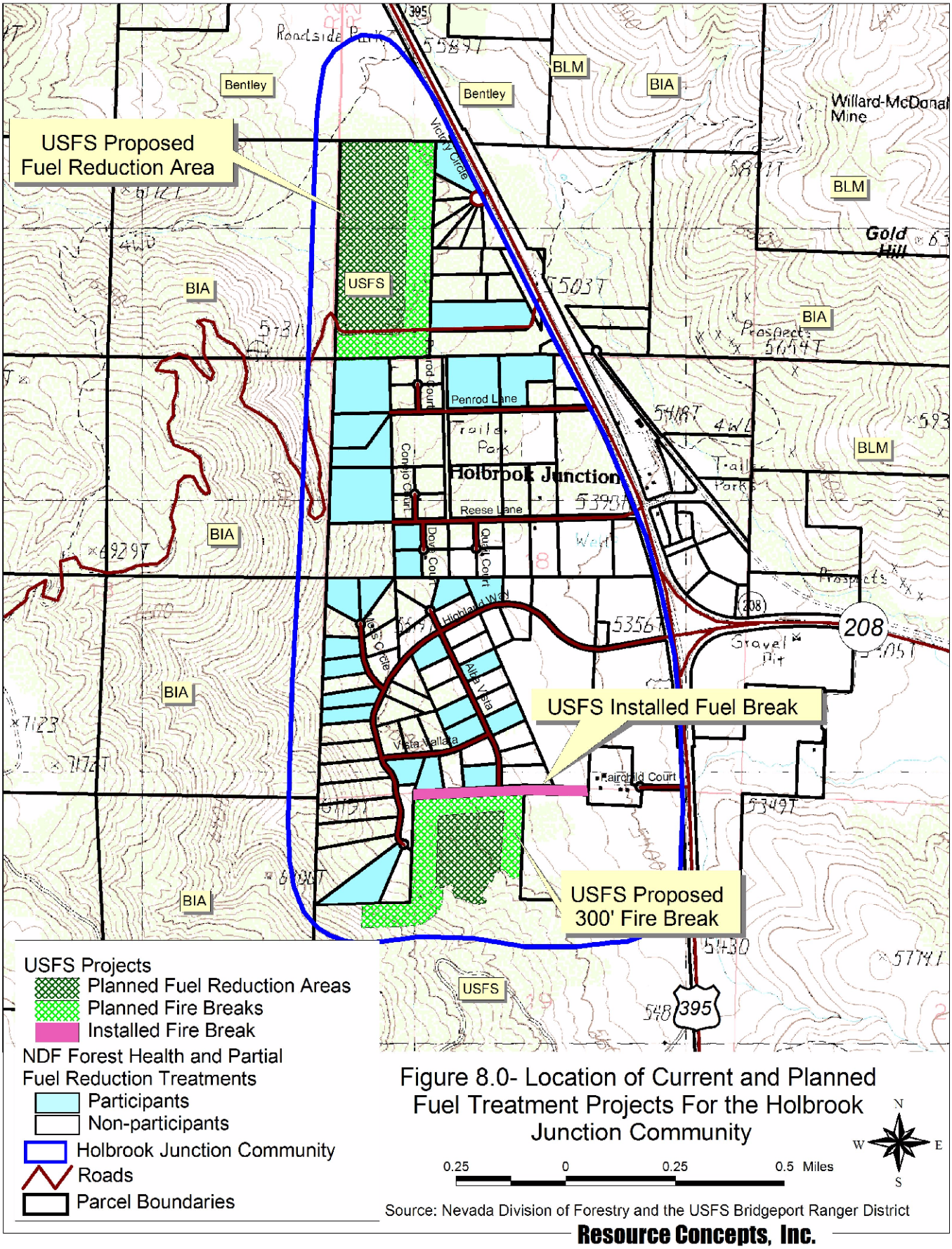


Figure 8.0- Location of Current and Planned Fuel Treatment Projects For the Holbrook Junction Community

Source: Nevada Division of Forestry and the USFS Bridgeport Ranger District

**Resource Concepts, Inc.**

Figure 14-4. Holbrook Junction
USFS and NDF Completed Mitigation Projects

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Carson City, NV 89703
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Source: Resource Concepts, Inc Community Fire Safe Plan for the Holbrook Junction Community, October 2002

# 15.0 JACKS VALLEY/INDIAN HILLS

## 15.1 HAZARD AND RISK ASSESSMENT

The Jacks Valley/Indian Hills community is located in northern Douglas County east of Alpine View and north of Minden, Nevada. The community is situated on southeast-facing alluvial fans. Residential and commercial development is currently occurring in the community. The community is bordered by public lands to the northeast, by tribal lands to the northwest, by National Forest lands to the west, and by a golf course to the southeast. Approximately 500 homes were observed in the community during the assessment. **The hazard assessment resulted in classifying Jacks Valley/Indian Hills in the Moderate Hazard category** (43 points). A summary of the factors that determine this hazard rating is included in Table 15-2. The primary hazards for the Jacks Valley/Indian Hills community were the potential for hazardous fire behavior and small lot sizes (high density housing) in the interface areas.

### *15.1.1 Community Design*

Jacks Valley/Indian Hills has the characteristics of both classic interface and intermix wildland-urban interface conditions. The classic interface is characterized by areas where subdivisions border wildland fuels with a clear line of demarcation between the fuels and the residences. Many lot sizes are primarily less than one acre in the newer subdivisions such as Sunridge. The intermix interface condition has structures scattered throughout the wildland area with no clear line of demarcation between wildland fuels and the lands and buildings of the community. In parts of the community characterized by the intermix condition the parcels are generally greater than one acre in size (see Figure 15-1).

**Roads:** US Highway 395, Jacks Valley Road, Mica Drive, Plymouth Drive, and Hobo Hot Springs are the primary roads providing access between the various subdivisions in the Jacks Valley/Indian Hills community and other communities in Douglas County. The roads are paved, usually greater than 24 feet wide, and provide adequate access for fire suppression vehicles. Most of the secondary community roads have adequate turn around space for fire suppression equipment, and the majority of community roads have less than a five percent gradient.

**Signage:** Street names were adequately identified with reflective letter signs. Residential addresses were visible on a majority of the homes assessed. Clear and visible residential addresses are important to aid firefighting personnel in locating homes during low visibility conditions that occur during a wildland fire.

**Utilities:** Overhead power lines are present within the community. Power line right-of-ways were properly maintained, which minimizes the possibility of power lines sparking during windstorms and starting fires in nearby vegetation.

### *15.1.2 Construction Materials*

Approximately nine percent of the homes assessed had wood shake roofing materials. The remainder of the homes assessed were built with fire resistant siding materials and non-combustible roofing materials, mainly composition type roofing. About eighteen percent of the homes observed have unenclosed balconies, porches, decks, or other architectural

features that create drafts and provide areas where sparks and firebrands can be trapped, smolder, ignite, and rapidly spread fire to the home.

### *15.1.3 Defensible Space*

A majority of the homes in the interface had landscaping that would meet the minimum defensible space requirement to help protect the home from damage or loss during a wildfire.

### *15.1.4 Suppression Capabilities*

*Wildfire Protection Resources*

Jacks Valley/Indian Hills is provided wildland and structure fire protection by the East Fork Fire and Paramedic Districts Indian Hills Career-staffed Station 12 and the Jacks Valley Volunteer Fire Department Station 13. See Tables 4-2 and 4-3 for more information on the typical fire suppression response for first-alarm wildland-urban interface fires in Douglas County. Appendix E lists the type and number of fire suppression vehicles located at each EFFPD career staffed and VFD station.

*Water Sources and Infrastructure*

Water availability for fire suppression in Jacks Valley/Indian Hills includes one 50,000-gallon tank in Jacks Valley and two tanks with a total capacity of 1.5 million-gallons. There is an emergency generator for the pumps on the wells that fill the tanks. There are hydrants available throughout the Indian Hills portion of the community and hydrants available in some areas of the Jacks Valley community. However, the Jacks Valley hydrants do not meet the current fire code for flow capacity. The Carson River may be used as a helicopter dip site.

### *15.1.5 Factors Affecting Fire Behavior*

Vegetation, dead and down fuels, and topographic features contribute to the potential fire hazard around wildland-urban interface communities. The terrain around Jacks Valley/Indian Hills is generally flat with southeast-facing slopes less than eight percent. The vegetative fuel density on the west side of the Jacks Valley/Indian Hills community is high, estimated at eight to ten tons per acre and consist primarily of big sagebrush, bitterbrush, and desert peach with a cheatgrass and bottlebrush squirreltail understory. Typical shrub heights range between four and eight feet.

Vegetation near Mica Drive is very similar to vegetation south and east of the Sunridge development. In both areas, vegetative fuels consist of big sagebrush, bitterbrush, and rabbitbrush with traces of crested wheatgrass, cheatgrass, and Russian thistle in the understory. Shrubs ranging in height from one to six feet are generally widely spaced (greater than eight feet). Fuel loads in these areas were estimated at two to three tons per acre and considered a low fuel hazard.

North of the Sunridge development on the east side of US Hwy 395, the vegetative fuels consist of big sagebrush, bitterbrush and rabbitbrush with an understory of needlegrass, cheatgrass, and bottlebrush squirreltail. The fuel load was estimated at three to six tons per acre and was considered a moderate fuel hazard.

Fire ignitions have occurred within the vicinity of the community from both human and lightning causes. An eighteen-acre fire occurred in the west portion of the community in 1989. Numerous small fires have occurred in the Jacks Valley Wildlife Management Area. The predominant wind direction is from the south/southwest, especially in the late afternoon.

### *15.1.6 Fire Hazard Reduction Projects*

The USFS Humboldt-Toiyabe Carson Ranger District constructed a 200 to 400 foot wide fuelbreak along the north and northwest sides of the Jacks Valley/Indian Hills community. The Washoe Tribe of Nevada and California extended the treatment with a 25-foot wide fuelbreak from the USFS project to the north end of Summer Hill Street. The Jacks Valley VFD secured grants and constructed a 100 to 150-foot wide fuelbreak on the southwest side of the Jacks Valley/Indian Hills community. The Jacks Valley VFD has also been maintaining this fuelbreak.

The USFS Humboldt-Toiyabe Carson Ranger District is in the process of planning approximately 340 acres of fuel reduction treatment within the Jacks Valley Wildlife Management Area, located just west of the Jacks Valley/Indian Hills community. Proposed treatments include several 200-foot wide fuelbreaks along the National Forest boundary and along designated roads. Mechanical mastication equipment will likely be the primary method used to reduce fuels, except in areas where topography and ground conditions warrant the use of hand crews (see Figure 15-4). A final decision on implementation of this project is pending due to funding and prioritization by the Carson Ranger District.

### *15.1.7 Fire Behavior Worst Case Scenario*

The worst-case scenario for Jacks Valley/Indian Hills would likely occur in the event of a lightning or human-caused ignition southwest of the community. With south or southwest winds exceeding 25 miles per hour, a fire could rapidly spread through the dense sagebrush and quickly threaten homes. Spot fires could expose numerous community structures to fire.

### *15.1.8 Ignition Risk Assessment*

Jacks Valley/Indian Hills has been rated with a high ignition risk. Several fires and ignitions have occurred within and immediately adjacent to the community (Figure 15-1). The predominant ignition risks for Jacks Valley/Indian Hills are dry lightning and off-road-vehicle usage.

## 15.2 RISK AND HAZARD REDUCTION RECOMMENDATIONS

The Jacks Valley/Indian Hills risk and hazard reduction recommendations focus on improving defensible space and promoting homeowner responsibilities. Other recommendations pertain to community coordination efforts that could be initiated to enhance the fire safe nature of Jacks Valley/Indian Hills.

### *15.2.1 Defensible Space Treatments*

*Property Owner Recommendations*

Defensible space treatments are an essential first line of defense for residential structures. Significantly reducing or removing vegetation within a prescribed distance from structures (minimum of 30 feet to 200 feet depending upon slope and vegetative fuel type) reduces fire intensity and improves firefighter and homeowner chances for successfully defending a structure against an oncoming wildfire.

- Remove, reduce, and replace vegetation around homes according to the guidelines in Appendix D. This area should be kept:

  Lean – There are only small amounts of flammable vegetation,

  Clean – There is no accumulation of dead vegetation or other flammable debris,

  Green – Existing plants are healthy and green during the fire season.

- Maintain the area beneath unenclosed wood decks and porches free of weeds and flammable debris. Enclose these areas wherever possible.
- Mow or remove brush growing within a distance of 25 feet and grass within ten feet of wood fences in the community.
- Store firewood a minimum distance of thirty feet from structures.
- Install spark-arresting screens on chimneys.
- Irrigate all trees and large shrubs in close proximity to structures to increase their fire resiliency, which is especially important during drought conditions.
- Cheatgrass or other annual grasses that have become dominant within the defensible space zone should be mowed or treated with an application of pre-emergent herbicide prior to seed set.[14] Treatments may need to be repeated the following year to ensure that the seed bank of unwanted grasses has been depleted. Refer to Appendix D for recommended seed mixes and planting guidelines that can be used in conjunction with removal of this annual grass.
- Immediately remove cleared vegetation to an approved disposal site when implementing defensible space treatments. This material dries quickly and presents a fire hazard if left on site.
- Maintain this defensible space as needed to keep the space lean, clean, and green.

### *15.2.2 Fuel Reduction Treatments*

Fuel reduction treatments are applied on a larger scale than defensible space treatments. By permanently changing the fuel structure over large blocks of land to one of a lower volume or reduced flammability (a fuel reduction treatment), the expected result in the event of a catastrophic wildfire would be one of reduced capacity for uncontrolled spread through the treatment area.

[14] Extreme caution should be taken when using herbicides to completely follow all label instructions. Consult with University of Nevada Cooperative Extension specialists for assistance with appropriate herbicide products and application procedures.

*Property Owner Recommendations*

- Reduce vegetative fuels for a distance of ten feet on both sides of private driveways longer than 200 feet. Remove highly flammable shrub species and replace them with fire-resistant species such as crested wheatgrass, lawn, or a fire-resistant seeding. Appropriate seed mixtures and seeding specifications are provided in Appendix D.
- Coordinate with the US Forest Service and Washoe Tribe to construct and maintain existing and proposed fuelbreaks on the west side of the community.

*US Forest Service and Washoe Tribe Recommendation*

- Maintain existing fuelbreaks within the community every three to seven years as needed to maintain reduced fuel conditions (Figure 15-1).

*US Forest Service Recommendations*

- Construct and maintain a 100 to 200 foot wide fuelbreak for a distance of approximately one mile on the south side of Jacks Valley Road between the communities of Alpine View and Jacks Valley/Indian Hills. The total proposed treatment area is approximately 12 to 24 acres (see Figure 15-1). Remove all shrubs (except bitterbrush) and seed the fuelbreak with a seed mix suitable to the site such as the mix provided in Appendix D. The biomass generated from construction of the fuelbreak should be removed and disposed of at an appropriate site.
- Maintain existing fuelbreaks within the community every three to seven years or as necessary to maintain reduced fuel conditions.
- Construct and maintain the proposed 200-foot wide fuel reduction areas shown in Figure 15-2 and described in section 15.1.6.

*Utility Company Recommendation*

- Remove shrubs within fifteen feet of power poles and trim tree limbs within fifteen feet of power lines throughout the Jacks Valley/Indian Hills community.

### *15.2.3 Community Coordination*

Many of the most effective activities aimed at reducing the threat of wildfire for the Jacks Valley/Indian Hills community require that individual property owners coordinate with each other and with local fire authorities. Defensible space, for example, is more effective in small communities when applied uniformly throughout entire neighborhoods. Public education and awareness, neighbors helping neighbors, and proactive individuals setting examples for others to follow are just a few of the approaches that will be necessary to meet the fire safe goals in the community. Disposal of biomass generated from defensible space and fuel reduction treatments can sometimes be most efficiently handled through community programs.

*Property Owner Recommendations*

- Assure addresses are visible from the road on all homes within the community. Address characters should be readily visible from the road, at least four inches tall and reflective.
- Reorganize the Alpine View/Jacks Valley chapter of the Nevada Fire Safe Council to include the Indian Hills and Sunridge areas.

*East Fork Fire and Paramedic Districts and Nevada Division of Forestry Recommendation*

- Distribute copies of the publication *"Living With Fire"* to all property owners who live in Jacks Valley/Indian Hills. This publication is free of charge. Copies can be requested from the University of Nevada Cooperative Extension.

## 15.3 SUMMARY OF RECOMMENDATIONS

**Table 15-1. Jacks Valley/Indian Hills Priority Recommendations to Reduce Wildfire Risks and Hazards**

| INVOLVED PARTY | RECOMMENDED TREATMENT | RECOMMENDATION DESCRIPTION |
|---|---|---|
| **Property Owners** | Defensible Space | Remove, reduce, and replace vegetation around homes according to the defensible space guidelines in Appendix D. |
| | Fuels Reduction | Reduce vegetative fuels for a distance of ten feet on both sides of private driveways longer than 200 feet.<br>Coordinate with the US Forest Service and Washoe Tribe to construct and maintain existing and proposed fuelbreaks on the west side of the community. |
| | Community Coordination | Assure that addresses are clearly visible from the road.<br>Reorganize the local chapter of the Nevada Fire Safe Council to include the Indian Hills and Sunridge areas. |
| **US Forest Service** | Fuels Reduction | Construct and maintain a 100 to 200 foot wide fuelbreak for a distance of approximately one mile on the south side of Jacks Valley Road between the communities of Alpine View and Jacks Valley/Indian Hills.<br>Coordinate with property owners to conduct maintenance every three to seven years on existing fuelbreaks near the community (Figure 15-1).<br>Construct the proposed 200-foot wide fuel reduction areas shown in Figure 15-2. |
| **Washoe Tribe** | Fuels Reduction | Coordinate with property owners to conduct maintenance every three to seven years on existing fuelbreaks near the community (Figure 15-1). |
| **Utility Company** | Fuels Reduction | Remove trees or trim any branches within fifteen feet of either side of power lines and poles throughout the Jacks Valley/Indian Hills community. |
| **East Fork Fire and Paramedic Districts**<br><br>**Nevada Division of Forestry** | Community Coordination | Distribute copies of the publication *"Living With Fire"* to all property owners. |

## Table 15-2 Jacks Valley/Indian Hills Wildfire Hazard Rating Summary

**A. Urban Interface Condition** ***2***

**B. Community Design**

| | | |
|---|---|---|
| 1. Ingress / Egress | 0 | /5 |
| 2. Width of Road | 0 | /5 |
| 3. Accessibility | 0 | /3 |
| 4. Secondary Road | 0 | /5 |
| 5. Street Signs | 1 | /5 |
| 6. Address Signs | 1 | /5 |
| 7. Utilities | 3 | /5 |

**C. Construction Materials**

| | | |
|---|---|---|
| 1. Roofs | 1 | /10 |
| 2. Siding | 1 | /5 |
| 3. Unenclosed Structures | 1 | /5 |

**D. Defensible Space**

| | | |
|---|---|---|
| 1. Lot Size | 5 | /5 |
| 2. Defensible Space | 1 | /15 |

**F. Fire Behavior**

| | | |
|---|---|---|
| 1. Fuels | 5 | /5 |
| 2. Fire Behavior | 7 | /10 |
| 3. Slope | 1 | /10 |
| 4. Aspect | 10 | /10 |

**E. Suppression Capabilities**

| | | |
|---|---|---|
| 1. Water Source | 5 | /10 |
| 2. Department | 1 | /10 |

***TALLIES***

**510 Total Houses** **43 Residential Streets**

**B5. Street Signs**

0 not visible | 43 visible | 100% visible

**B6. Address Signs**

32 not visible | 478 visible | 94% visible

**C1. Roofs**

49 combust | 461 not combust | 90% not combust

**C2. Siding**

1 combust | 509 not combust | 100% not combust

**C3. Unenclosed Structures on Lot**

90 not enclosed | 420 enclosed | 18% not enclosed

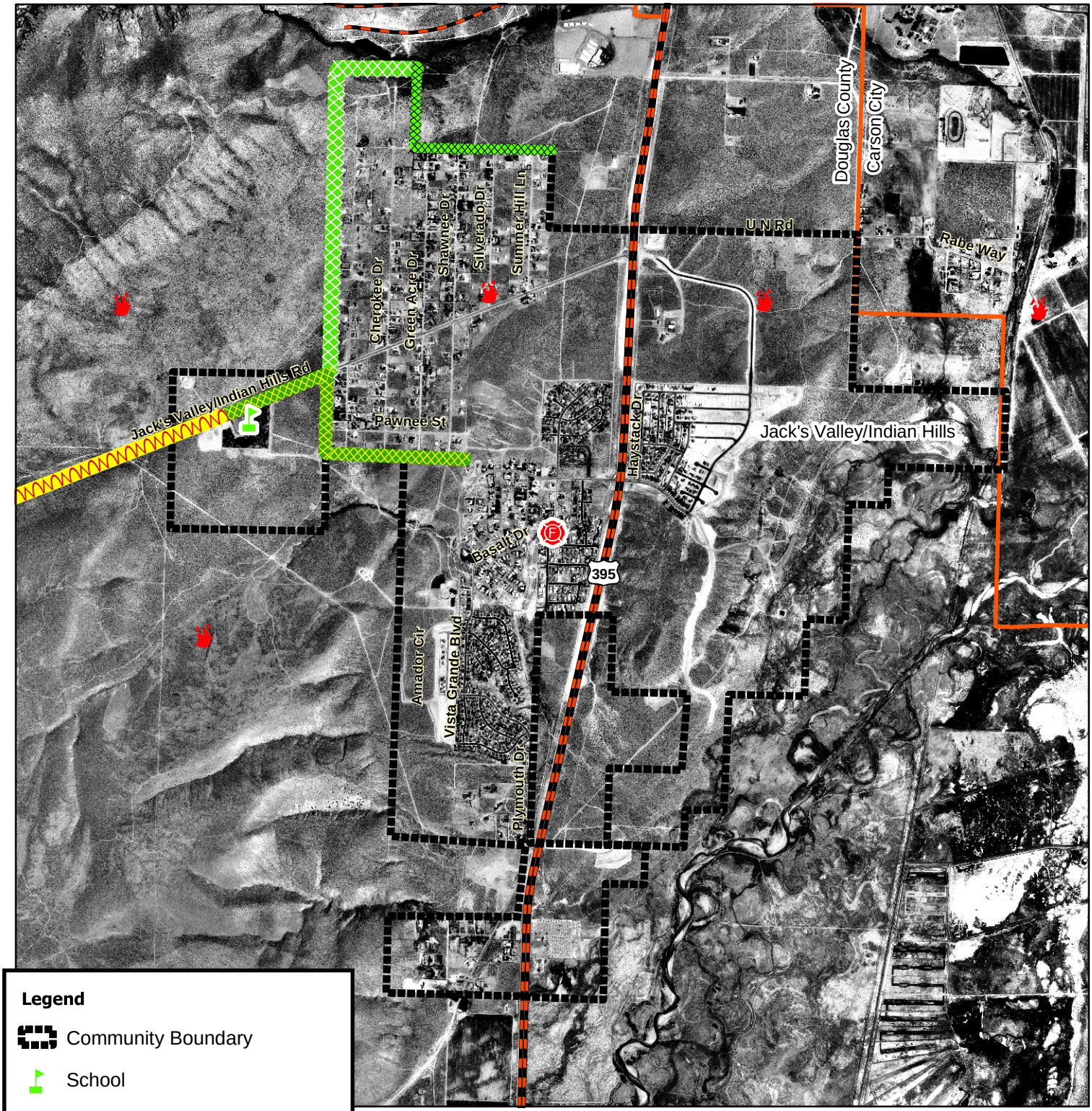
**D1. Lot Sizes**

480 <1ac | 30 >1ac <10ac | 0 >10ac

**D2. Defensible Space**

62 not adequat | 448 adequate | 88% adequate

**Score** **43** /128




**Legend**

- Community Boundary
- School
- Fire Station
- Fire Ignition
- Highways and State Routes

**Fuel Reduction Treatments**

- Existing 25' Fuelbreak
- Existing 100'-150' Fuelbreak
- Existing 200'-400' Fuelbreak
- Proposed 100'-200'Fuelbreak

Figure 15-1. Jack's Valley/Indian Hills Fire History, Suppression Resources, Critical Features, and Mitigation Projects

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Feet

Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600

***Nevada Community Wildfire Risk / Hazard Assessment Project***

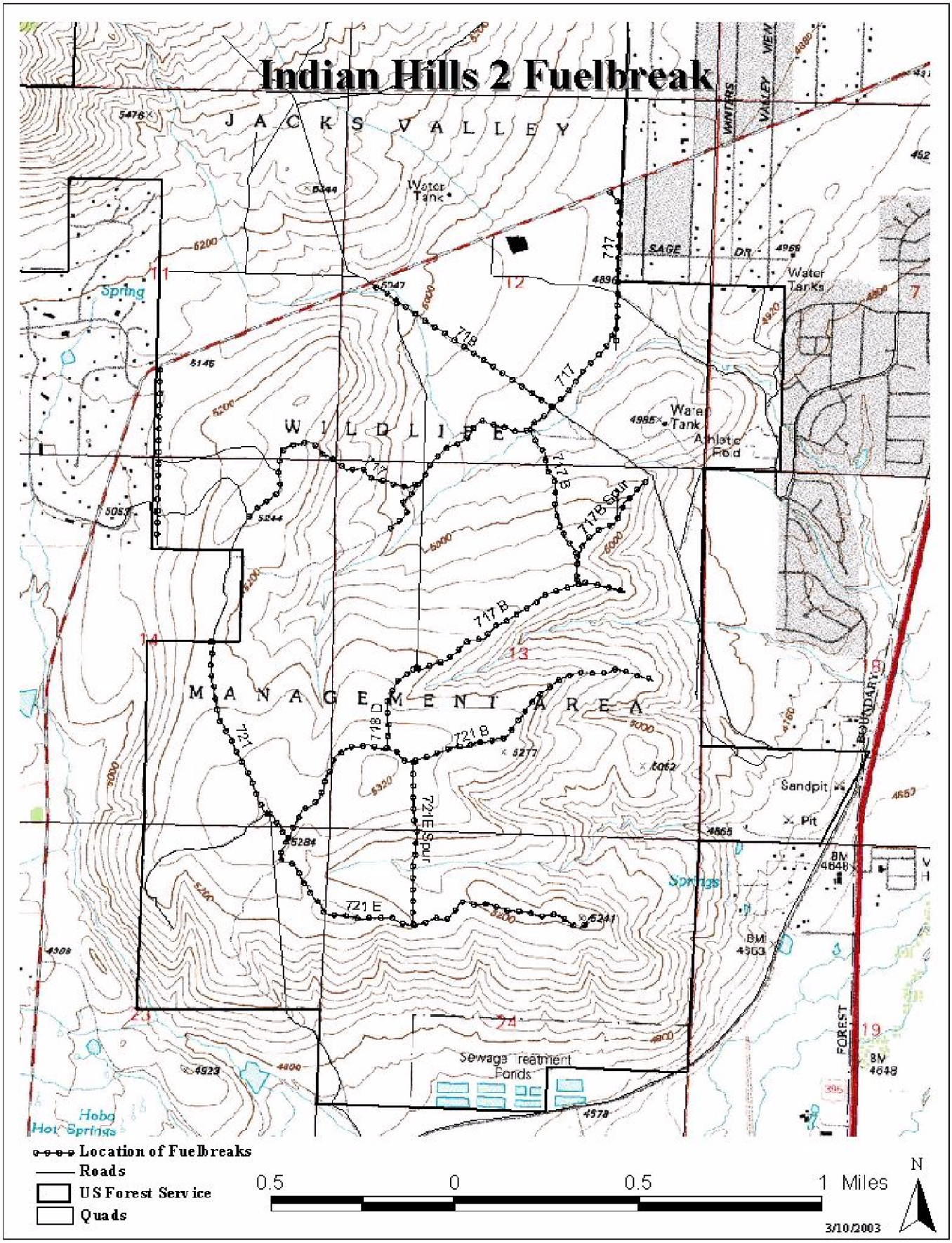



Figure 15-2. Jack's Valley/Indian Hills
USFS Proposed Mitigation Project

Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600



Source: U. S. Forest Service - Carson Ranger District

# 16.0 JOB'S PEAK RANCH

## 16.1 BLACKBULL WILDFIRE SERVICES HAZARD AND RISK ASSESSMENT

In 2004, Blackbull Wildfire Services completed an assessment entitled "Community Wildfire Threat Reduction and Project Implementation Plan for Job's Peak Ranch, September 2004," on behalf of the Nevada Fire Safe Council. The pertinent information for this report is summarized from the Blackbull Job's Peak Ranch assessment.

The Job's Peak Ranch community is located 4.5 miles southwest of Minden, Nevada along State Route 206 (Foothill Road). The community is situated west of Foothill Road on the east-facing alluvial fan, at the base of Job's Peak. The 1,080-acre Ranch was subdivided into 122 parcels between two and seventeen acres in size. At the time of the assessment, 31 parcels were developed or in the process of being developed, with another 87 parcels sold. Sale of a new phase of parcels is scheduled for the spring of 2005. **The assessment resulted in classifying the Job's Peak Ranch community in the High Hazard category.**[15] The primary hazard factor for the Job's Peak Ranch was the high hazard vegetation in close proximity to homes.

### *16.1.1 Community Design*

The Job's Peak Ranch interface area is characterized as the intermix wildland-urban interface condition. Structures are scattered throughout the wildland area with no clear line of demarcation between wildland fuels and residences in the community (Figure 16-1).

**Roads:** Five Creeks Road is the only access road to the community from Foothill Road. This road is paved, has a grade greater than five percent and is between 20 and 24 feet in width.

**Signage:** Street signs were not present and visible along all streets in the subdivision. Clear and visible residential addresses and street signs are important to aid firefighting personnel in locating homes during low visibility conditions that occur during a wildland fire.

**Utilities:** Electrical utilities are underground. Above ground propane tanks were noted in the community with flammable wood structures built around propane tanks to hide them.

### *16.1.2 Construction Materials*

A great majority of the homes in the community were built with Class A fire-resistant roofing materials and a majority of homes observed had unenclosed balconies, porches, decks, or other architectural features that create drafts and provide areas where sparks and firebrands can be trapped, smolder, ignite, and rapidly spread fire to the home.

[15] The community hazard rating was adapted from National Fire Protection Association Form 1144.

### *16.1.3 Defensible Space*

A majority of the homes assessed had between thirty and seventy feet of vegetative clearance around the home. In Job's Peak Ranch the recommended minimum defensible space distance ranges between 100 and 200 feet depending upon slope.

### *16.1.4 Suppression Capabilities*

*Wildfire Protection Resources*

The Sheridan Volunteer Fire Department (Station 8) and the Nevada Division of Forestry Sierra Forest Fire Protection District are responsible for wildfire and structure fire protection in Job's Peak Ranch. The VFD Station is within five miles of the community. See Tables 4-2 and 4-3 for more information on the typical fire suppression response for first-alarm wildland-urban interface fires in Douglas County. Appendix E lists the type and number of fire suppression vehicles located at each EFFPD and Douglas County VFD station.

*Water Sources and Infrastructure*

Fire hydrants (500 gpm) are available and spaced less than 1,000 feet apart in the Job's Peak Ranch community. Several creeks within the community flow year round and are available water drafting sources.

*Community Preparedness*

The Job's Peak Ranch community formed a local chapter of the Nevada Fire Safe Council in August of 2003. There is currently no evacuation plan for residents of the community, nor is there information on safe zones within the community in the emergency and disaster plans.

### *16.1.5 Factors Affecting Fire Behavior*

The terrain is very steep in and around the Job's Peak Ranch community. Slopes range between ten and twenty percent within community and increase to greater than sixty percent just west of the community. The predominant wind direction is downslope from the south and southwest. There is a significant history of large fires and fire ignitions near the community.

Three main vegetation types were identified in the Job's Peak Ranch community including sagebrush/bitterbrush, cheatgrass, and mixed conifer. The sagebrush/bitterbrush and cheatgrass types were considered high fuel hazards and the mixed conifer was considered a medium/high hazard fuel type. Aspen groves were located along the creeks throughout the community.

### *16.1.6 Fire Behavior Worst Case Scenario*

The worst-case scenario for Job's Peak Ranch would likely occur in the event of a dry-lightning storm in which several ignitions occurred on the mountain southwest or west of the community. Driven by 25 mile per hour winds any fire ignition could result in a crown fire capable of rapidly spreading downhill toward the community. Very few roads provide access for fire suppression equipment south and west of the community, which decreases response time. Spot fires could result in multiple fire fronts near residences in the

community and could increase the difficulty for fire suppression personnel protecting homes. If either Five Creeks Road or Foothill Road were to be closed in two places due to fire, homeowner evacuation and fire suppression response could be limited.

### *16.1.7 Ignition Risk Assessment*

Blackbull Wildfire Services assigned Job's Peak Ranch an ignition risk rating of medium frequency/medium impact for a fire ignition occurring within the community. A rating of medium frequency/medium impact was given for a fire starting near Foothill Road and burning uphill toward the community. A low frequency/high impact rating was giving to an ignition starting west of the community. The RCI Project Team classified the community with a high ignition risk.

## 16.2 RISK AND HAZARD REDUCTION RECOMMENDATIONS

The Job's Peak Ranch risk and hazard reduction recommendations were developed by Blackbull Wildfire Services and reviewed by the RCI Project Team. The recommendations that the Fire Specialist on the RCI Project Team concurred with are listed below. Refer to Blackbull 2004b for more information.

### *16.2.1 Fire Suppression Capabilities*

Improving or creating community access improves safety of egress for residents and access for firefighters.

*East Fork Fire and Paramedic Districts and Nevada Division of Forestry Recommendation*

- Develop a pre-attack plan for the Job's Peak Ranch community. The plan should include information regarding the location of water sources, helibases, resident safety zones, and other fire protection facility information.

### *16.2.2 Community Coordination*

Many of the most effective activities aimed at reducing the threat of wildfire for the Job's Peak Ranch community require that individual property owners coordinate with each other and local fire authorities as they have through the Job's Peak Ranch Chapter of the Nevada Fire Safe Council. Public education and awareness, neighbors helping neighbors, and proactive individuals setting examples for others to follow are just a few of the approaches that will be necessary to meet the fire safe goals in the community. Disposal of biomass generated from defensible space and fuel reduction treatments can sometimes be most efficiently handled through community programs.

*East Fork Fire and Paramedic Districts and Nevada Division of Forestry Recommendation*

- Develop a community fire notification and evacuation plan for the Job's Peak Ranch community. The plan should address evacuation procedures, safety zones, and information on sheltering in place.

*East Fork Fire and Paramedic Districts, Nevada Division of Forestry, and Job's Peak Ranch Fire Safe Council Recommendation*

- Initiate a community-wide fire safe program to enhance property owner awareness and knowledge about wildfires and associated risks of living in a fire prone environment.

*Douglas County Recommendation*

- Adopt a county ordinance regarding fuel reduction and defensible space requirements for wildland-urban interface areas. Require defensible space implementation on all developed and undeveloped lots within interface areas. If landowners do not complete defensible space treatments within a specified time frame, authorize EFFPD to charge the landowner for defensible space services through property tax levies. Require fuel reduction treatments prior to approval of new wildland-urban interface subdivisions and require approval of defensible space implementation prior to issuing building permits.

### *16.2.3 Fuel Reduction Treatments*

Construct fuelbreaks and fuel reduction treatments by thinning trees, limbing residual trees, and reducing understory vegetation and brush density in the locations indicated in Figure 16-2. These specifications are included in the fuel reduction treatment fact sheet in Appendix D. When constructing fuelbreaks, all dead woody material should be hand or machine piled. Maintain all fuel reduction treatments listed below on a three to seven year cycle depending upon vegetative regrowth.

*East Fork Fire and Paramedic Districts, Nevada Division of Forestry, and Property Owner Recommendations*

- **Fuelbreak 1:** Improve current fuelbreak behind homes on Foothill Road to a minimum width of 100 feet (approximately ten acres).
- **Fuelbreak 2:** Construct a fuelbreak on both sides of Five Creek Road from the main gate to the property 20 and Buffalo Creek Ranch. The fuelbreak should be a minimum of fifty feet on both sides of the road (approximately seven acres).
- **Fuelbreak 3:** Construct a 400-foot wide fuelbreak west of properties 42, 22, and 38 and have it tie into the fuelbreak recommended for the Sheridan Acres and North Foothill Road Corridor communities (approximately 180 acres).
- **Fuel Reduction Treatment 1:** Reduce sagebrush and bitterbrush density to a spacing equal to twice the height of the shrubs. Hand cut, pile, and burn or mechanically masticate vegetation in the treatment areas. Complete treatments southeast of the planned development area.
- **Fuel Reduction Treatment 2:** Reduce sagebrush and bitterbrush density to a spacing equal to twice the height of the shrubs. Mechanically pile ground fuels throughout the treatment area. The recommended treatment width is 300 feet and should be constructed from the west side of properties 38 through 42, from the north edge of Sheridan Creek to Stutler Canyon (estimated 18 acres).
- **Proposed Fuel Treatment 3:** Reduce sagebrush and bitterbrush density following *"Living With Fire"* specifications. Mechanically pile down wood materials through-out the treatment area west of the current development to Nevada-California state

line, from the south end of Barber Creek to the south end of the Job's Peak Ranch property (estimated 33 acres).

- Maintain existing fuelbreaks within the community every three to seven years as needed to maintain reduced fuel conditions.

## 16.3 SUMMARY OF RECOMMENDATIONS

**Table 16-1. Job's Peak Ranch Priority Recommendations to Reduce Wildfire Risks and Hazards**

| INVOLVED PARTY | RECOMMENDED TREATMENT | RECOMMENDATION DESCRIPTION |
|---|---|---|
| **Property Owners** | Fuels Reduction | Coordinate with EFFPD and NDF to construct recommended fuelbreaks and fuel reduction projects. |
| **Nevada Fire Safe Council Local Chapter** | Community Coordination | Coordinate with EFFPD and NDF to initiate a community-wide fire safe program to enhance property owner awareness and knowledge about wildfires and associated risks of living in a fire prone environment. |
| **Douglas County** | Community Coordination | Create a county ordinance to include provisions requiring fuel reduction treatments on undeveloped lots prior to new wildland-urban interface subdivision approval and defensible space implementation on each lot prior to building permit issuance. |
| **East Fork Fire and Paramedic Districts**<br><br>**Nevada Division of Forestry** | Fire Suppression Capability | Develop a pre-attack plan for the Job's Peak Ranch community. |
| | Fuels Reduction | Construct three proposed fuelbreaks and three proposed fuel reduction treatments. |
| | Community Coordination | Develop a community fire notification and evacuation plan for the Job's Peak Ranch community.<br>Initiate a community-wide fire safe program to enhance property owner awareness and knowledge about wildfires and the associated risks of living in a fire prone environment. |

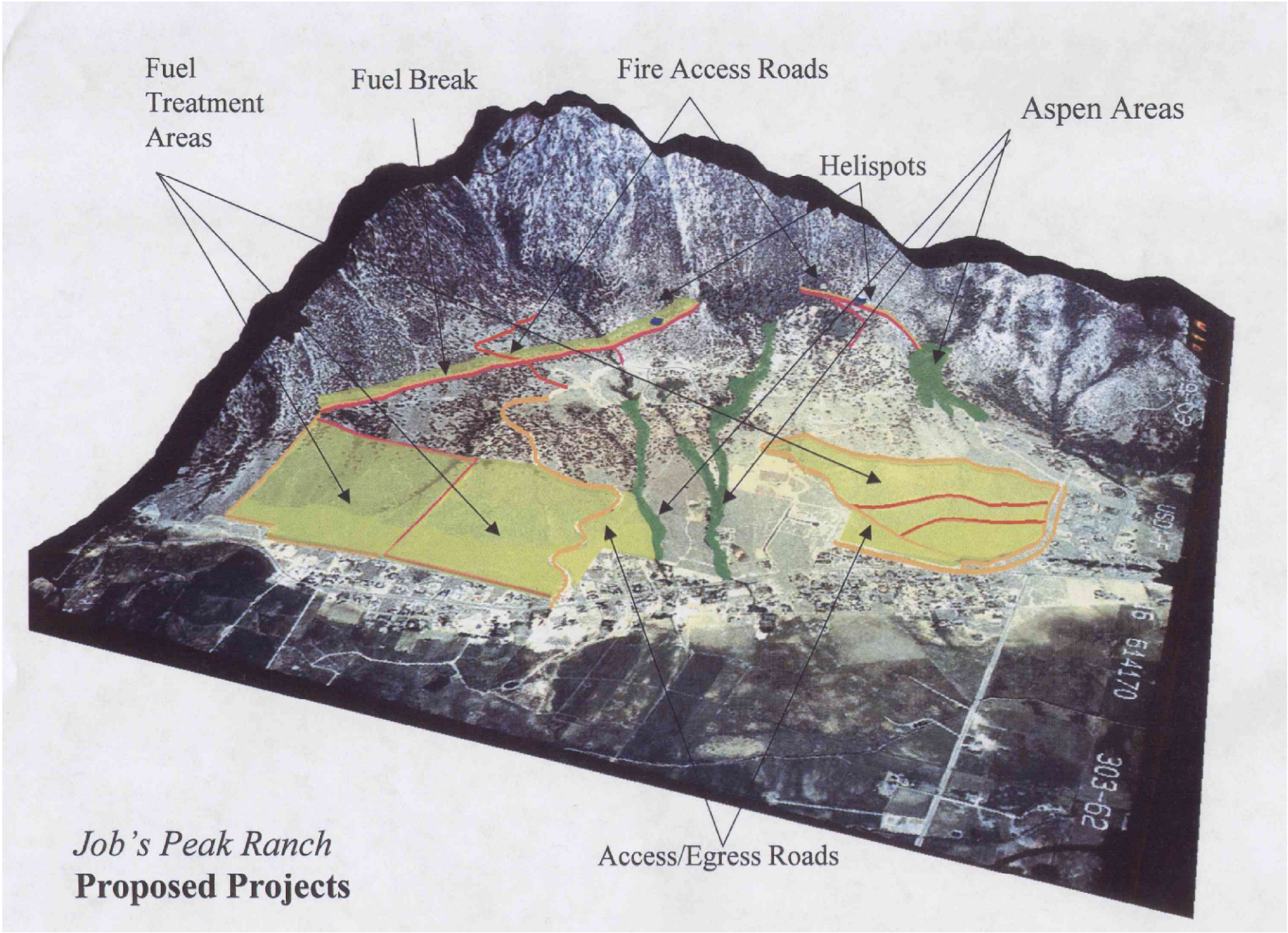



Figure 16-1. Job's Peak Community

Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600



Source: Blackbull Wildfire Services Community Wildfire Threat Reduction and Project Implementation Plan for Job's Peak Ranch, September 2004

# 17.0 JOHNSON LANE

## 17.1 HAZARD AND RISK ASSESSMENT

The Johnson Lane community is located in northern Douglas County southeast of Jacks Valley/Indian Hills and northeast of Minden, Nevada. The community is situated on a west-facing alluvial fan. The community is bordered by public lands to the north and east, by private agricultural lands to the west, and by the airport to the south. Approximately 1,200 homes were observed in the community during the assessment. **The hazard assessment resulted in classifying Johnson Lane in the Moderate Hazard category** (44 points). A summary of the factors that determine this hazard rating is included in Table 17-2. The primary factors mitigating the fire hazard for the Johnson Lane community included the presence of adequate ingress and egress routes, low potential for extreme fire behavior, proper street and house address identification, and the degree of defensible space implementation.

### *17.1.1 Community Design*

The Johnson Lane community has characteristics of both the classic interface and the intermix wildland-urban interface conditions. The classic interface is characterized by areas where subdivisions border wildland fuels with a clear line of demarcation between the fuels and the residences. Lot sizes are primarily less than one acre throughout the classic interface areas of the community, such as the Wildhorse subdivision. A characteristics of the intermix interface condition include structures scattered throughout the wildland area with no clear line of demarcation between wildland fuels and the lands and buildings of the community. In the intermix condition parcels are generally greater than one acre (see Figure 17-1).

**Roads:** Stephanie Lane and Johnson Lane are the primary access roads to the community from US Highway 395. The primary roads are paved, greater than 24 feet wide, and provide adequate access for fire suppression vehicles. Most of the secondary community roads have adequate turn around space for fire suppression equipment, and community roads have less than a five percent grade.

**Signage:** Street names are adequately identified with reflective letter signs. Residential addresses were visible on a majority of the homes assessed. Clear and visible residential addresses are important to aid firefighting personnel in locating homes during low visibility conditions that occur during a wildland fire.

**Utilities:** Both overhead and underground power lines are present within the community. Power line right- of-ways were properly maintained to minimize the possibility of power lines sparking during windstorms and starting fires in nearby vegetation.

### *17.1.2 Construction Materials*

Approximately fourteen percent of the homes assessed had wood shake roofing materials. The remainder of the homes assessed were built with fire resistant siding materials and non-combustible roofing materials, mainly composition type roofing. About seven percent of the homes observed have unenclosed balconies, porches, decks, or other architectural

features that create drafts and provide areas where sparks and firebrands can be trapped, smolder, ignite, and rapidly spread fire to the home.

### *17.1.3 Defensible Space*

Over ninety percent of the homes in the community wildland-urban interface have landscaping that would meet the minimum defensible space requirement to help protect the home from damage or loss during a wildfire.

### *17.1.4 Suppression Capabilities*

*Wildfire Protection Resources*

The East Fork Fire and Paramedic Districts Johnson Lane Volunteer Fire Department Station 6 provides wildland and structure fire protection to the Johnson Lane community. At the time of the assessment, the Johnson Lane VFD listed thirty volunteers on its roster. The Johnson Lane VFD conducts an annual fire safety day at the Piñon Hills elementary school (East Fork Fire Protection District website). See Tables 4-2 and 4-3 for more information on the typical fire suppression response for first-alarm wildland-urban interface fires in Douglas County. Appendix E lists the type and number of fire suppression vehicles located at each EFFPD career staffed and VFD station.

*Water Sources and Infrastructure*

Water availability for fire suppression in Johnson Lane includes four water storage tanks with a total capacity of three million gallons. There are emergency generators for the pumps that fill the tanks. There are hydrants available in the more recently developed portions of the community, however hydrants are not available for the larger lots and older subdivisions. The Carson River may be used as a helicopter dip site.

### *17.1.5 Factors Affecting Fire Behavior*

Vegetation, dead and down fuels, and topographic features contribute to the potential fire hazard around wildland-urban interface communities. The terrain around Johnson Lane is generally flat with a slightly west-facing aspect on less than five percent slopes. Fire ignitions have occurred within the vicinity of the community from both human and lightning causes. The predominant wind direction is from the south/southwest especially in the late afternoon.

The vegetative fuel density in the Johnson Lane community was generally moderate, estimated at less than three tons per acre. Dominant shrubs in the community include Wyoming big sagebrush, rabbitbrush, desert peach, Mormon tea, fourwing saltbush and spiny hopsage. The ground fuels consist of Indian ricegrass, basin wildrye, bottlebrush squirreltail, needleandthread grass, and cheatgrass. Typical shrub heights range between two and six feet. The fuel hazard was considered moderate for the majority of the area surrounding the community. Within the community the vegetation was similar to outside the community, however it was reduced in density and continuity due to development lowering the fuel hazard. The irrigated agricultural lands on the west and south sides of the community were also considered a low fuel hazard.

In the northeast section of the community, the vegetative fuels consist of big sagebrush, Mormon tea, bitterbrush, and rabbitbrush, with an understory of bottlebrush squirreltail and sparse cheatgrass, and desert needlegrass. The shrub heights range from two to six feet with spacing between shrubs as close as four feet. Most of the bitterbrush plants were either dead or dying, which increases the high flammability of fuels in this area. The fuel hazard was considered high and the fuel load was estimated between four and six tons per acre.

### *17.1.6 Fire Behavior Worst Case Scenario*

The worst-case scenario for Johnson Lane would likely occur in the event of a dry lightning or human-caused ignition located southwest but in close proximity to the community. With south or southwest winds exceeding 25 miles per hour, a fire could rapidly spread through the sagebrush fuels and quickly threaten homes. Spot fires could ignite the brush and grass throughout the intermix portion of the community, which could result in multiple fires burning in the community. This situation could quickly exceed the initial attack capabilities of the Johnson Lane Volunteer Fire Department.

### *17.1.7 Ignition Risk Assessment*

Johnson Lane has been rated with a moderate ignition risk. Several ignitions have occurred within and immediately adjacent to the community (Figure 17-1). The predominant ignition risk for Johnson Lane is dry lightning.

## 17.2 RISK AND HAZARD REDUCTION RECOMMENDATIONS

The Johnson Lane risk and hazard reduction recommendations focus on improving defensible space and promoting homeowner responsibilities. Other recommendations pertain to community coordination efforts that could be initiated to enhance the fire safe nature of Johnson Lane.

### *17.2.1 Defensible Space Treatments*

*Property Owner Recommendations*

Defensible space treatments are an essential first line of defense for residential structures. Significantly reducing or removing vegetation within a prescribed distance from structures (minimum of 30 feet to 200 feet depending upon slope and vegetative fuel type) reduces fire intensity and improves firefighter and homeowner chances for successfully defending a structure against an oncoming wildfire.

- Remove, reduce, and replace vegetation around homes according to the guidelines in Appendix D. This area should be kept:

  Lean – There are only small amounts of flammable vegetation,

  Clean – There is no accumulation of dead vegetation or other flammable debris,

  Green – Existing plants are healthy and green during the fire season.

- Maintain the area beneath unenclosed wood decks and porches free of weeds and flammable debris. Enclose these areas wherever possible.
- Mow or remove brush growing within a distance of 25 feet and grass within ten feet of wood fences in the community.

- Store firewood a minimum distance of thirty feet from structures.
- Install spark-arresting screens on chimneys.
- Irrigate all trees and large shrubs in close proximity to structures to increase their fire resiliency, which is especially important during drought conditions.
- Cheatgrass or other annual grasses that have become dominant within the defensible space zone should be mowed or treated with an application of pre-emergent herbicide prior to seed set.[16] Treatments may need to be repeated the following year to ensure that the seed bank of unwanted grasses has been depleted. Refer to Appendix D for recommended seed mixes and planting guidelines that can be used in conjunction with removal of this annual grass.
- Immediately remove cleared vegetation to an approved disposal site when implementing defensible space treatments. This material dries quickly and presents a fire hazard if left on site.
- Maintain this defensible space as needed to keep the space lean, clean, and green.

### *17.2.2 Fuel Reduction Treatments*

Fuel reduction treatments are applied on a larger scale than defensible space treatments. By permanently changing the fuel structure over large blocks of land to one of a lower volume or reduced flammability (a fuel reduction treatment), the expected result in the event of a catastrophic wildfire would be one of reduced capacity for uncontrolled spread through the treatment area.

*Utility Company Recommendation*

- Remove shrubs within fifteen feet of power poles throughout the Johnson Lane community.

### *17.2.3 Community Coordination*

Many of the most effective activities aimed at reducing the threat of wildfire for the Johnson Lane community require that individual property owners coordinate with each other and with local fire authorities. Address identification and defensible space, for example, are more effective in communities when applied uniformly throughout entire neighborhoods. Public education and awareness, neighbors helping neighbors, and proactive individuals setting examples for others to follow are just a few of the approaches that will be necessary to meet the fire safe goals in the community. Disposal of biomass generated from defensible space and fuel reduction treatments can sometimes be most efficiently handled through community programs.

*Property Owner Recommendations*

- Assure addresses are visible from the road on all homes within the community. Address characters should be at least four inches tall and reflective.

[16] Extreme caution should be taken when using herbicides to completely follow all label instructions. Consult with University of Nevada Cooperative Extension specialists for assistance with appropriate herbicide products and application procedures.

- Form a local chapter of the Nevada Fire Safe Council. The Nevada Fire Safe Council proposes to work on solutions that reduce the risk of loss of lives and property from wildfires in Nevada's communities. Through establishment of a local Chapter, communities become part of a large information-sharing network that receives notifications of programs and funding opportunities for fire mitigation projects such as those listed in this report. The Nevada Fire Safe Council will accept and manage grants and contracts on the Chapter's behalf through its non-profit status. The Nevada Fire Safe Council provides assistance and support to communities to complete fire safe plans, set priorities, educate and train community members, and promote success stories of its members. For more information on forming a chapter, contact:

  The Nevada Fire Safe Council
  1187 Charles Drive
  Reno, Nevada 89509
  www.nvfsc.org

*Johnson Lane Volunteer Fire Department Recommendation*

- Distribute copies of the publication *"Living With Fire"* to all property owners who live in Johnson Lane. This publication is free of charge. Copies can be requested from the University of Nevada Cooperative Extension.

## 17.3 SUMMARY OF RECOMMENDATIONS

**Table 17-1. Johnson Lane Priority Recommendations to Reduce Wildfire Risks and Hazards**

| INVOLVED PARTY | RECOMMENDED TREATMENT | RECOMMENDATION DESCRIPTION |
|---|---|---|
| **Property Owners** | Defensible Space | Remove, reduce, and replace vegetation around homes according to the defensible space guidelines in Appendix D. |
| | Community Coordination | Assure addresses are visible from the road.<br>Form a local chapter of the Nevada Fire Safe Council. |
| **Utility Company** | Fuels Reduction | Remove trees or trim any branches within fifteen feet of either side of power lines and poles throughout the Johnson Lane community. |
| **Johnson Lane Volunteer Fire Department** | Community Coordination | Distribute copies of the publication *"Living With Fire"* to all property owners. |

## Table 17-2 Johnson Lane Wildfire Hazard Rating Summary

**A. Urban Interface Condition** ***2***

**B. Community Design**

| | | |
|---|---|---|
| 1. Ingress / Egress | 1 | /5 |
| 2. Width of Road | 1 | /5 |
| 3. Accessibility | 1 | /3 |
| 4. Secondary Road | 1 | /5 |
| 5. Street Signs | 1 | /5 |
| 6. Address Signs | 1 | /5 |
| 7. Utilities | 1 | /5 |

**C. Construction Materials**

| | | |
|---|---|---|
| 1. Roofs | 5 | /10 |
| 2. Siding | 1 | /5 |
| 3. Unenclosed Structures | 1 | /5 |

**D. Defensible Space**

| | | |
|---|---|---|
| 1. Lot Size | 3 | /5 |
| 2. Defensible Space | 1 | /15 |

**F. Fire Behavior**

| | | |
|---|---|---|
| 1. Fuels | 3 | /5 |
| 2. Fire Behavior | 3 | /10 |
| 3. Slope | 1 | /10 |
| 4. Aspect | 7 | /10 |

**E. Suppression Capabilities**

| | | |
|---|---|---|
| 1. Water Source | 5 | /10 |
| 2. Department | 7 | /10 |

***TALLIES***

**1231 Total Houses** **75 Residential Streets**

**B5. Street Signs**

0 not visible | 75 visible | 100% visible

**B6. Address Signs**

114 not visible | 1117 visible | 91% visible

**C1. Roofs**

167 combust | 1064 not combust | 86% not combust

**C2. Siding**

4 combust | 1227 not combust | 100% not combust

**C3. Unenclosed Structures on Lot**

83 not enclosed | 1148 enclosed | 7% not enclosed

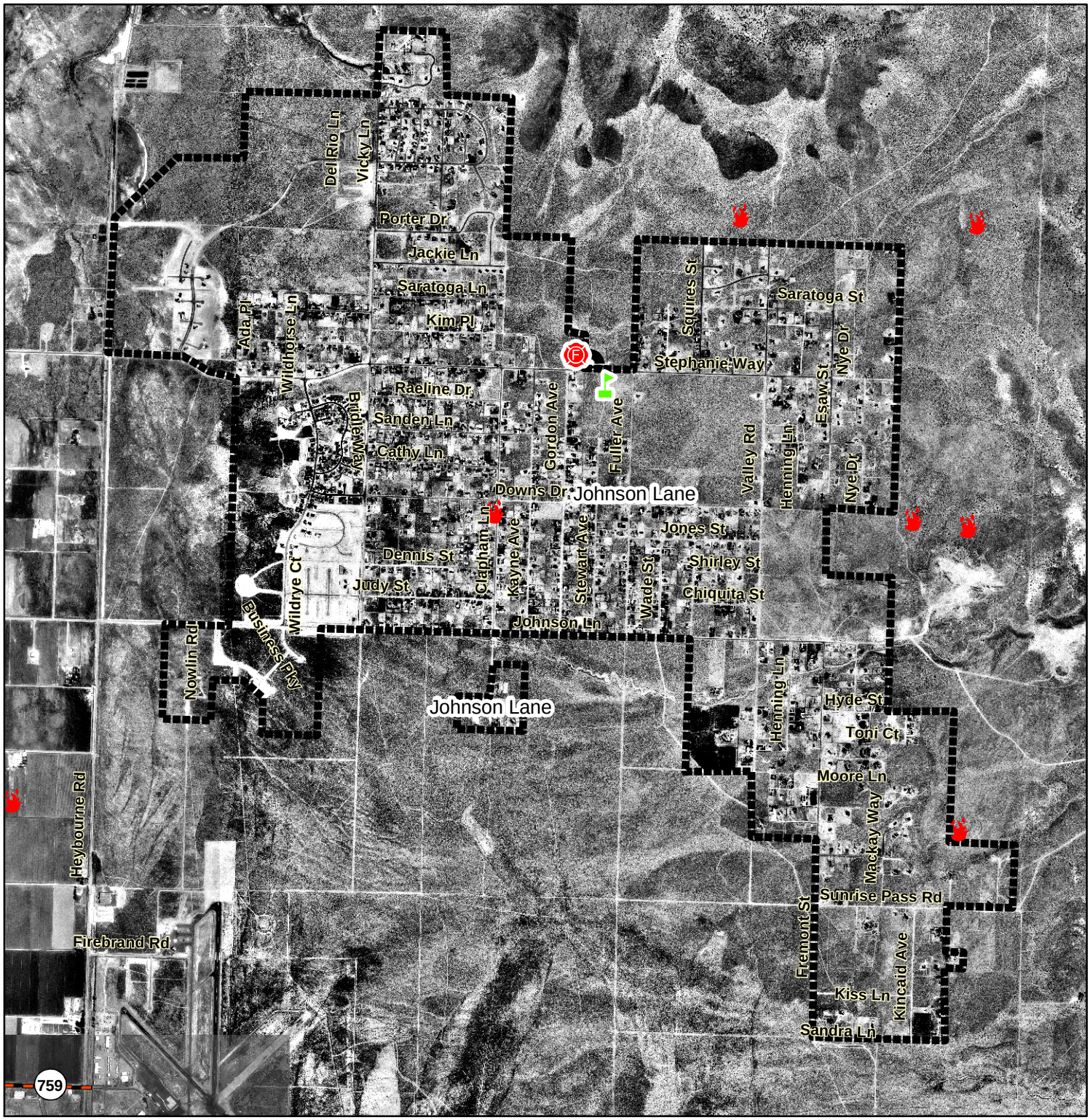
**D1. Lot Sizes**

447 <1ac | 804 >1ac <10ac | 0 >10ac

**D2. Defensible Space**

96 not adequat | 1135 adequate | 92% adequate

**Score** **44** /128




## Legend

- Community Boundary
- School
- Fire Ignition
- Fire Station
- Highways and State Routes

Figure 17-1. Johnson Lane
Fire History, Suppression Resources,
and Critical Features

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Feet

Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600

***Nevada Community Wildfire Risk / Hazard Assessment Project***

# 18.0 MINDEN

## 18.1 HAZARD AND RISK ASSESSMENT

The town of Minden is located in northern Douglas County, adjacent to and north of the town of Gardnerville, Nevada. Minden is bordered to the north, east, and south by irrigated pasture and haylands. The East Fork of the Carson River borders the community to the west. A total of eight residences were evaluated along the wildland-urban interface in Minden during this assessment. **The risk/hazard assessment resulted in classifying Minden in the Low Hazard category** (33 points). The low community hazard score is attributed primarily to the presence of irrigated agricultural lands that serve as a greenstrip around much of the interface area in the community. A summary of the factors that determine this hazard rating is included in Table 18-2. The specific findings for each of the wildland fire assessment parameters are reported below.

### *18.1.1 Community Design*

The urban interface condition in Minden can be described as the classic interface. In many areas subdivisions border wildland fuels with a clear line of demarcation between the fuels and the residences. Lot sizes are primarily less than one acre throughout Minden (see Figure 18-1).

**Roads:** The primary access roads through Minden are US Highway 395 and State Route 88; both are paved highways greater than 24 feet wide. Other primary access roads for residences on the west side of State Route 88 include Ironwood Drive, and County Road. Lucerne Street and Buckeye Road are the primary access roads on the east side of US Highway 395. Most of the primary and secondary roads in the town are between twenty and 24 feet wide, have road grades less than five percent, and allow adequate room for fire suppression equipment to maneuver.

**Signage:** Most streets in Minden have standard metal street signs that are highly visible and easy to read. Residential addresses are easily visible on all homes in the Minden interface. The clear and visible signage throughout the Minden area should assist fire suppression personnel in locating residences during poor visibility conditions that occur during a wildland fire.

**Utilities:** The utilities that serve Minden are a combination of above ground and below ground power lines. In general, utilities have adequately maintained right-of-ways and pose only a low ignition risk to the community.

### *18.1.2 Construction Materials*

A majority of the homes observed in the interface area were built with fire resistant siding materials. A great majority of the homes had fire resistant roofing materials such as composition shingles, metal, or tile roofing. None of the homes observed have unenclosed balconies, porches, decks, or other architectural features that create drafts and provide areas where sparks and firebrands can be trapped, smolder, ignite, and rapidly spread fire to the home.

### *18.1.3 Defensible Space*

The majority of the homes had landscaping that would meet the defensible space requirement to protect the home from loss or minimize damage during a wildfire.

### *18.1.4 Suppression Capabilities*

*Wildfire Protection Resources*

The Douglas County Engine Company Volunteer Fire Department (Station 1) and the career-staffed Minden Station 14 of the East Fork Fire and Paramedic Districts provide wildfire and structure fire protection for Minden. See Tables 4-2 and 4-3 for more information on the typical fire suppression response for first-alarm wildland-urban interface fires in Douglas County. Appendix E lists the type and number of fire suppression vehicles located at each EFFPD station.

*Water Sources and Infrastructure*

Hydrants are available within 500 feet of residences throughout the towns of Minden and Gardnerville. The hydrant system is connected between the two towns and is tied into five water storage tanks for a total potential water supply of 4.5 million gallons. Emergency generators are available on the pumps, which supply the water storage tanks. The Carson River and ponds located around the community may be available for use as helicopter dip sites.

### *18.1.5 Factors Affecting Fire Behavior*

Vegetation, dead and down fuels, and topographic features contribute to the potential fire hazard around wildland-urban interface communities. The topography is flat in the town of Minden, as it is situated on an old Carson River terrace. The entire interface area of Minden was described as homes adjacent to irrigated or abandoned pasture and hayland. The presence of these agricultural lands serve as a greenstrip between any native vegetation and homes. Due to the annual (or more frequent) harvest of the vegetation, and the irrigated, fire-resistant qualities of the vegetation these lands were rated as a low fuel hazard.

### *18.1.6 Fire Behavior Worst-case Scenario*

The worst-case fire behavior scenario would likely begin from an escaped ditch burn in the late fall or early spring. A fire could threaten to destroy the wooden fences that separate the residential areas from the agricultural lands.

### *18.1.7 Ignition Risk Assessment*

Minden has been rated with a low ignition risk. While there is a history of a few lightning-ignited fires in the agricultural lands within a mile of the community, there is no significant wildfire history in the immediately adjacent area (see Figure 18-1).

## 18.2 RISK AND HAZARD REDUCTION RECOMMENDATIONS

The Minden risk and hazard reduction recommendations address the primary concern regarding protection of existing and future development in the wildland-urban interface area. Other recommendations pertain to community coordination and public education efforts that could be undertaken to enhance fire safety in Minden.

### *18.2.1 Defensible Space Treatments*

Defensible space treatments are an essential first line of defense for residential structures. Significantly reducing or removing vegetation within a prescribed distance from structures (a minimum of thirty feet depending on slope and vegetative fuel type) reduces fire intensity and improves firefighter and homeowner chances for successfully defending a structure against an oncoming wildfire.

*Property Owner Recommendations*

- Remove, reduce, and replace vegetation around homes according to the guidelines in Appendix D. This area should be kept:

  Lean – There are only small amounts of flammable vegetation,

  Clean – There is no accumulation of dead vegetation or other flammable debris,

  Green – Existing plants are healthy and green during the fire season.
- Remove debris and flammable materials from within the defensible space area.
- Store firewood a minimum distance of thirty feet from structures.
- Maintain areas under wood decks and porches free of weeds and other flammable debris. Enclose these areas wherever possible.
- Remove shrubs within 25 feet and grass within ten feet of wood and vinyl fences throughout the community. Either maintain this area free of weeds and annual vegetation or plant fire resistant grass and wildflower species recommended in Appendix D.
- Install spark-arresting screens on chimneys.
- Annually remove vegetation and debris along irrigation ditches to reduce the fuel load.
- Immediately dispose of cleared vegetation when implementing defensible space treatments. The material dries quickly and poses a fire hazard if left on site.
- Maintain this defensible space as needed to keep the space lean, clean, and green.

### *18.2.2 Fire Suppression Capabilities*

*East Fork Fire and Paramedic Districts Recommendation*

- Remove fuels within ten feet of fire hydrants to improve visibility and access.

## 18.3 SUMMARY OF RECOMMENDATIONS

**Table 18-1. Minden Priority Recommendations to Reduce Wildfire Risks and Hazards**

| INVOLVED PARTY | RECOMMENDED TREATMENT | RECOMMENDATION DESCRIPTION |
|---|---|---|
| **Property Owners** | Defensible Space | Remove, reduce, and replace vegetation around homes according to the defensible space guidelines in Appendix D. |
| **East Fork Fire and Paramedic Districts** | Fire Suppression Capability | Remove fuels within ten feet of fire hydrants to improve visibility and access. |

## Table 18-2 Minden Wildfire Hazard Rating Summary

**A. Urban Interface Condition** ***1***

**B. Community Design**

| | | |
|---|---|---|
| 1. Ingress / Egress | 1 | /5 |
| 2. Width of Road | 1 | /5 |
| 3. Accessibility | 1 | /3 |
| 4. Secondary Road | 1 | /5 |
| 5. Street Signs | 1 | /5 |
| 6. Address Signs | 1 | /5 |
| 7. Utilities | 1 | /5 |

**C. Construction Materials**

| | | |
|---|---|---|
| 1. Roofs | 10 | /10 |
| 2. Siding | 1 | /5 |
| 3. Unenclosed Structures | 1 | /5 |

**D. Defensible Space**

| | | |
|---|---|---|
| 1. Lot Size | 5 | /5 |
| 2. Defensible Space | 1 | /15 |

**F. Fire Behavior**

| | | |
|---|---|---|
| 1. Fuels | 1 | /5 |
| 2. Fire Behavior | 3 | /10 |
| 3. Slope | 1 | /10 |
| 4. Aspect | 1 | /10 |

**E. Suppression Capabilities**

| | | |
|---|---|---|
| 1. Water Source | 1 | /10 |
| 2. Department | 1 | /10 |

***TALLIES***

**8 Total Houses** **3 Residential Streets**

**B5. Street Signs**

0 not visible | 3 visible | 100% visible

**B6. Address Signs**

0 not visible | 8 visible | 100% visible

**C1. Roofs**

7 combust | 1 not combust | 13% not combust

**C2. Siding**

0 combust | 8 not combust | 100% not combust

**C3. Unenclosed Structures on Lot**

0 not enclosed | 8 enclosed | 0% not enclosed

**D1. Lot Sizes**

8 <1ac | 0 >1ac <10ac | 0 >10ac

**D2. Defensible Space**

0 not adequat | 8 adequate | 100% adequate

**Score** **33** /128

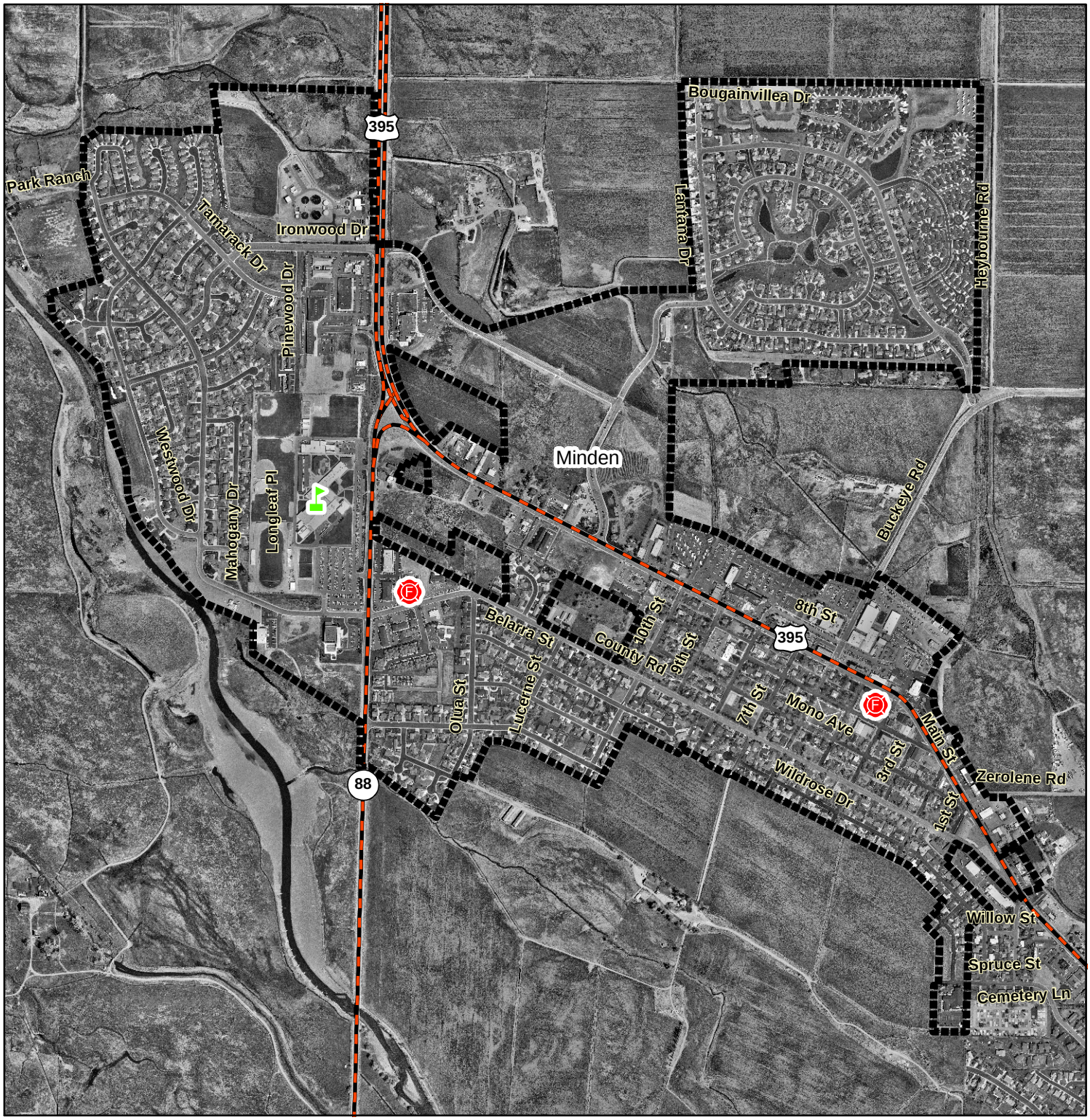


Figure 18-1. Minden
Fire History, Suppression Resources, and Critical Features

**Legend**

- Community Boundary
- School
- Fire Station
- Highways and State Routes

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Feet

Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600

***Nevada Community Wildfire Risk / Hazard Assessment Project***

# 19.0 NORTH FOOTHILL ROAD CORRIDOR

## 19.1 HAZARD AND RISK ASSESSMENT

The North Foothill Road Corridor community is located directly south of Genoa and north of Sheridan Acres along Foothill Road on the west side of Carson Valley. The community is situated on east-facing alluvial fans and benches above the Carson River floodplain. The community is partially bordered by US Forest Service lands to the west and by private agricultural lands to the east. Approximately 200 homes were observed in the community during the assessment. **The hazard assessment resulted in classifying North Foothill Road Corridor in the High Hazard category** (63 points). A summary of the factors that determine this hazard rating is included in Table 19-2. The primary hazards for the North Foothill Road Corridor community are the potential for extreme fire behavior and the proximity of water sources for fire suppression, and the availability of volunteer fire suppression resources.

### *19.1.1 Community Design*

The North Foothill Road Corridor interface area is characterized by the intermix wildland-urban interface condition. Structures are scattered throughout the wildland area with no clear line of demarcation between wildland fuels and residences in the community. All residences observed in the North foothill Road Corridor community were on lots greater than one acre in size (see Figure 19-1).

**Roads:** Foothill Road (State Route 206), Muller Lane (State Route 757), Mottsville Lane, and Kingsbury Grade (State Route 207) are the primary roads that provide access between the community and other areas of Douglas County. The roads are greater than 24 feet wide, paved, and provide adequate access for fire suppression vehicles. Most of the secondary community roads have adequate turnaround space for fire suppression equipment. Road grades are less than five percent.

**Signage:** Street names were adequately identified throughout the community with reflective signs. Residential addresses were visible on a majority of the homes assessed. Clear and visible residential addresses are important to aid firefighting personnel in locating homes during low visibility conditions that occur during a wildland fire.

**Utilities:** Overhead power lines are present within the community. Power line right-of-ways were properly maintained to minimize the possibility of power lines sparking during windstorms and starting fires in nearby vegetation. Propane tanks were also present within the community and sometimes lacked the proper ten feet of vegetation clearance.

### *19.1.2 Construction Materials*

Approximately thirteen percent of the homes assessed had wood shake roofing materials. The remaining 87 percent of the homes assessed were built with fire resistant siding materials and non-combustible roofing materials. About eighteen percent of the homes observed have unenclosed balconies, porches, decks, or other architectural features that

create drafts and provide areas where sparks and firebrands can be trapped, smolder, ignite, and rapidly spread fire to the home.

### *19.1.3 Defensible Space*

A majority, 89 percent, of the homes in the interface had landscaping that would meet the minimum defensible space requirement to help protect the home from damage or loss during a wildfire.

### *19.1.4 Suppression Capabilities*

*Wildfire Protection Resources*

The Nevada Division of Forestry Sierra Forest Fire Protection District, the East Fork Fire and Paramedic Districts Sheridan Volunteer Fire Department Station 8, and Genoa Volunteer Fire Department Station 3 provide wildland and structure fire protection to the North Foothill Road Corridor community. See Tables 4-2 and 4-3 for more information on the typical fire suppression response for first-alarm wildland-urban interface fires in Douglas County. Appendix E lists the type and number of fire suppression vehicles located at each EFFPD station.

*Water Sources and Infrastructure*

There are no fire hydrants available for residents of the North Foothill Road Corridor community. The nearest drafting sources for fire suppression include a 500,000-gallon tank and a 120,000-gallon static fill tank in the Sheridan Acres community and two tanks with a cumulative capacity of 850,000 gallons in Genoa. For most areas of the community the water sources are at a distance requiring more than a twenty-minute turnaround time. Emergency generators are not available for the pumps on the wells that fill the tanks. Hydrants are available in the Job's Peak Ranch subdivision located south of the community. The Carson River and ranch ponds may be available for use as helicopter dip sites.

### *19.1.5 Factors Affecting Fire Behavior*

Vegetation, dead and down fuels, and topographic features contribute to the potential fire hazard around wildland-urban interface communities. The fuel hazards were mapped for North Foothill Road Corridor, and fuel hazard photos were taken to provide additional information for the vegetation type descriptions (see Figures 19-2 and 19-3).

The terrain around North Foothill Road Corridor is generally flat with east-facing slopes less than eight percent, however a few small areas of the community lie on slopes in excess of forty percent. Fire ignitions have occurred within the vicinity of the community from both human and lightning causes. The 1996 Autumn Hills Fire burned 3,804 acres at the southwest end of the community. In 1988 approximately 100 acres burned between Kingsbury Grade and Foothill Road. Another fire burned 320 acres on the northwest side of the community in 1984. The predominant wind direction is downslope from the south/southwest, especially in the late afternoon.

Four major vegetation types occur within the vicinity of the North Foothill Road Corridor community including Jeffrey pine/sagebrush, sagebrush/bitterbrush, recovering sagebrush/ rabbitbrush (Autumn Hills fire), and irrigated pasturelands. Irrigated pasturelands are

located on the east side of the community, generally east of Foothill Road. They provide an effective greenstrip on the east side of the community and are considered a low fuel hazard.

In the unburned areas within and directly adjacent to the community, the vegetation predominantly consists of big sagebrush, bitterbrush, desert peach, and rabbitbrush. Ground fuels include Indian ricegrass, cheatgrass, and filaree. No ground fuels are present in the Tomerlin subdivision near the south end of the community. Shrubs are dense and shrub heights range between two and eight feet. The fuel load was estimated to be between three and six tons per acre and was considered a moderate fuel hazard.

Further upslope of the community, the vegetation is dominated by a Jeffrey pine overstory, with a shrub and grass understory similar in species composition and density to downslope areas. The fuel loads in the Jeffrey pine area were estimated between four and eighteen tons per acre and were considered an extreme fuel hazard.

Areas of the community burned by the Autumn Hills Fire in 1996 are primarily composed of rabbitbrush, desert peach, cheatgrass, Indian ricegrass and filaree. Shrubs are widely spaced and are less than four feet in height. The fuel load was estimated at two to four tons per acre and considered a moderate fuel hazard.

The unburned areas further north consist of either high-density big sagebrush and rabbitbrush with a cheatgrass understory or big sagebrush, bitterbrush, and rabbitbrush with low density Jeffrey pine. Fuel loads were estimated to range between four and six tons per acre and were considered a high fuel hazard.

### *19.1.6 Fire Behavior Worst Case Scenario*

The worst-case scenario for the North Foothill Road Corridor would likely occur in the event of a dry lightning storm in which several ignitions occurred on the mountain southwest or west of the community. Driven by 25 mile per hour winds, any fire ignition could result in a crown fire capable of rapid spread downhill toward the community, especially north of the Autumn Hills burn where high hazard fuels surround homes. Spot fires could result in multiple fire fronts near residences in the community and could increase the difficulty for fire suppression personnel protecting homes. If Foothill Road were to be closed due to fire or low visibility either between Genoa and Muller Lanes or between Muller and Mottsville Lanes, homeowner evacuation could be limited.

### *19.1.7 Ignition Risk Assessment*

North Foothill Road Corridor has a high ignition risk. Several fires and ignitions have occurred immediately adjacent to the community (Figure 19-1). The predominant ignition risks for North Foothill Road Corridor are lightning and sparking power lines. However, human caused fires can occur at any time.

## 19.2 RISK AND HAZARD REDUCTION RECOMMENDATIONS

The North Foothill Road Corridor risk and hazard reduction recommendations focus on improving defensible space and promoting homeowner responsibilities. Other recommendations pertain to community coordination efforts that could be initiated to enhance the fire safe nature of the North Foothill Road Corridor.

### *19.2.1 Defensible Space Treatments*

*Property Owner Recommendations*

Defensible space treatments are an essential first line of defense for residential structures. Significantly reducing or removing vegetation within a prescribed distance from structures (minimum of 30 feet to 200 feet depending upon slope and vegetative fuel type) reduces fire intensity and improves firefighter and homeowner chances for successfully defending a structure against an oncoming wildfire.

- Remove, reduce, and replace vegetation around homes according to the guidelines in Appendix D. This area should be kept:

  Lean – There are only small amounts of flammable vegetation,

  Clean – There is no accumulation of dead vegetation or other flammable debris,

  Green – Existing plants are healthy and green during the fire season.

- Maintain the area beneath unenclosed wood decks and porches free of weeds and flammable debris. Enclose these areas wherever possible.
- Clear all vegetation and combustible materials around propane tanks for a minimum distance of ten feet.
- Mow or remove brush growing within a distance of 25 feet and grass within ten feet of wood fences in the community.
- Store firewood a minimum distance of thirty feet from structures.
- Install spark-arresting screens on chimneys.
- Annually remove vegetation and debris along irrigation ditches to reduce the fuel load.
- Remove pine needles, leaves, and debris from roofs and rain gutters.
- Prune tree branches within fifteen feet of chimneys and structures.
- Limb branches of conifers a minimum of fifteen feet from the ground, or no more than one-third of the total tree height, to reduce ladder fuels. All dead and diseased branches and duff should be removed from beneath remaining trees.
- Irrigate all trees and large shrubs in close proximity to structures to increase their fire resiliency, which is especially important during drought conditions.
- Cheatgrass or other annual grasses that have become dominant within the defensible space zone should be mowed or treated with an application of pre-emergent herbicide prior to seed set.[17] Treatments may need to be repeated the following year to ensure that the seed bank of unwanted grasses has been depleted. Refer to Appendix D for recommended seed mixes and planting guidelines that can be used in conjunction with removal of this annual grass.

[17] Extreme caution should be taken when using herbicides to completely follow all label instructions. Consult with University of Nevada Cooperative Extension specialists for assistance with appropriate herbicide products and application procedures.

- Immediately remove cleared vegetation to an approved disposal site when implementing defensible space treatments. This material dries quickly and presents a fire hazard if left on site.
- Maintain this defensible space as needed to keep the space lean, clean, and green.

### *19.2.2 Fuel Reduction Treatments*

Fuel reduction treatments are applied on a larger scale than defensible space treatments. By permanently changing the fuel structure over large blocks of land to one of a lower volume or reduced flammability (a fuel reduction treatment), the expected result in the event of a catastrophic wildfire would be one of reduced capacity for uncontrolled spread through the treatment area.

*Property Owner Recommendations*

- Reduce vegetative fuels for a distance of ten feet on both sides of private driveways longer than 200 feet. Remove highly flammable shrub species and replace them with fire-resistant species such as crested wheatgrass, lawn, or a pre-suppression seed mix. Appropriate seed mixtures and seeding specifications are provided in Appendix D.
- Coordinate with the Nevada Division of Forestry, EFFPD, and the US Forest Service to construct and maintain the proposed fuelbreak on the southwest side of the community.

*East Fork Fire and Paramedic Districts, Nevada Division of Forestry, and US Forest Service Recommendations*

- Coordinate with property owners to construct a 400-foot wide shaded fuelbreak for a distance of approximately one-third of a mile on the west side of the community, which ties into the recommended fuelbreak for the Sheridan Acres community. The recommended treatment area is approximately 48 acres (see Figure 19-1). Remove small trees and shrubs within thirty feet of tree drip lines. Thin shrubs outside the drip line to a canopy spacing twice the height of the shrubs. Thin tree stands where necessary (not already thinned) to a minimum basal area of 60 to 80 sq. ft. per acre. For example, where trees in the stand are of an average diameter of 14 inches (DBH), tree spacing should be reduced to approximately 65 trees per acre, with a minimum spacing of 25 feet between tree boles. If the average diameter of trees in the stand is 24 inches (DBH), tree spacing should be reduced to 22 trees per acre, with a minimum spacing of 45 feet between tree boles. Prune lower limbs within fifteen feet of the ground, but do not remove limbs from more than one-third the height of the tree. For more information on tree spacing between boles for various basal areas and tree diameters, refer to Appendix D.
- The biomass generated from construction of the fuelbreak should be removed (piled and burned or transported off the site) and disposed of at an appropriate site. The fuelbreak should be maintained such that there is no significant increase in shrub and tree density from post-treatment levels.

*Douglas County Recommendation*

- Remove brush for a distance of 25 feet on the west side of Foothill Road. Remove all shrubs with mechanical mastication equipment and then plant fire-resistant perennial grasses and wildflowers. Appropriate seed mixtures and seeding specifications are provided in Appendix D.

*Utility Company Recommendation*

- Remove trees or trim any tree branches within fifteen feet of either side of power lines and power poles throughout the North Foothill Road Corridor community.

### *19.2.3 Fire Suppression Capability*

*Property Owner Recommendation*

- Consider purchasing a fire retardant gel or foam product designed for homeowner use. These gels/foams can be applied to structures and vegetation to create an added layer of flame resistance in the event of a fire.

### *19.2.4 Community Coordination*

Many of the most effective activities aimed at reducing the threat of wildfire for the North Foothill Road Corridor require that individual property owners coordinate with each other and with local fire authorities. Defensible space, for example, is more effective in small communities when applied uniformly throughout entire neighborhoods. Public education and awareness, neighbors helping neighbors, and proactive individuals setting examples for others to follow are just a few of the approaches that will be necessary to meet the fire safe goals in the community. Disposal of biomass generated from defensible space and fuel reduction treatments can sometimes be most efficiently handled through community programs.

*Property Owner Recommendation*

- Form a local chapter of the Nevada Fire Safe Council. The Nevada Fire Safe Council proposes to work on solutions that reduce the risk of loss of lives and property from wildfires in Nevada's communities. Through establishment of a local Chapter, communities become part of a large information-sharing network that receives notifications of programs and funding opportunities for fire mitigation projects such as those listed in this report. The Nevada Fire Safe Council will accept and manage grants and contracts on the Chapter's behalf through its non-profit status. The Nevada Fire Safe Council provides assistance and support to communities to complete fire safe plans, set priorities, educate and train community members, and promote success stories of its members. For more information on forming a chapter, contact:

  The Nevada Fire Safe Council
  1187 Charles Drive
  Reno, Nevada 89509
  www.nvfsc.org

*East Fork Fire and Paramedic Districts and Nevada Division of Forestry Recommendation*

- Distribute copies of the publication *"Living With Fire"* to all property owners who live in North Foothill Road Corridor. This publication is free of charge. Copies can be requested from the University of Nevada Cooperative Extension.

## 19.3 SUMMARY OF RECOMMENDATIONS

**Table 19-1. North Foothill Road Corridor Priority Recommendations to Reduce Wildfire Risks and Hazards**

| INVOLVED PARTY | RECOMMENDED TREATMENT | RECOMMENDATION DESCRIPTION |
|---|---|---|
| **Property Owners** | Defensible Space | Remove, reduce, and replace vegetation around homes according to the defensible space guidelines in Appendix D. |
| | Fuels Reduction | Reduce vegetative fuels for a distance of ten feet on both sides of private driveways longer than 200 feet.<br>Coordinate with the Nevada Division of Forestry, EFFPD, and the US Forest Service to construct and maintain the proposed fuelbreak on the southwest side of the community. |
| | Fire Suppression Capability | Consider purchasing a fire retardant gel or foam product designed for homeowner use. |
| | Community Coordination | Form a local chapter of the Nevada Fire Safe Council. |
| **US Forest Service** | Fuels Reduction | Coordinate with property owners to construct a 400-foot wide shaded fuelbreak for a distance of approximately one mile on the west side of the community, for a total treatment of approximately 48 acres. |
| **Douglas County** | Fuels Reduction | Remove brush for a distance of 25 feet on the west side of Foothill Road. Remove all shrubs with mechanical mastication equipment, and plant fire-resistant perennial grasses and wildflowers. |
| **Utility Company** | Fuels Reduction | Remove trees or trim any branches within fifteen feet of either side of power lines and poles throughout the North Foothill Road Corridor community. |
| **East Fork Fire and Paramedic Districts** | Fuels Reduction | Coordinate with property owners to construct a 400-foot wide shaded fuelbreak for a distance of approximately one mile on the west side of the community, for a total treatment of approximately 48 acres. |
| **Nevada Division of Forestry** | Community Coordination | Distribute copies of the publication *"Living With Fire"* to all property owners. |

## Table 19-2 North Foothill Road Corridor Wildfire Hazard Rating Summary

**A. Urban Interface Condition** ***2***

**B. Community Design**

| | | |
|---|---|---|
| 1. Ingress / Egress | 1 | /5 |
| 2. Width of Road | 1 | /5 |
| 3. Accessibility | 1 | /3 |
| 4. Secondary Road | 1 | /5 |
| 5. Street Signs | 1 | /5 |
| 6. Address Signs | 1 | /5 |
| 7. Utilities | 3 | /5 |

**C. Construction Materials**

| | | |
|---|---|---|
| 1. Roofs | 5 | /10 |
| 2. Siding | 1 | /5 |
| 3. Unenclosed Structures | 1 | /5 |

**D. Defensible Space**

| | | |
|---|---|---|
| 1. Lot Size | 3 | /5 |
| 2. Defensible Space | 1 | /15 |

**F. Fire Behavior**

| | | |
|---|---|---|
| 1. Fuels | 1 | /5 |
| 2. Fire Behavior | 10 | /10 |
| 3. Slope | 10 | /10 |
| 4. Aspect | 10 | /10 |

**E. Suppression Capabilities**

| | | |
|---|---|---|
| 1. Water Source | 5 | /10 |
| 2. Department | 7 | /10 |

***TALLIES***

**212 Total Houses** **16 Residential Streets**

**B5. Street Signs**

0 not visible | 16 visible | 100% visible

**B6. Address Signs**

3 not visible | 209 visible | 99% visible

**C1. Roofs**

27 combust | 185 not combust | 87% not combust

**C2. Siding**

5 combust | 207 not combust | 98% not combust

**C3. Unenclosed Structures on Lot**

39 not enclosed | 173 enclosed | 18% not enclosed

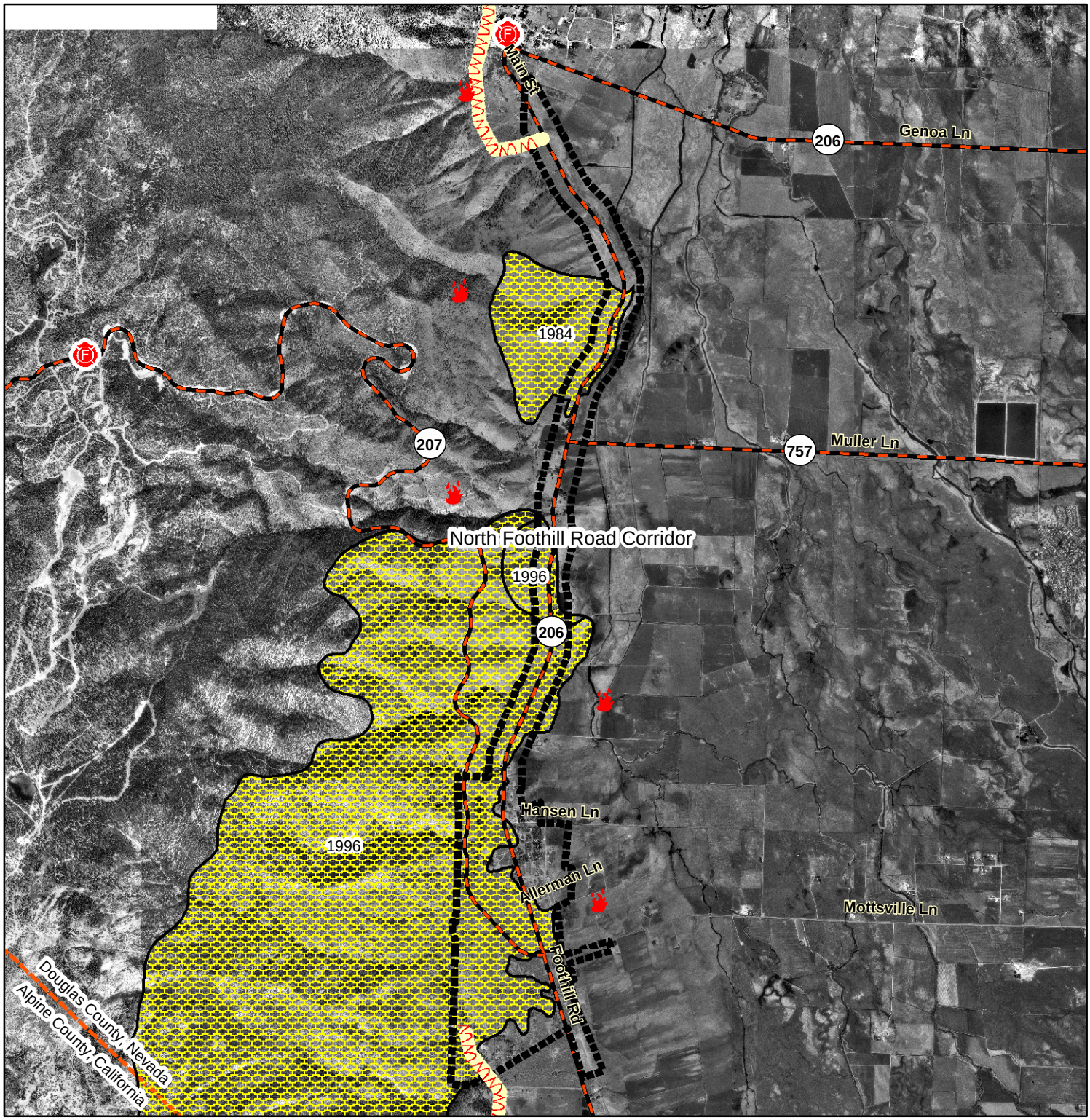
**D1. Lot Sizes**

0 <1ac | 212 >1ac <10ac | 0 >10ac

**D2. Defensible Space**

24 not adequat | 188 adequate | 89% adequate

**Score** **63** /128




**Legend**

- Community Boundary
- Proposed Fuelbreak
- Fire Station
- Fire Ignition
- Fire Boundary and Date
- Highways and State Routes

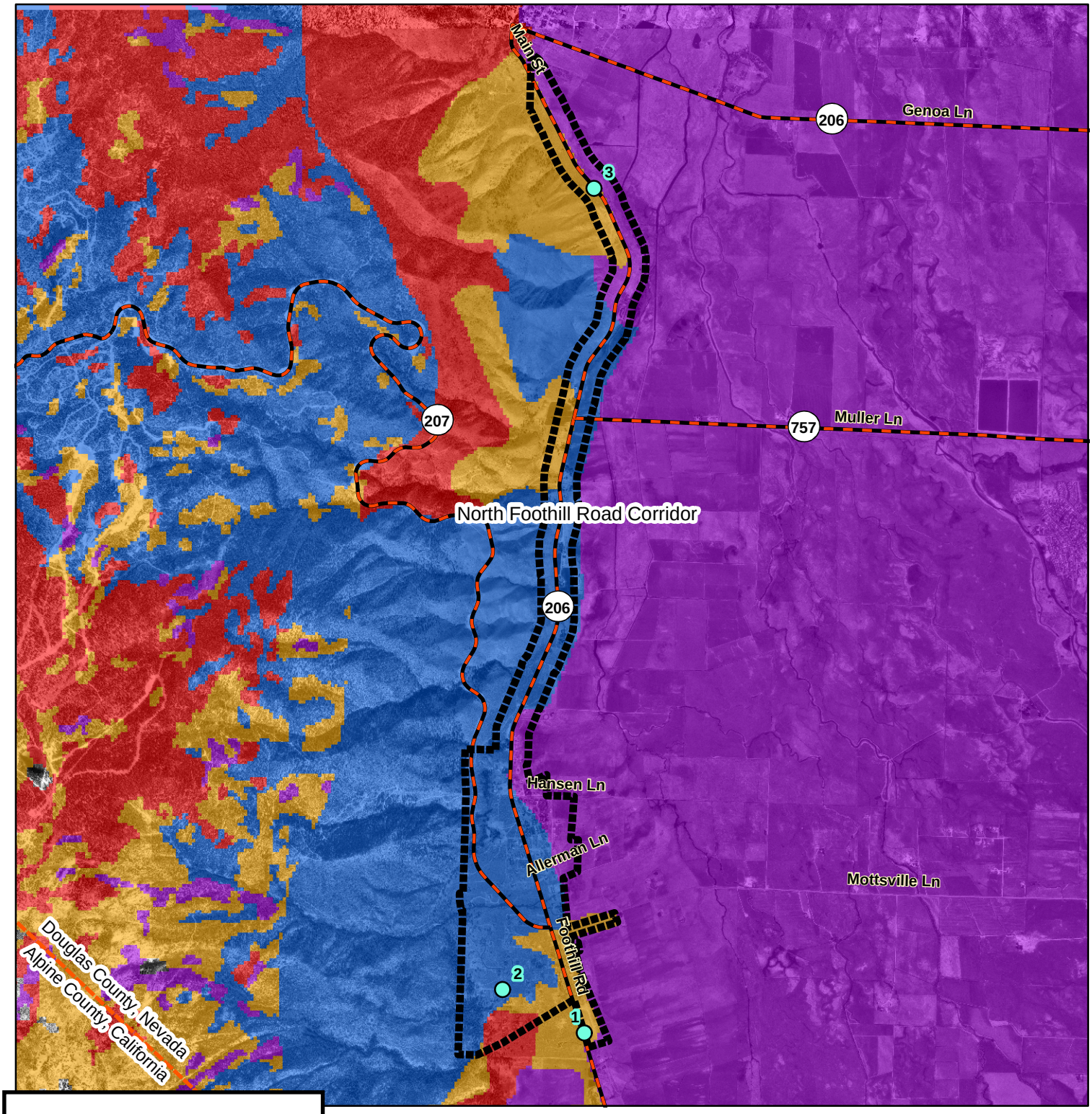
Figure 19-1. North Foothill Road Corridor Fire History, Suppression Resources, and Proposed Mitigation Projects

N
W E
S

0 0.5 1 2
Miles

Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600

***Nevada Community Wildfire Risk / Hazard Assessment Project***




**Legend**

- Community Boundary
- Highways and State Routes

**Fuel Hazard**

- Extreme
- High
- Moderate
- Low
- Photo Point

Figure 19-2. North Foothill Road Corridor
Fuel Hazard Classification

N
W E
S

0 0.5 1 2
Miles

Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600

***Nevada Community Wildfire Risk / Hazard Assessment Project***

**Figure 19-3. North Foothill Road Corridor Fuel Hazard Photo Points**

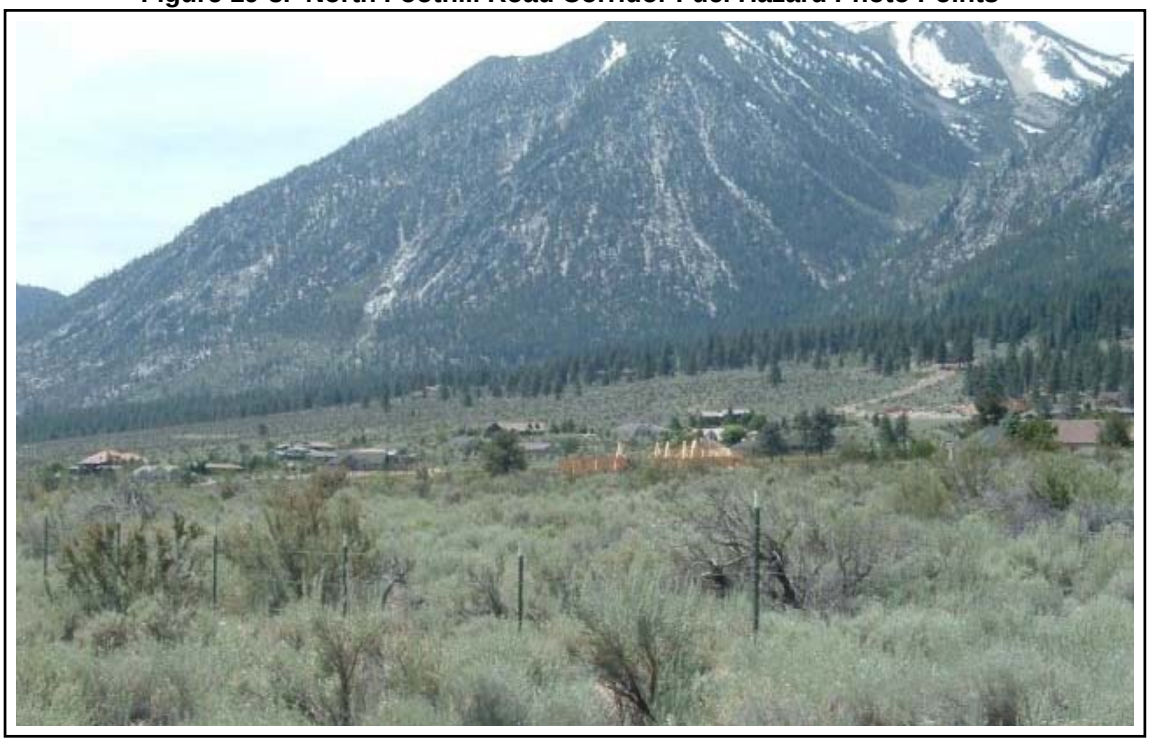


**Photo Point 1.** North Foothill Road Corridor. 4311702N, 0254209E, 205°SW. Below the tree line, big sagebrush, bitterbrush, and rabbitbrush are the primary shrub species present in the community. These unburned areas had an estimated fuel load of two to four tons per acre and were considered a high fuel hazard.

**Photo Point 2.** North Foothill Road Corridor. 4312103N, 253453E, 250° W. The Autumn Hills burn consists primarily of rabbitbrush, sagebrush, and bitterbrush. The fuel load was estimated at one to two tons per acre and was considered a moderate fuel hazard.

**Photo Point 3.** North Foothill Road Corridor. 4319528N, 0254299E, 265° W. In the unburned areas north of the 1984 fire, the vegetative fuels consist of high density big sagebrush and rabbitbrush with a cheatgrass understory. Fuel loads were estimated to range between four and six tons per acre and the vegetation was considered a high fuel hazard.

# 20.0 PINE NUT CREEK

## 20.1 BLACKBULL WILDFIRE SERVICES HAZARD AND RISK ASSESSMENT

In 2004, Blackbull Wildfire Services completed an assessment entitled "Community Wildfire Threat Reduction and Project Implementation Plan for Pine Nut Creek, September 2004," on behalf of the Nevada Fire Safe Council. The pertinent information for this report is summarized from the Blackbull Pine Nut Creek assessment.

The Pine Nut Creek community is located approximately eleven miles east of Gardnerville, Nevada. A majority of the residences and one non-profit organization (City of Refuge) are located along Pine Nut Creek, southeast of the community of Fish Springs at approximately 5,500 feet in elevation. The property adjacent to the community is public land and Tribal Trust lands. Five homes and the non-profit organization buildings were included in the assessment. **The assessment resulted in classifying the Pine Nut Creek community in the High Hazard category.**[18] The primary factors that affected the Pine Nut Creek community hazard score were hazardous vegetative fuels, road conditions, the absence of street and address sighs, and construction materials.

### *20.1.1 Community Design*

The Pine Nut Creek interface area is characterized by the intermix wildland-urban interface condition. Structures are scattered throughout the wildland area with no clear line of demarcation between wildland fuels and residences in the community (see Figure 20-1).

**Roads:** Pinenut Road II is the primary road connecting the Pine Nut Creek community with other communities in Douglas County. Secondary community roads include Lena Lane and Qadosh Road. Other residences are interspersed along unpaved roads and driveways along Pine Nut Creek. Most roads in the community are unpaved, are less than twenty feet in width, and have grades greater than five percent, conditions that may limit the ability for fire suppression equipment to maneuver or turn around in the community.

**Signage:** Street signs were not present along a majority of streets in the Pine Nut Creek community. Clear and visible residential addresses and street signs are important to aid firefighting personnel in locating homes during low visibility conditions that occur during a wildland fire.

**Utilities:** Public utilities servicing the five houses on Lena Lane and Pinenut Road are both above and below ground.

### *20.1.2 Construction Materials*

A majority of the homes in the community were built with fire-resistant siding and Class C roofing materials.

[18] The community hazard rating was adapted from National Fire Protection Association Form 1144.

### *20.1.3 Defensible Space*

A majority of the homes assessed had between thirty and seventy feet of defensible space vegetation treatment surrounding the structure, much less than the recommended minimum defensible space distance of 100 to 200 feet depending upon slope. Refer to Appendix D for standard defensible space recommendations.

### *20.1.4 Fire Suppression Resources*

*Wildfire Protection Resources*

The Fish Springs Volunteer Fire Department (Station 9) of the East Fork Fire and Paramedic District is responsible for wildfire and structure fire protection in the Pine Nut Creek community. At the time of the assessment, the Fish Springs VFD listed twenty volunteers on its roster (East Fork Fire Protection District website). See Tables 4-2 and 4-3 for more information on the typical fire suppression response for first-alarm wildland-urban interface fires in Douglas County. Appendix E lists the type and number of fire suppression vehicles located at each EFFPD and Douglas County VFD station.

The BLM / Interagency wildland fire resources will also respond to all wildland fire reports within the Pine Nut Creek community. BLM has a wildland fire engine stationed at the Fish Springs VFD (Station 9) to respond to risks to adjacent public land and Indian allotment lands. The response will be initiated by the Sierra Front Interagency Dispatch Center.

*Water Sources and Infrastructure*

No hydrants are available within the community. One 18,000 gallon water tank is available as a drafting source at the Fish Springs VFD, which is approximately five miles away. A 240,000 static fill tank is located on Jo Lane in the East Valley community that can be used as a drafting source. There are several helicopter dip sites in the area that are known to local residents but are not mapped or included in any written form.

*Community Preparedness*

The Pine Nut Creek community formed a local chapter of the Nevada Fire Safe Council in July of 2003 with a current roster of seventeen members. There is currently no evacuation plan for residents of the community, nor do the emergency and disaster plans provide information on safe zones within the community.

### *20.1.5 Factors Affecting Fire Behavior*

Vegetation, dead and down fuels, and topographic features contribute to the potential fire hazard around wildland-urban interface communities. The terrain in the community is generally flat where the residences are located; however, steeper hills, draws, and canyons surround the residences. There is a significant history of large fires and fire ignitions near the community.

The vegetation in the Pine Nut Creek community was classified as a high hazard fuel type, dominated by pinyon pine, Utah juniper, and big sagebrush. The pinyon *Ips* beetle has

caused mortality of many of the pinyon trees in the area, dramatically increasing the fire hazard when the trees are in the "red stage" (when needles have dried out, but have not yet fallen off the tree).

### *20.1.6 Fire Hazard Reduction Projects*

In 2004 the BLM Carson Field Office funded a Student Conservation Association Fire Education Corp Team that completed evaluations of defensible space conditions and provided Pine Nut Creek homeowners with defensible space educational materials.

The Bureau of Land Management Carson City Field Office is currently implementing a fuel reduction treatment at the north end of the Pine Nut Creek community along Pine Nut Road II from Out-R-Way to Lena Lane (see Figure 11-2 in the Fish Springs section). The project area was first initiated by opening the area to public woodcutting between October 2004 and January 2005. Project specifications for the two treatment areas include using mechanical mastication equipment to reduce tree and shrub density by removing roughly ninety percent of the shrub and tree cover in the area. The mastication treatment is scheduled to be completed by May 2005.

The BLM has provided grant funding to the local Nevada Fire Safe Council for fuels reduction treatments on private lands within the community. A perimeter shaded fuelbreak and fuels reduction along community roads is planned for 2005, utilizing mechanical mastication equipment. Trees will be thinned to a density of 30 to 40 trees per acre, shrubs removed, and limbs pruned within four feet of the ground on remaining trees in the treatment areas.

### *20.1.7 Fire Behavior and Worst Case Scenario*

The worst-case scenario for a wildland fire in the Pine Nut Creek community would start with multiple dry lightning ignitions near the south or southwest end of the community on a high hazard day. Strong south or southwest winds, 25 miles per hour or greater, would push the fire front down Pine Nut Creek. If a fire under this situation blocked Pine Nut Road II, both evacuation and fire suppression could be jeopardized.

### *20.1.8 Ignition Risk Assessment*

The risk assessment resulted in assigning Pine Nut Creek with a high ignition risk rating. A significant history of wildfire and fire ignitions exists in the Bureau of Land Management administered lands and private lands surrounding the community. High ignition rates are likely due to the high fuel loads in and around the community, the tendency for lightning storms during the summer, and the number of people using the wildlands near Pine Nut Creek.

## 20.2 RISK AND HAZARD REDUCTION RECOMMENDATIONS

The Pine Nut Creek risk and hazard reduction recommendations focus on improving defensible space and promoting homeowner responsibilities. Other recommendations pertain to community coordination efforts that could be initiated to enhance the fire safe nature of the Pine Nut Creek community. Recommendations developed by Blackbull (2004) are detailed below. The RCI Project Team supports these recommendations.

### *20.2.1 Defensible Space*

The following recommendations for defensible space are in addition to the other recommendations developed by Blackbull (2004). Defensible space treatments are an essential first line of defense for residential structures. Significantly reducing or removing vegetation within a prescribed distance from structures (100 to 200 feet depending upon slope) reduces fire intensity and improves firefighter and homeowner chances for successfully defending a structure against an oncoming wildfire.

*Property Owner Recommendations*

- Remove, reduce, and replace vegetation to create defensible space around homes according to the guidelines in Appendix D. This area should be kept:

  Lean – There are only small amounts of flammable vegetation,

  Clean – There is no accumulation of dead vegetation or other flammable debris,

  Green – Existing plants are healthy and green during the fire season.

- Remove debris and flammable materials from within the defensible space area.
- Store firewood a minimum distance of thirty feet from structures.
- Mow or remove brush for a distance of 25 feet along each side of wood or vinyl fences in the community.
- Cheatgrass or other annual grasses that have become dominant within the defensible space zone should be mowed or treated with an application of pre-emergent herbicide prior to seed set.[19] Treatments may need to be repeated the following year to ensure that the seed bank of unwanted grasses has been depleted. Refer to Appendix D for recommended seed mixes and planting guidelines that can be used in conjunction with removal of this annual grass.
- Maintain areas under wood decks and porches free of weeds and other flammable debris. Enclose these areas wherever possible.
- Clear all vegetation and combustible materials around propane tanks for a minimum of ten feet.
- Remove or properly board up abandoned trailers and mobile homes to prevent sparks from entering and igniting the structures.
- Install spark-arresting devices on chimneys.
- Thin pinyon and juniper trees in the defensible space area such that tree canopies are spaced a minimum distance of thirty feet from any other trees, shrubs, or residential structures. Limb branches of remaining pinyon and juniper trees within the defensible space area a minimum of four feet from the ground, or no more than one-third of the tree height. Reduce the needle and cone duff from under the remaining trees to a depth no greater than one-inch.
- Irrigate all trees and shrubs in close proximity to structures to increase their fire resiliency, especially during drought conditions.

[19] Extreme caution should be taken when using herbicides to completely follow all label instructions. Consult with University of Nevada Cooperative Extension specialists for assistance with appropriate herbicide products and application procedures.

- Immediately dispose of cleared vegetation when implementing defensible space treatments. This material dries quickly and poses a fire hazard if left on site.
- Maintain this defensible space as needed to keep the space lean, clean, and green.

### *20.2.2 Fire Suppression Capabilities*

*East Fork Fire and Paramedic Districts Recommendations*

- Inventory and map known water sources. Identify these locations with signs identifying them as fire suppression drafting sites. Install additional 8,000 to 10,000-gallon dry hydrants in various locations throughout the community.
- Develop a pre-attack plan for the Pine Nut Creek community. The plan should include information regarding the location of water sources, helibases, resident safety zones, locations of recent fuel reduction treatments, and other fire protection facility information.
- Develop a community fire notification and evacuation plan for the Pine Nut Creek Community, including notification plans for homeowners and recreation users. Install permanent signs showing clear ingress and egress routes within the community in areas of high use by mountain bikers and ATV users.

### *20.2.3 Fuel Reduction Treatments*

*Nevada Fire Safe Council and Bureau of Land Management Recommendation*

- Construct a fuel reduction treatment along Pine Nut Road II from the private land in T12N R21E, Section 13 to the Sheep Camp Junction. Plant the treated area with a fire resistant seed mixture such as the one recommended in Appendix D to control cheatgrass an noxious weed invasion.

*East Fork Fire and Paramedic Districts, Bureau of Land Management, and Property Owner Recommendations*

- Complete the BLM fuel reduction treatment in progress for Pine Nut Road II from Out-R-Way to Lena Lane including the Lena Lane mastication treatment (scheduled for completion in May 2005). Seed treated area with native and introduced perennial grass species to discourage cheatgrass invasion. Refer to Appendix D for recommended seed mixes and planting guidelines.

### *20.2.4 Community Coordination*

*East Fork Fire and Paramedic Districts Recommendation*

- Distribute copies of the publication *"Living With Fire"* to all property owners who live in the Pine Nut Creek community. This publication is free of charge. Copies can be requested from the University of Nevada Cooperative Extension.

## 20.3 SUMMARY OF RECOMMENDATIONS

**Table 20-1. Pine Nut Creek Priority Recommendations to Reduce Wildfire Risks and Hazards**

| INVOLVED PARTY | RECOMMENDED TREATMENT | RECOMMENDATION DESCRIPTION |
|---|---|---|
| **Property Owners**<br><br>**Local Chapter Nevada Fire Safe Council** | Fuel Reduction | Remove, reduce, and replace vegetation around homes according to the defensible space guidelines in Appendix D.<br><br>Work with EFFPD and BLM to construct proposed fuel reduction treatments. |
| **East Fork Fire and Paramedic Districts** | Fire Suppression Capability | Develop a community fire notification and evacuation plan and install permanent signs showing clear ingress and egress routes within the community.<br><br>Inventory known water sources and install additional 8,000 to 10,000-gallon dry hydrants in various locations throughout the community.<br><br>Develop a pre-attack plan for the Pine Nut Creek community. |
| | Community Coordination | Prepare a community-wide fire safe plan for the community. |
| **Bureau of Land Management** | Fuel Reduction | Complete the fuel reduction treatment for Pine Nut II Road from Out-R-Way to Lean Lane including the Lena Lane mastication treatment. |
| **Nevada Fire Safe Council**<br><br>**Bureau of Land Management** | Fuel Reduction | Construct a fuel reduction treatment along Pine Nut II Road from the private land in T12N, R21E, Section 13 to the Sheep Camp Junction. |

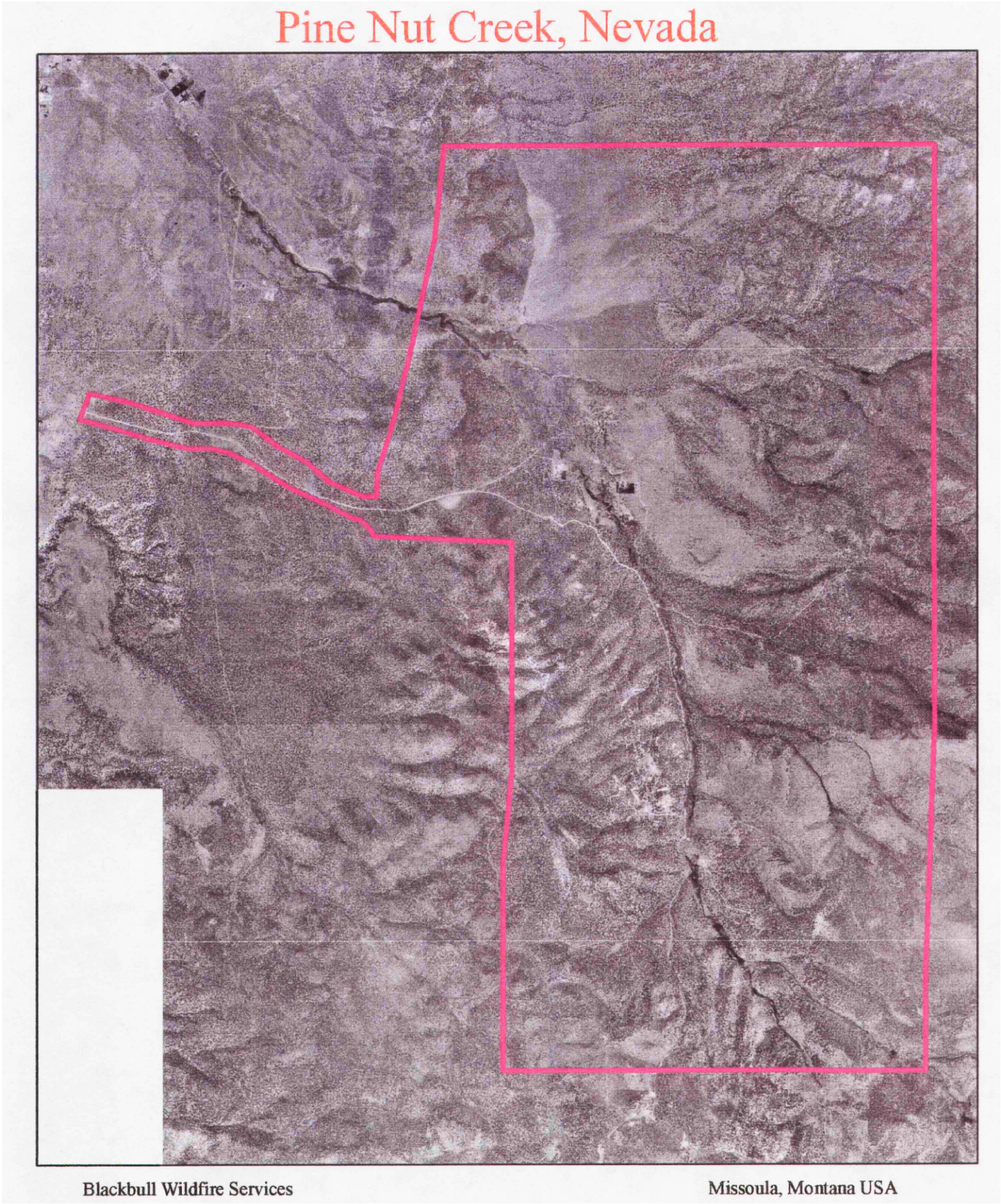



Figure 20-1. Pine Nut Creek Community

Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600



Source: Blackbull Wildfire Services Community Wildfire Threat Reduction and Project Implementation Plan for Pine Nut Creek, September 2004

# 21.0 RUHENSTROTH

## 21.1 HAZARD AND RISK ASSESSMENT

The Ruhenstroth community is located in central Douglas County approximately 2.5 miles south of the town of Gardnerville. The community is situated on a west-facing alluvial fan just east of the East Fork of the Carson River. Public lands border the community to the north, east, and south, and Washoe Tribe of Nevada and California lands border the community to the west. Approximately 500 homes were observed in the community during the assessment. **The hazard assessment resulted in classifying Ruhenstroth in the Moderate Hazard category** (56 points). A summary of the factors that determine this hazard rating is included in Table 21-2. The primary hazards for the Ruhenstroth community are the potential for extreme fire behavior, the proximity of water sources for fire suppression, and the availability of volunteer fire suppression resources.

### *21.1.1 Community Design*

The Ruhenstroth interface area is characterized by the intermix wildland-urban interface condition. Structures are scattered throughout the wildland area with no clear line of demarcation between wildland fuels and residences in the community. The majority of lots assessed were on parcels between one and ten acres (see Figure 21-1).

**Roads:** Wiseman Lane and Palomino Lane are the primary roads providing access from residences to US Highway 395, which provides access between the Ruhenstroth community and other communities in Douglas County. The primary roads are greater than 24 feet in width, paved, and provide adequate access for fire suppression vehicles. Most of the secondary community roads have adequate turn around space for fire suppression equipment, and the majority of community roads have less than a five percent gradient. However, more than ten secondary roads have dead ends with inadequate turn around space for fire suppression vehicles.

**Signage:** Greater than eighty percent of streets are adequately identified with reflective letter signs. Residential addresses were visible on ninety percent of the homes assessed. Clear and visible residential addresses are important to aid firefighting personnel in locating homes during low visibility conditions that may be present during a wildland fire.

**Utilities:** Both overhead and underground power lines are present within the community, as well as propane tanks and natural gas service. Power line right-of-ways were properly maintained, which minimizes the possibility of power lines sparking during windstorms and starting fires in nearby vegetation.

### *21.1.2 Construction Materials*

Approximately seventeen percent of the homes assessed had wood shake roofing materials. The remainder of the homes assessed were built with fire resistant siding materials and non-combustible roofing materials, mainly composition type roofing. About thirteen percent of the homes observed have unenclosed balconies, porches, decks, or other architectural features that create drafts and provide areas where sparks and firebrands can be trapped, smolder, ignite, and rapidly spread fire to the home.

### *21.1.3 Defensible Space*

Approximately 84 percent of the homes in the community have landscaping that would meet the minimum defensible space requirement to help protect the home from damage or loss during a wildfire.

### *21.1.4 Suppression Capabilities*

*Wildfire Protection Resources*

Ruhenstroth Volunteer Fire Department (Station 10) of the East Fork Fire and Paramedic Districts provides Ruhenstroth with wildland and structure fire protection. At the time interviews were completed for this report, the Ruhenstroth VFD reported eighteen members on its roster (East Fork Fire and Paramedic District website). See Tables 4-2 and 4-3 for more information on the typical fire suppression response for first-alarm wildland-urban interface fires in Douglas County. Appendix E lists the type and number of fire suppression vehicles located at each EFFPD station.

The BLM / Interagency wildland fire resources will also respond to all wildland fire reports within the Ruhenstroth community. BLM has a wildland fire engine stationed at the Fish Springs VFD (Station 9) to respond to risks to adjacent public land and Indian allotment lands. The response will be initiated by the Sierra Front Interagency Dispatch Center.

*Water Sources and Infrastructure*

Water availability for fire suppression in Ruhenstroth includes one 250,000-gallon tank with two, 1,250 gpm fire pumps, located at the Douglas County Fairgrounds, approximately one mile away. The tank also provides a gravity fed water source to a hydrant installed at the Ruhenstroth VFD. There is no emergency generator for the pump that fills the tank, and there are no other hydrants available for structure protection in the community. The Carson River may be used as a helicopter dip site.

### *21.1.5 Factors Affecting Fire Behavior*

Vegetation, dead and down fuels, and topographic features contribute to the potential fire hazard around wildland-urban interface communities. The terrain in Ruhenstroth is generally flat with slopes less than eight percent. The community is situated on a west facing alluvial fan. The vegetative fuel density in the Ruhenstroth community ranges from moderate to high, with fuel loads estimated between two and eight tons per acre in the southwest portion of the community. Fuel loads were estimated to be less than one ton per acre on the north and east sides of the community. Vegetative fuels in the community consist primarily of sagebrush, horsebrush, rabbitbrush, Mormon tea, and fourwing saltbush with a cheatgrass and bottlebrush squirreltail understory. Typical shrub heights range between one and two feet. In the southwest portion of the community, there are pinyon and juniper trees that are ten to twenty foot tall and increase the fuel hazard from moderate (in the rest of the community) to high. The predominant wind direction is from the south/southwest especially in the late afternoon

### *21.1.6 Fire Hazard Reduction Projects*

In 2004 the BLM Carson Field Office funded a Student Conservation Association Fire Education Corp Team that completed evaluations of defensible space conditions and provided Ruhenstroth homeowners with defensible space educational materials.

### *21.1.7 Fire Behavior Worst Case Scenario*

The worst-case scenario for Ruhenstroth would likely occur in the event of a dry lightning storm with numerous ignitions south and east of the community. With south or southwest winds exceeding 25 miles per hour, a fire ignition south of the community could rapidly spread through the pinyon, juniper, and brush fuels and quickly threaten structures on the south and east sides of Ruhenstroth. Spot fires could also easily ignite in the vacant lots throughout the community creating a situation with multiple fire starts and fire fronts for fire suppression resources to contend with. The scenario would be worse if EFFPD resources were unavailable due to previous assignment to an emergency situation elsewhere.

### *21.1.8 Ignition Risk Assessment*

Fire ignitions have occurred within the vicinity of the community from both human and lightning causes. In 1984, the Indian Creek II Fire burned approximately 22,000 acres just south of the community. Ruhenstroth has a moderate ignition risk for the wildland-urban interface areas of the community. The ignition risk is low within the developed lots; however, the undeveloped lots pose a moderate ignition risk. There is a moderate risk of ignition due to lightning and a low risk of ignition from human-caused sources such as power line ignitions or flammable debris being thrown from vehicles on the highway.

## 21.2 RISK AND HAZARD REDUCTION RECOMMENDATIONS

The Ruhenstroth risk and hazard reduction recommendations address the primary concern regarding protection of existing and future development in the wildland-urban interface area. Other recommendations pertain to community coordination and public education efforts that could be undertaken to enhance fire safety in Ruhenstroth.

### *21.2.1 Defensible Space Treatments*

Defensible space treatments are an essential first line of defense for residential structures. Significantly reducing or removing vegetation within a prescribed distance from structures (a minimum of 100 feet) reduces fire intensity and improves firefighter and homeowner chances for successfully defending a structure against an oncoming wildfire.

*Property Owner Recommendations*

- Remove, reduce, and replace vegetation to create defensible space around homes according to the guidelines in Appendix D. This area should be kept:

  Lean – There are only small amounts of flammable vegetation,

  Clean – There is no accumulation of dead vegetation or other flammable debris,

  Green – Existing plants are healthy and green during the fire season.

- Remove debris and flammable materials from within the defensible space area.

- Store firewood a minimum distance of thirty feet from structures.
- Mow or remove brush growing within a distance of 25 feet and grass within ten feet of wood fences in the community.
- Cheatgrass or other annual grasses that have become dominant within the defensible space zone should be mowed or treated with an application of pre-emergent herbicide prior to seed set.[20] Treatments may need to be repeated the following year to ensure that the seed bank of unwanted grasses has been depleted. Refer to Appendix D for recommended seed mixes and planting guidelines that can be used in conjunction with removal of this annual grass.
- Maintain areas under wood decks and porches free of weeds and other flammable debris. Enclose these areas wherever possible.
- Clear all vegetation and combustible materials around propane tanks for a minimum of ten feet.
- Install spark-arresting devices on chimneys.
- Thin pinyon and juniper trees in the defensible space area such that tree canopies are spaced a minimum distance of thirty feet from any other trees, shrubs, or residential structures. Limb branches of remaining pinyon and juniper trees within the defensible space area a minimum of four feet from the ground, or no more than one-third the height of the trees. Reduce the needle and cone duff from under the remaining trees to a depth no greater than one-inch.
- Irrigate all trees and shrubs in close proximity to structures to increase their fire resiliency, especially during drought conditions.
- Immediately dispose of cleared vegetation when implementing defensible space treatments. This material dries quickly and poses a fire hazard if left on site.
- Maintain this defensible space as needed to keep the space lean, clean, and green.

### *21.2.2 Fuel Reduction Treatments*

Fuel reduction treatments are applied on a larger scale than defensible space treatments. By permanently changing the fuel structure over large blocks of land to one of lower volume or reduced flammability (a fuel reduction treatment), the expected result in the event of a catastrophic wildfire would be one of reduced capacity for uncontrolled spread through the treatment area.

*Property Owner Recommendations*

- Reduce pinyon, juniper, and shrubs for a distance of ten feet on both sides of private driveways. Remove highly flammable shrub species and replace with fire-resistant species such as crested wheatgrass, lawn, or a low growing seeding. Appropriate seed mixtures and seeding specifications are provided in Appendix D.

[20] Extreme caution should be taken when using herbicides to completely follow all label instructions. Consult with University of Nevada Cooperative Extension specialists for assistance with appropriate herbicide products and application procedures.

- Coordinate with Bureau of Land Management and the East Fork Fire and Paramedic Districts to construct a 200-foot wide shaded fuelbreak for a distance of approximately 4,400 feet on the southeast side of the community. The recommended treatment area is approximately twenty acres (see Figure 21-1). Thin trees and shrubs to a canopy spacing of two times the height of the trees and shrubs. Limb remaining trees a minimum of four feet from the ground and remove any shrubs within ten feet of tree canopies.

*Bureau of Land Management and East Fork Fire and Paramedic Districts Recommendation*

- Coordinate with property owners to construct and maintain a 200-foot wide shaded fuelbreak for a distance of approximately 4,400 feet on the southeast side of the community. The recommended treatment area is approximately twenty acres (see Figure 21-1). Thin trees and shrubs to a canopy spacing of two times the height of the trees and shrubs. Limb remaining trees a minimum of six feet from the ground and remove any shrubs within ten feet of tree canopies.

*Utility Company Recommendation*

- Reduce vegetation a minimum distance of fifteen feet from all utility poles and power lines to reduce the risk of loss during a fire and reduce the chance of sparks from igniting nearby vegetation.

*Douglas County Roads Department Recommendation*

- Remove pinyon and juniper trees, shrubs, and weeds for a distance of 25 feet on each side of roads in the community.

### *21.2.3 Community Coordination*

Many of the most effective activities aimed at reducing the threat of wildfire for the Ruhenstroth community require that individual property owners coordinate with each other and with local fire authorities. Defensible space, for example, is more effective in small communities when applied uniformly throughout entire neighborhoods. Public education and awareness, neighbors helping neighbors, and proactive individuals setting examples for others to follow are just a few of the approaches that will be necessary to meet the fire safe goals in the community. Disposal of biomass generated from defensible space and fuel reduction treatments can sometimes be most efficiently handled through community programs.

*Property Owner Recommendations*

- Assure that address signs are visible from the road. Address characters should be at least four inches high, reflective, and composed of non-flammable material. Improving visibility of addresses will make it easier for those unfamiliar with the area to navigate under smoky conditions during a wildland fire.
- Form a local chapter of the Nevada Fire Safe Council. The Nevada Fire Safe Council proposes to work on solutions that reduce the risk of loss of lives and property from wildfires in Nevada's communities. Through establishment of a local Chapter, communities become part of a large information-sharing network that receives notifications of programs and funding opportunities for fire mitigation

projects such as those listed in this report. The Nevada Fire Safe Council will accept and manage grants and contracts on the Chapter's behalf through its non-profit status. The Nevada Fire Safe Council provides assistance and support to communities to complete fire safe plans, set priorities, educate and train community members, and promote success stories of its members. For more information on forming a chapter, contact:

The Nevada Fire Safe Council
1187 Charles Drive
Reno, Nevada 89509
www.nvfsc.org

*East Fork Fire and Paramedic Districts Recommendation*

- Distribute copies of the publication *"Living With Fire"* to all property owners who live in wildland-urban interface subdivisions in Ruhenstroth. This publication is free of charge. Copies can be requested from the University of Nevada Cooperative Extension.

## 21.3 SUMMARY OF RECOMMENDATIONS

**Table 21-1. Ruhenstroth Priority Recommendations to Reduce Wildfire Risks and Hazards**

| INVOLVED PARTY | RECOMMENDED TREATMENT | RECOMMENDATION DESCRIPTION |
|---|---|---|
| **Property Owners** | Defensible Space | Remove, reduce, and replace vegetation around home according to the defensible space guidelines in Appendix D. |
| | Fuels Reduction | Reduce vegetative fuels for a distance of ten feet on both sides of private driveways with shrubs and pinyon/juniper trees along the driveway.<br>Coordinate with Bureau of Land Management and the East Fork Fire and Paramedic Districts to construct and maintain a 200-foot wide shaded fuelbreak for a distance of approximately 4,400 feet on the southeast side of the community. |
| | Community Coordination | Assure that address signs are visible from the road. Address characters should be at least four inches high, reflective, and composed of non-flammable material.<br>Form a local chapter of the Nevada Fire Safe Council. |
| **Douglas County** | Fuels Reduction | Remove trees, shrubs, and weeds for a distance of 25 feet on both sides of roads in the community. |
| **Utility Company** | Fuels Reduction | Reduce vegetation a minimum distance of fifteen feet from all utility poles and power lines. |
| **Bureau of Land Management** | Fuels Reduction | Coordinate with property owners to construct and maintain a 200-foot wide shaded fuelbreak for a distance of approximately 4,400 feet on the southeast side of the community. |
| **East Fork Fire and Paramedic Districts** | Fuels Reduction | Coordinate with property owners to construct and maintain a 200-foot wide shaded fuelbreak for a distance of approximately 4,400 feet on the southeast side of the community. |
| | Community Coordination | Distribute copies of the publication *"Living With Fire"* to all property owners. |

## Table 21-2 Ruhenstroth Wildfire Hazard Rating Summary

**A. Urban Interface Condition** ***2***

**B. Community Design**

| | | |
|---|---|---|
| 1. Ingress / Egress | 1 | /5 |
| 2. Width of Road | 1 | /5 |
| 3. Accessibility | 1 | /3 |
| 4. Secondary Road | 1 | /5 |
| 5. Street Signs | 3 | /5 |
| 6. Address Signs | 1 | /5 |
| 7. Utilities | 1 | /5 |

**C. Construction Materials**

| | | |
|---|---|---|
| 1. Roofs | 5 | /10 |
| 2. Siding | 1 | /5 |
| 3. Unenclosed Structures | 1 | /5 |

**D. Defensible Space**

| | | |
|---|---|---|
| 1. Lot Size | 3 | /5 |
| 2. Defensible Space | 1 | /15 |

**F. Fire Behavior**

| | | |
|---|---|---|
| 1. Fuels | 3 | /5 |
| 2. Fire Behavior | 7 | /10 |
| 3. Slope | 7 | /10 |
| 4. Aspect | 7 | /10 |

**E. Suppression Capabilities**

| | | |
|---|---|---|
| 1. Water Source | 5 | /10 |
| 2. Department | 7 | /10 |

***TALLIES***

**517 Total Houses** **64 Residential Streets**

**B5. Street Signs**

11 not visible | 53 visible | 83% visible

**B6. Address Signs**

51 not visible | 466 visible | 90% visible

**C1. Roofs**

88 combust | 429 not combust | 83% not combust

**C2. Siding**

10 combust | 507 not combust | 98% not combust

**C3. Unenclosed Structures on Lot**

66 not enclosed | 451 enclosed | 13% not enclosed

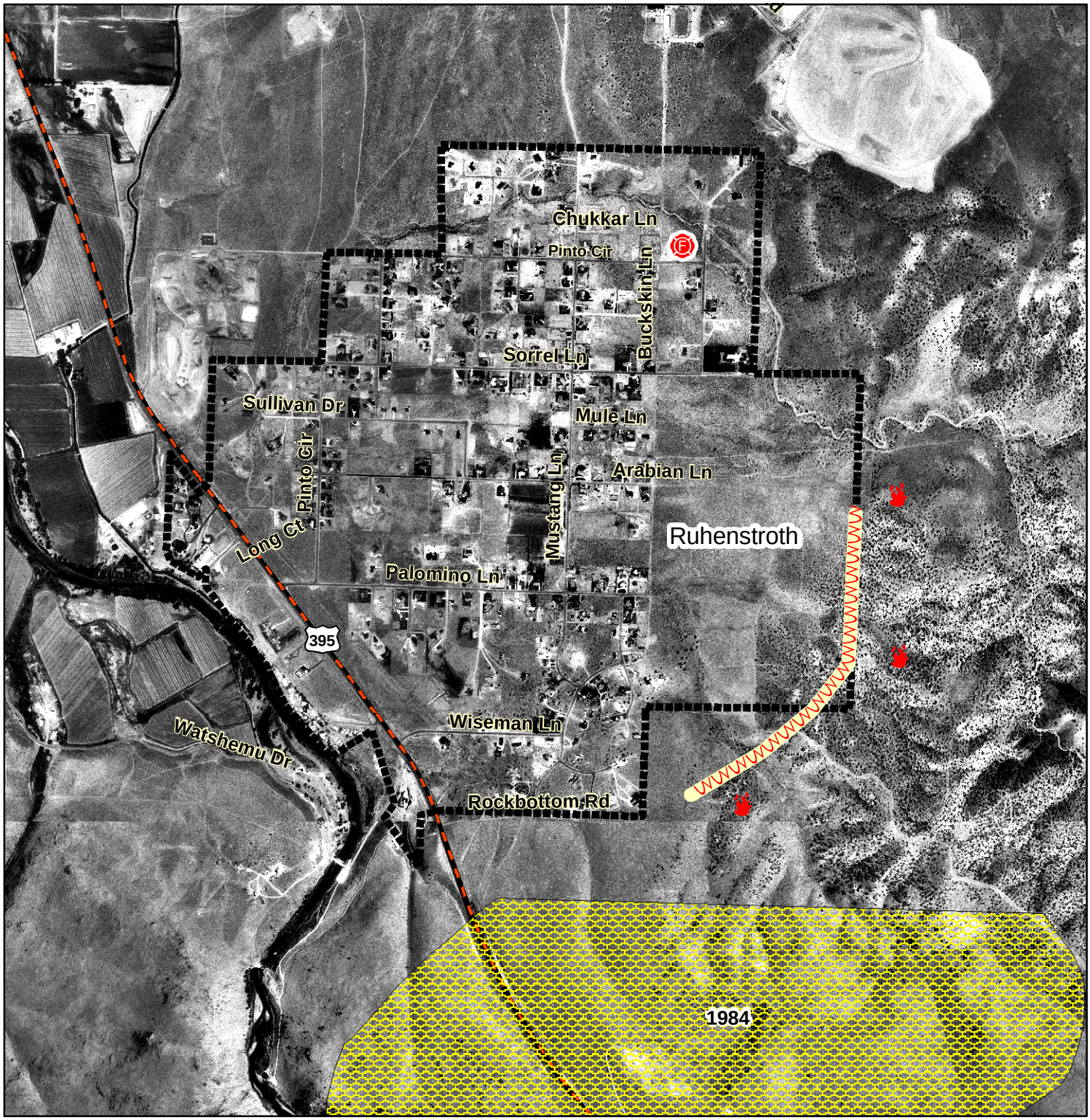
**D1. Lot Sizes**

230 <1ac | 280 >1ac <10ac | 7 >10ac

**D2. Defensible Space**

83 not adequat | 434 adequate | 84% adequate

**Score** **56** /128




**Legend**

- Proposed Fuelbreak
- Community Boundary
- Fire Ignition
- Fire Station
- Fire Boundary and Date
- Highways and State Routes

Figure 21-1. Ruhenstroth
Fire History, Suppression Resources,
and Proposed Mitigation Projects

N
W E
S

0 1,000 2,000 4,000
Feet

Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600

***Nevada Community Wildfire Risk / Hazard Assessment Project***

# 22.0 SHERIDAN ACRES

## 22.1 HAZARD AND RISK ASSESSMENT

The Sheridan Acres community is located south of Genoa and west of Gardnerville, Nevada, along the base of the Carson Range. The community is situated on east-facing alluvial fans and benches and the Carson River floodplain. Residential development is currently occurring adjacent to the community in the Job's Peak Ranch subdivision. National Forest, the Job's Peak Ranch community, public lands, and the California state line border the community to the west. Agricultural lands border the community to the east. Approximately 200 homes were observed in the community during the assessment. **The hazard assessment resulted in classifying Sheridan Acres in the High Hazard category** (65 points). A summary of the factors that determine this hazard rating is included in Table 22-2. The primary conditions that affect Sheridan Acres community are the potential for extreme fire behavior, the distance to fire suppression water sources, and the availability of volunteer firefighters.

### *22.1.1 Community Design*

The Sheridan Acres interface area is characterized as the intermix wildland-urban interface condition. Structures are scattered throughout the wildland area with no clear line of demarcation between wildland fuels and residences in the community. Parcels observed in the interface area were all greater than one acre in size (see Figure 22-1).

**Roads:** Foothill Road (Fairview Lane) and Centerville Lane are the primary roads that provide access between the community and other areas of Douglas County. The roads are paved, greater than 24 feet wide, and provide adequate access for fire suppression vehicles. Most of the secondary community roads have adequate turn around space for fire suppression equipment and the majority of community roads have a grade less than a five percent.

**Signage:** Street names are adequately identified with reflective signs. Residential addresses were visible on all of the homes assessed. Clear and visible residential addresses are important to aid firefighting personnel in locating homes during low visibility conditions that occur during a wildland fire.

**Utilities:** Overhead and underground power lines are present within the community. Power line right-of-ways are properly maintained, which minimizes the possibility of power lines sparking during windstorms and starting fires in nearby vegetation. Propane tanks were also present within the community and sometimes lacked the proper vegetation clearance of ten feet.

### *22.1.2 Construction Materials*

Approximately eight percent of the homes assessed had wood shake roofing materials. The remaining 92 percent of the homes assessed were built with fire resistant siding materials and non-combustible roofing materials. About sixteen percent of the homes observed have unenclosed balconies, porches, decks, or other architectural features that create drafts and provide areas where sparks and firebrands can be trapped, smolder, ignite, and rapidly spread fire to the home.

### *22.1.3 Defensible Space*

A majority, 71 percent, of the homes in the interface have landscaping that would meet the minimum defensible space requirement to help protect the home from damage or loss during a wildfire.

### *22.1.4 Suppression Capabilities*

*Wildfire Protection Resources*

Sheridan Acres is provided wildland and structure fire protection by the NDF Sierra Forest Fire Protection District and East Fork Fire and Paramedic District's Sheridan Volunteer Fire Department (Station 8). See Tables 4-2 and 4-3 for more information on the typical fire suppression response for first-alarm wildland-urban interface fires in Douglas County. Appendix E lists the type and number of fire suppression vehicles located at each EFFPD station.

*Water Sources and Infrastructure*

Water availability for fire suppression in Sheridan Acres includes one 500,000-gallon tank and one 120,000-gallon static fill tank. Emergency generators are not available for the pumps on the wells that fill the tanks. There are hydrants available in the Job's Peak Ranch subdivision adjacent to the community, but no hydrants are available within the community. The Carson River and four ponds are available for use as helicopter dip sites.

### *22.1.5 Factors Affecting Fire Behavior*

Vegetation, dead and down fuels, and topographic features contribute to the potential fire hazard around wildland-urban interface communities. The fuel hazards were mapped for Sheridan Acres, and fuel hazard photos were taken to provide additional information for the vegetation type descriptions (see Figures 22-2 and 22-3).

The terrain around Sheridan Acres is generally flat with east-facing slopes less than eight percent. Fire ignitions have occurred within the vicinity of the community from both human and lightning causes. The 1996 Autumn Hills Fire burned 3,804 acres less than one half mile northwest of the community. The Fredericksburg fire burned 3,383 acres southwest of the community in 1986. The predominant wind direction is downslope from the south/ southwest especially in the late afternoon.

Three major vegetation types occur within the vicinity of the Sheridan Acres community including Jeffrey pine/sagebrush, sagebrush/bitterbrush, and irrigated pasturelands. The irrigated pasturelands were located on the east side of the community, generally east of Foothill Road. They provide an effective greenstrip on the east side of the community and were considered a low fuel hazard.

Within the community and directly north and west of the community, the vegetation consists of big sagebrush, bitterbrush, desert peach, Mormon tea, and rabbitbrush. Dominant grasses in the understory were Indian ricegrass, cheatgrass, and bottlebrush squirreltail. Shrubs are dense with one to four feet between shrubs with shrub heights ranging between

four and six feet. The fuel load was estimated to be between six and eight tons per acre and was considered a high fuel hazard.

Further upslope of the community in the adjacent Job's Peak Ranch community, the vegetation is dominated by a Jeffrey pine overstory, with a shrub and grass understory similar in species composition and density to downslope areas. The Jeffrey pine community was estimated to have fuel loads between four to eighteen tons per acre and was considered an extreme fuel hazard.

### *22.1.6 Fire Behavior Worst Case Scenario*

The worst-case scenario for Sheridan Acres would likely occur in the event of a dry-lightning storm in which several ignitions occurred on the mountain southwest or west of the community. Driven by 25 mile per hour winds, any fire ignition could result in a crown fire capable of rapid spread downhill toward the community. Very few roads provide access for fire suppression equipment west of the community, which decreases response time. Spot fires could result in multiple fire fronts near residences in the community and could increase the difficulty for fire suppression personnel protecting homes. If Foothill Road were to be closed in two places due to fire, homeowner evacuation and fire suppression response could be limited.

### *22.1.7 Ignition Risk Assessment*

Sheridan Acres has been rated with a high ignition risk. Several fires and ignitions have occurred immediately adjacent to the community (Figure 22-1). The predominant ignition risks for Sheridan Acres are lightning and power lines although human caused fires can occur at any time.

## 22.2 RISK AND HAZARD REDUCTION RECOMMENDATIONS

The Sheridan Acres risk and hazard reduction recommendations focus on improving defensible space and promoting homeowner responsibilities. Other recommendations pertain to community coordination efforts that could be initiated to enhance the fire safe nature of Sheridan Acres.

### *22.2.1 Defensible Space Treatments*

*Property Owner Recommendations*

Defensible space treatments are an essential first line of defense for residential structures. Significantly reducing or removing vegetation within a prescribed distance from structures (minimum of 30 feet to 200 feet depending upon slope and vegetative fuel type) reduces fire intensity and improves firefighter and homeowner chances for successfully defending a structure against an oncoming wildfire.

- Remove, reduce, and replace vegetation around homes according to the guidelines in Appendix D. This area should be kept:

  Lean – There are only small amounts of flammable vegetation,

  Clean – There is no accumulation of dead vegetation or other flammable debris,

  Green – Existing plants are healthy and green during the fire season.

- Maintain the area beneath unenclosed wood decks and porches free of weeds and flammable debris. Enclose these areas wherever possible.
- Clear all vegetation and combustible materials around propane tanks for a minimum distance of ten feet.
- Mow or remove brush growing within a distance of 25 feet and grass within ten feet of wood fences in the community.
- Store firewood a minimum distance of thirty feet from structures.
- Install spark-arresting screens on chimneys.
- Annually remove vegetation and debris along irrigation ditches to reduce the fuel load.
- Remove pine needles, leaves, and debris from roofs and rain gutters.
- Prune tree branches within fifteen feet of chimneys and structures.
- Limb branches of conifers a minimum of fifteen feet from the ground, or no more than one-third of the total tree height, to reduce ladder fuels. All dead and diseased branches and duff should be removed from beneath remaining trees.
- Irrigate all trees and large shrubs in close proximity to structures to increase their fire resiliency, which is especially important during drought conditions.
- Cheatgrass or other annual grasses that have become dominant within the defensible space zone should be mowed or treated with an application of pre-emergent herbicide prior to seed set.[21] Treatments may need to be repeated the following year to ensure that the seed bank of unwanted grasses has been depleted. Refer to Appendix D for recommended seed mixes and planting guidelines that can be used in conjunction with removal of this annual grass.
- Maintain this defensible space as needed to keep the space lean, clean, and green.
- Immediately remove cleared vegetation to an approved disposal site when implementing defensible space treatments. This material dries quickly and presents a fire hazard if left on site.

### *22.2.2 Fuel Reduction Treatments*

Fuel reduction treatments are applied on a larger scale than defensible space treatments. By permanently changing the fuel structure over large blocks of land to one of a lower volume or reduced flammability (a fuel reduction treatment), the expected result in the event of a catastrophic wildfire would be one of reduced capacity for uncontrolled spread through the treatment area.

*Property Owner Recommendations*

- Reduce vegetative fuels for a distance of ten feet on both sides of private driveways longer than 200 feet. Remove highly flammable shrub species and

[21] Extreme caution should be taken when using herbicides to completely follow all label instructions. Consult with University of Nevada Cooperative Extension specialists for assistance with appropriate herbicide products and application procedures.

replace with fire-resistant species such as crested wheatgrass, lawn, or a low growing seeding. Appropriate seed mixtures and seeding specifications are provided in Appendix D.

- Coordinate with the Nevada Division of Forestry, EFFPD, and the US Forest Service to construct and maintain the proposed fuelbreak on the west side of the community.

*East Fork Fire and Paramedic Districts, Nevada Division of Forestry, Bureau of Land Management, and US Forest Service Recommendations*

- Coordinate with property owners to construct a 400-foot wide shaded fuelbreak for a distance of approximately 1.5 miles on the west side of the community, for a total treatment of approximately 74 acres (see Figure 22-1). The fuelbreak should connect with the fuelbreaks proposed for the Job's Peak Ranch and North Foothill Road Corridor communities. Remove small trees and shrubs within thirty feet of tree driplines. Thin shrubs outside the drip line to a canopy spacing twice the height of the shrubs. Thin trees stands where necessary (not already thinned) to a minimum basal area of 60 to 80 sq. ft. per acre. For example, where trees in the stand are of an average diameter of 14 inches (DBH), tree spacing should be reduced to approximately 65 trees per acre, with a minimum spacing of 25 feet between tree boles. If the average diameter of trees in the stand is 24 inches (DBH), tree spacing should be reduced to 22 trees per acre, with a minimum spacing of 45 feet between tree boles. Prune lower limbs within fifteen of the ground, but do not remove limbs from more than one-third the height of the tree. For more information on tree spacing between boles for various basal areas and tree diameters, refer to Appendix D.
- The biomass generated from construction of the fuelbreak should be removed (piled and burned or transported off the site) and disposed of at an appropriate site. The fuelbreak should be maintained such that there is no significant increase in shrub and tree density from post-treatment levels.

*Utility Company Recommendation*

- Remove trees or trim any tree branches within fifteen feet of either side of power lines and power poles throughout the Sheridan Acres community.

### *22.2.3 Fire Suppression Capability*

*Property Owner Recommendation*

- Consider purchasing a fire retardant gel or foam product designed for homeowner use. These gels/foams can be applied to structures and vegetation to create an added layer of flame resistance in the event of a fire.

### *22.2.4 Community Coordination*

Many of the most effective activities aimed at reducing the threat of wildfire for the Sheridan Acres community require that individual property owners coordinate with each other and with local fire authorities. Defensible space, for example, is more effective in small communities when applied uniformly throughout entire neighborhoods. Public education and awareness, neighbors helping neighbors, and proactive individuals setting examples for

others to follow are just a few of the approaches that will be necessary to meet the fire safe goals in the community. Disposal of biomass generated from defensible space and fuel reduction treatments can sometimes be most efficiently handled through community programs.

*Property Owner Recommendation*

- Form a local chapter of the Nevada Fire Safe Council. The Nevada Fire Safe Council proposes to work on solutions that reduce the risk of loss of lives and property from wildfires in Nevada's communities. Through establishment of a local Chapter, communities become part of a large information-sharing network that receives notifications of programs and funding opportunities for fire mitigation projects such as those listed in this report. The Nevada Fire Safe Council will accept and manage grants and contracts on the Chapter's behalf through its non-profit status. The Nevada Fire Safe Council provides assistance and support to communities to complete fire safe plans, set priorities, educate and train community members, and promote success stories of its members. For more information on forming a chapter, contact:

  The Nevada Fire Safe Council
  1187 Charles Drive
  Reno, Nevada 89509
  www.nvfsc.org

*East Fork Fire and Paramedic Districts and Nevada Division of Forestry Recommendation*

- Distribute copies of the publication *"Living With Fire"* to all property owners who live in Sheridan Acres. This publication is free of charge. Copies can be requested from the University of Nevada Cooperative Extension.

## 22.3 SUMMARY OF RECOMMENDATIONS

**Table 22-1. Sheridan Acres Priority Recommendations to Reduce Wildfire Risks and Hazards**

| INVOLVED PARTY | RECOMMENDED TREATMENT | RECOMMENDATION DESCRIPTION |
|---|---|---|
| **Property Owners** | Defensible Space | Remove, reduce, and replace vegetation around home according to the defensible space guidelines in Appendix D. |
| | Fuels Reduction | Reduce vegetative fuels for a distance of ten feet on both sides of private driveways longer than 200 feet.<br>Coordinate with the Nevada Division of Forestry, EFFPD, and the US Forest Service to construct and maintain the proposed fuelbreak on the west side of the community. |
| | Fire Suppression Capability | Consider purchasing a fire retardant gel or foam product designed for homeowner use. |
| | Community Coordination | Form a local chapter of the Nevada Fire Safe Council. |
| **US Forest Service**<br>**Bureau of Land Management** | Fuels Reduction | Coordinate with property owners to construct a 400-foot wide shaded fuelbreak for a distance of approximately 1.5 miles on the west side of the community, for a total treatment of approximately 74 acres. |
| **Utility Company** | Fuels Reduction | Remove trees or trim any branches within fifteen feet of either side of power lines and poles throughout the Sheridan Acres community. |
| **East Fork Fire and Paramedic Districts** | Fuels Reduction | Coordinate with property owners to construct a 400-foot wide shaded fuelbreak for a distance of approximately 1.5 miles on the west side of the community, for a total treatment of approximately 74 acres. |
| **Nevada Division of Forestry** | Community Coordination | Distribute copies of the publication *"Living With Fire"* to all property owners. |

## Table 22-2 Sheridan Acres Wildfire Hazard Rating Summary

**A. Urban Interface Condition** ***2***

**B. Community Design**

| | | |
|---|---|---|
| 1. Ingress / Egress | 3 | /5 |
| 2. Width of Road | 1 | /5 |
| 3. Accessibility | 1 | /3 |
| 4. Secondary Road | 1 | /5 |
| 5. Street Signs | 1 | /5 |
| 6. Address Signs | 1 | /5 |
| 7. Utilities | 3 | /5 |

**C. Construction Materials**

| | | |
|---|---|---|
| 1. Roofs | 1 | /10 |
| 2. Siding | 1 | /5 |
| 3. Unenclosed Structures | 1 | /5 |

**D. Defensible Space**

| | | |
|---|---|---|
| 1. Lot Size | 3 | /5 |
| 2. Defensible Space | 1 | /15 |

**F. Fire Behavior**

| | | |
|---|---|---|
| 1. Fuels | 5 | /5 |
| 2. Fire Behavior | 10 | /10 |
| 3. Slope | 10 | /10 |
| 4. Aspect | 10 | /10 |

**E. Suppression Capabilities**

| | | |
|---|---|---|
| 1. Water Source | 5 | /10 |
| 2. Department | 7 | /10 |

***TALLIES***

**225 Total Houses** **19 Residential Streets**

**B5. Street Signs**

0 not visible | 19 visible | 100% visible

**B6. Address Signs**

0 not visible | 225 visible | 100% visible

**C1. Roofs**

17 combust | 208 not combust | 92% not combust

**C2. Siding**

1 combust | 224 not combust | 100% not combust

**C3. Unenclosed Structures on Lot**

35 not enclosed | 190 enclosed | 16% not enclosed

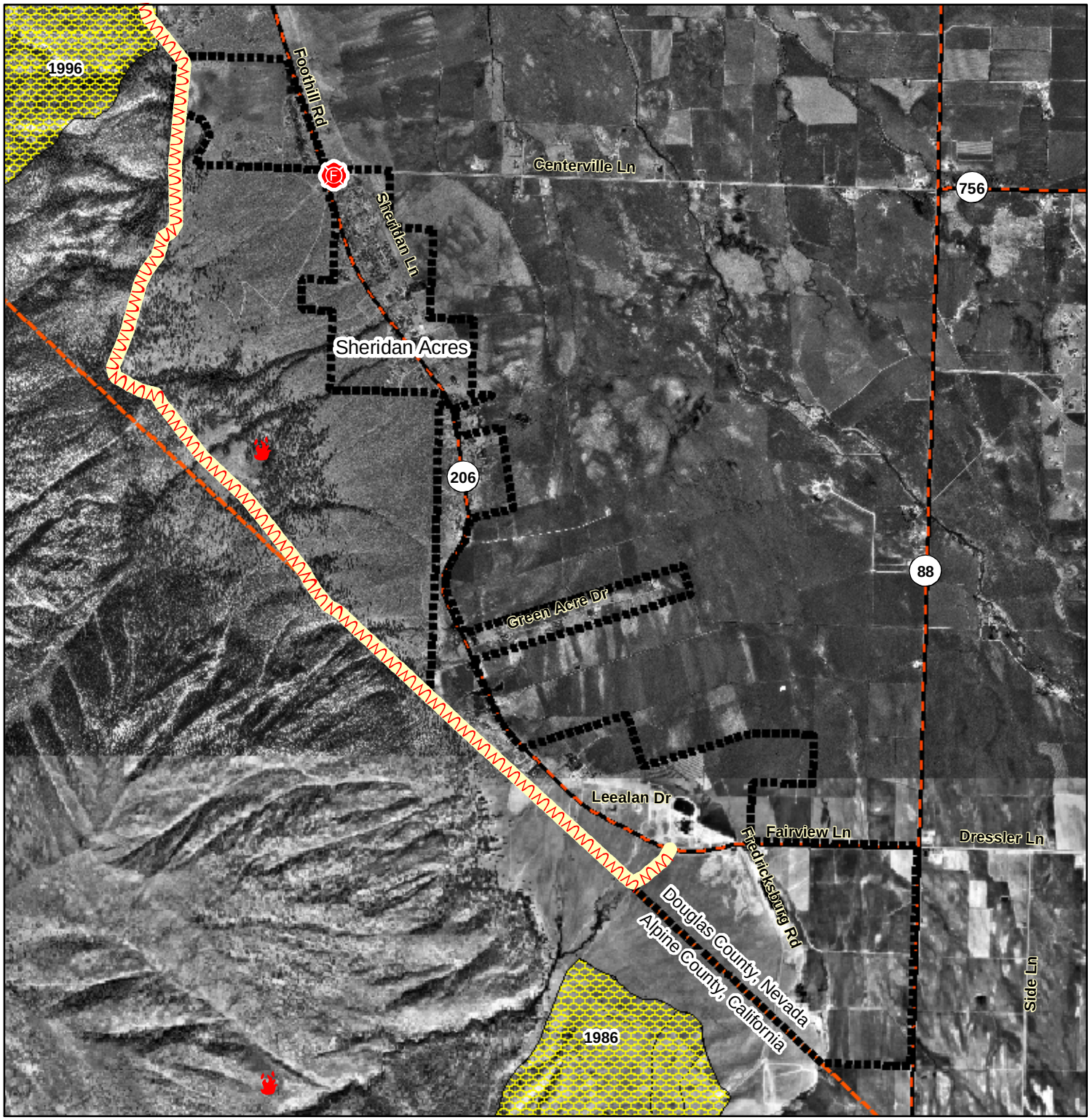
**D1. Lot Sizes**

0 <1ac | 215 >1ac <10ac | 10 >10ac

**D2. Defensible Space**

66 not adequat | 159 adequate | 71% adequate

**Score** **65** /128




**Legend**

- Proposed Fuelbreak
- Community Boundary
- Fire Ignition
- Fire Station
- Fire Boundary

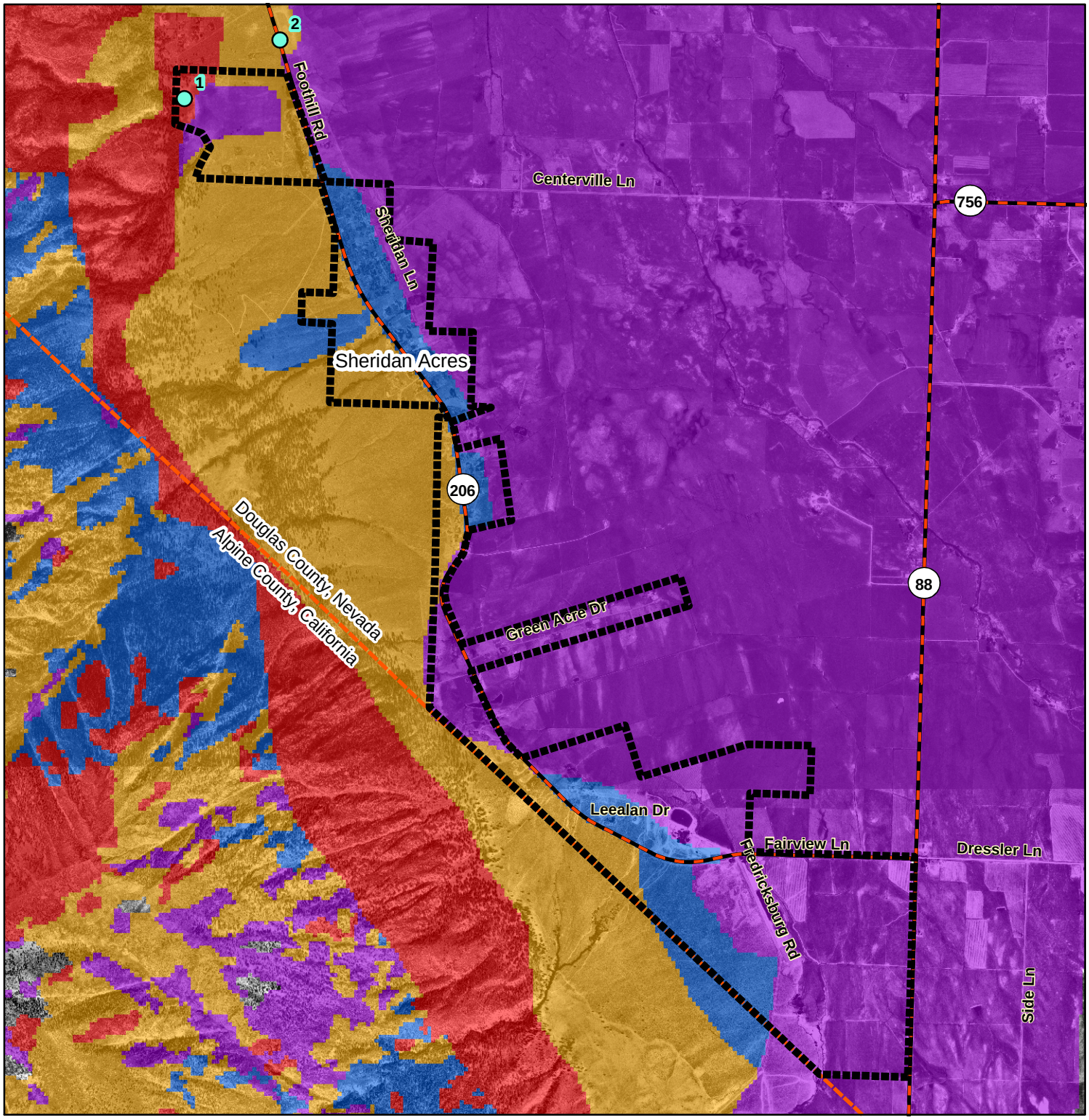
Figure 22-1. Sheridan Acres
Fire History, Suppression Resources,
and Proposed Mitigation Projects

N
W E
S

0 1,000 2,000 4,000
Feet

Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600

***Nevada Community Wildfire Risk / Hazard Assessment Project***




**Legend**

- Community Boundary

**Fuel Hazard**

- Extreme
- High
- Moderate
- Low
- Photo Point

Figure 22-2. Sheridan Acres
Fuel Hazard Classification

N
W E
S

0 1,000 2,000 4,000
Feet

Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600

***Nevada Community Wildfire Risk / Hazard Assessment Project***

**Figure 22-3. Sheridan Acres Fuel Hazard Photo Points**

**Photo Point 1.** Sheridan Acres Fuel Hazard Photo Point. 4311279N, 0253495E, 303°NW. Vegetation in the extreme hazard area west of the community includes Jeffrey pine with sagebrush and bitterbrush ladder fuels beneath tree canopies. A shaded fuelbreak is recommended for this area, where fuel loads were estimated to range between four and eighteen tons per acre.

**Photo Point 2**. Sheridan Acres Fuel Hazard Photo Point. 4311712N, 0254199E, 200°SW. Throughout the community the vegetation predominantly consists of big sagebrush, bitterbrush, desert peach, Mormon tea, and rabbitbrush. Dominant grasses in the understory include Indian ricegrass, cheatgrass, and bottlebrush squirreltail. Shrubs are dense with one to four feet between shrubs and shrub heights ranging between four and six feet. The fuel load was estimated to be between six and eight tons per acre and was considered a high fuel hazard.

# 23.0 SPRING VALLEY/DOUBLE SPRINGS

## 23.1 SWCA ENVIRONMENTAL CONSULTANTS HAZARD ASSESSMENT AND MITIGATION PLAN

In 2003, SWCA Environmental Consultants completed an assessment entitled "Wildfire Hazard Assessment and Mitigation Plan for the Spring Valley/Double Springs Community," on behalf of the Nevada Fire Safe Council. The pertinent information for this report is summarized from the SWCA Spring Valley/Double Springs assessment.

The Spring Valley/Double Springs community is located along the west side of US Highway 395, 4.5 miles north of Holbrook Junction (US Highway 395 and State Route 208) and approximately twelve miles south of Gardnerville, Nevada. The major land ownership adjacent to the community includes both private land and 99-year leases from the Washoe Tribe of Nevada and California. The residences are generally located in both Double Springs Flat and Dead Horse Flat. Seventy-five structures were evaluated when the risk and hazard assessment was conducted for Spring Valley/Double Springs. **The assessment resulted in classifying the Spring Valley/Double Springs community in the High Hazard category** (adapted from the Wildfire Hazard Assessment and Mitigation Plan for the Spring Valley/Double Springs Community, September 2003). The primary hazard factor for the Spring Valley/Double Springs area was the limited defensible space implementation throughout the community.

### *23.1.1 Community Design*

The Spring Valley/Double Springs interface area is characterized by the intermix wildland-urban interface condition. Structures are scattered throughout the wildland area with no clear line of demarcation between wildland fuels and residences in the community. A majority of the homes assessed were on parcels between three and forty acres. As such, most structures are not spaced close together (see Figure 23-1).

**Roads:** US Highway 395 is the primary road connecting the Spring Valley/Double Springs community with other communities in Douglas County. Leviathan Mine Road, New Hope Drive, Bodie Road, and Pine Valley Road are the primary entrance and exit routes for residences in the community. US Highway 395 is paved and at least 24 feet wide, adequate width for two way-vehicle passage and fire suppression equipment to maneuver. Most secondary roads provide adequate width and turnaround space for fire suppression equipment to maneuver, except for Calveti Road.

**Signage:** Residential addresses were visible on approximately 85 percent of the homes surveyed. Clear and visible residential addresses and street signs are important to aid firefighting personnel in locating homes during low visibility conditions that occur during a wildland fire.

**Utilities:** The utilities in Spring Valley/Double Springs are above and below ground. Proper maintenance of power line corridors was not observed in all areas of the community. Reducing vegetation underneath and adjacent to power lines minimizes

the possibility of power lines producing sparks during windstorms and starting fires in nearby vegetation.

### *23.1.2 Construction Materials*

The majority of the homes in the community (83 percent) were built with Class C rated wood siding, which burns in less than twenty minutes. Approximately seven percent of structures were built with non-rated roofing materials. Less than thirty percent of homes observed have unenclosed balconies, porches, decks or other architectural features that create drafts and provide areas where sparks and firebrands can be trapped, smolder, ignite, and rapidly spread fire to the home.

### *23.1.3 Defensible Space*

Between fifty and 99 percent of structures assessed in Spring Valley/Double Springs do not have landscaping that meets the minimum defensible space requirement to help protect the home from damage or loss during a wildfire. In Spring Valley/Double Springs the recommended minimum defensible space distance ranged between thirty and 200 feet depending upon slope and vegetation type. Refer to Appendix D for recommended seed mixes and planting guidelines.

### *23.1.4 Suppression Capabilities*

*Wildfire Protection Resources*

Spring Valley/Double Springs is provided wildland and structure fire protection by both the East Fork Fire and Paramedic Districts Topaz Ranch Estates Volunteer Fire Department Station 4 (a combination career/volunteer station with two career members) and the Topaz Lake Volunteer Fire Department Station 5. The Topaz Ranch Estates VFD responded to 213 emergency calls in 2001. At the time that interviews were conducted for this report, the Topaz Lake VFD reported fourteen enrolled members who responded to 92 emergency calls in 2003. Station 4 actively conducts “Compost your Combustibles” and reflective address sign programs (East Fork Fire and Paramedic Districts website). See Tables 4-2 and 4-3 for more information on the typical fire suppression response for first-alarm wildland-urban interface fires in Douglas County. Appendix E lists the type and number of fire suppression vehicles located at each EFFPD and Douglas County VFD station.

The interagency wildland fire resources will also respond to wildland fire reports within the Spring Valley/Double Springs area to protect adjacent federal lands. The response will be initiated by the Sierra Front Interagency Dispatch Center.

*Water Sources and Infrastructure*

Water availability for fire suppression in Spring Valley/Double Springs includes two static 50,000-gallon tanks, one near the junction of US Highway 395 and Leviathan Mine Road, and the other near Penrod Lane in the Holbrook Junction Community. The tanks are not connected to wells and must be filled each fire season. No fire hydrants are available in the community. Topaz Lake may be used as a helicopter dip site and drafting source, however it is more than a twelve-mile round trip.

*Community Preparedness*

The Spring Valley/Double Springs community formed a local chapter of the Nevada Fire Safe Council in August of 2002. There is currently no evacuation plan for residents of the community, nor do the emergency and disaster plans provide information on safe zones within the community.

### *23.1.5 Factors Affecting Fire Behavior*

Vegetation, dead and down fuels, and topographic features contribute to the potential fire hazard around wildland-urban interface communities. The RCI Project Team mapped the fuel hazards and established fuel hazard photo points, which are detailed on Figures 23-2 and 23-3. The terrain in the northern portion of the community is generally flat with south and north facing slopes, north and south of the residences. The southern portion of the community is located on a gentle northeast-facing slope with steep (greater than thirty percent) slopes just west of the residences. The predominant winds are from the west and southwest. There is a significant history of large fires and fire ignitions near the community.

Three distinct fuel types occur in and around the community: pinyon/juniper woodland, sagebrush/bitterbrush, and meadow. At the time of the assessment, the area was suffering from prolonged drought stress, which has resulted in beetle infestations and a subsequent increase in fuel hazards. The dense pinyon pine and Utah juniper stands in the community were classified as a high to extreme fuel hazard. The sagebrush/bitterbrush vegetation type was considered a moderate to high fuel hazard, and the meadow vegetation was considered a low fuel hazard.

### *23.1.6 Previous Fire Hazard Reduction Projects*

In 2004, the Nevada Fire Safe Council secured funding and implemented several projects in the Spring Valley/Double Springs community. Hand crews from the Great Basin Institute constructed a shaded fuelbreak on the west side of the community and an interior shaded fuelbreak by removing dead and diseased trees. Mechanical mastication equipment was used to remove shrubs and reduce tree density to approximately 25 trees per acre within a 150-foot wide strip along the west and south community boundaries and US Hwy 395. The mastication equipment was also used to remove shrubs, reduce tree density to approximately forty trees per acre, and remove limbs within 3.5 feet of the ground on remaining trees for a distance of 75 feet on each side of major roads in the community. Private landowners within the community treated approximately fifty acres to create defensible space around homes. In total, approximately 234 acres were treated and an estimated 1,315 tons of fuel were either removed from the community or masticated and left onsite.

In 2005, additional mechanical mastication treatment is scheduled to occur in the vicinity of homes in the northern portion of the community and along the private land portions of Leviathan Mine Road.

### *23.1.7 Fire Behavior and Worst Case Scenario*

The RCI Project Team developed a worst-case scenario for Spring Valley/Double Springs. The worst-case scenario for a major wildland fire in the Spring Valley/Double Springs community would likely occur in the event of a fire starting south or west of the community on a high hazard day with a dry lightning storm causing multiple ignitions. Strong winds from

the south or southwest, 25 mph or greater, could push a fire front northeast along the west side of US Highway 395 and into the homes interspersed with the dense sagebrush and pinyon/juniper fuels. Moderate to steep slopes on the south end of the community and high wind speed conditions could result in extreme fire behavior. A fire under these conditions could threaten homes and lives. The scenario would be worse if East Fork Fire and Paramedic Districts resources were unavailable due to assignment to a previous emergency situation elsewhere.

### *23.1.8 Ignition Risk Assessment*

The RCI Project Team completed a risk assessment for Spring Valley/Double Springs and assigned the community a high ignition risk rating. A significant history of wildfire and fire ignitions exists in the public and Indian Trust lands surrounding the community. High ignition rates are likely due to the high fuel loads in and around the community, the tendency for lightning storms during the summer, and the number of people using the wildlands near Spring Valley/Double Springs.

## 23.2 SWCA Risk and Hazard Reduction Recommendations

The Spring Valley/Double Springs risk and hazard reduction recommendations focus on improving defensible space and promoting homeowner responsibilities. Other recommendations pertain to community coordination efforts that could be initiated to enhance the fire safe nature of the Spring Valley/Double Springs community. SWCA recommendations and additional recommendations developed by the RCI Project Team are detailed below.

### *23.2.1 Defensible Space*

*Property Owner Recommendations*

Implement defensible space according to the vegetation type surrounding the structure.

- Pinyon/juniper: 100 feet of defensible space with additional fuel reduction for fifty feet beyond the defensible space distance.
- Sagebrush/bitterbrush: 100-foot defensible space distance for slopes less than twenty percent and 200-foot distance for slopes greater than twenty percent.
- Meadow: 30-foot defensible space distance on all slopes.

### *23.2.2 Fire Suppression Capabilities*

Proper maintenance, storage, and acquisition of fire suppression equipment, along with regular and appropriate firefighter training and development of water drafting sources increases the fire suppression capability for those areas where fire protection is available.

*Douglas County and East Fork Fire and Paramedic District Recommendations*

- Form a new Volunteer Fire Department to provide fire suppression training to residents of Spring Valley/Double Springs. Obtain at a minimum, one Type III engine for fire suppression activities.

*Property Owner and Spring Valley/Double Springs Chapter Nevada Fire Safe Council Recommendations*

- Cooperate with the EFFPD and Nevada Division of Forestry to form an additional Volunteer Fire Department of the East Fork Fire and Paramedic Districts in the Spring Valley/Double Springs community.
- Clearly identify all streets with reflective signs and four-inch letters. Clearly mark all residences with the appropriate address signage.
- Install information kiosks at the entrances to the community that provide information regarding: propane tank locations, maps of the community, helibases, water sources, home locations, people needing evacuation assistance, utility types and locations, and types, numbers, and locations of livestock in the community.
- Invest in adequate amounts of barrier foam/gel that can be sprayed on the house prior to evacuation.

### *23.2.3 Fuel Reduction Treatments*

*Property Owner, Spring Valley/Double Springs Chapter Nevada Fire Safe Council, and East Fork Fire and Paramedic Districts Recommendations*

- Widen the shaded fuelbreak located at the west, south, and southeast end of the community to a minimum width of 600 feet.

*Utility Company Recommendation*

- Remove trees or trim any tree branches within fifteen feet of either side of power lines and power poles throughout the Spring Valley/Double Springs community.

*Property Owner and Douglas County Recommendations*

Construct shaded fuelbreaks by thinning trees, limbing residual trees, and reducing understory vegetation in the locations indicated in Figure 23-1 according to the specifications listed below.

- Construct and maintain a 300-ft wide and 1,500-ft long shaded fuelbreak on the north side of homes on Leviathan Mine Road.
- Reduce fuels to a lesser degree on all individual parcels within the plan area.
- Resurface roads within the community with an aggregate or paved and widened to 24 feet, especially Calveti Road.

### *23.2.4 Community Coordination*

Many of the most effective activities aimed at reducing the threat of wildfire for the Spring Valley/Double Springs community require that individual property owners coordinate with each other and with local fire authorities. Defensible space, for example, is more effective in small communities when applied uniformly throughout entire neighborhoods. Public education and awareness, neighbors helping neighbors, and proactive individuals setting examples for others to follow are just a few of the approaches that will be necessary to meet the fire safe goals in the community. Disposal of biomass generated from defensible space and fuel reduction treatments can sometimes be most efficiently handled through community programs, such as those initiated by the local Nevada Fire Safe Council chapter.

*Property Owner Recommendation*

- Read and become fully knowledgeable of evacuation procedures, fire safety zones, and safety procedures for sheltering in place in the event that evacuation is not possible.

*East Fork Fire and Paramedic District Recommendation*

- Prepare and distribute copies of a Spring Valley/Double Springs emergency evacuation plan to all residents. Conduct public workshops annually, prior to the fire season, to assure that all residents are fully knowledgeable of evacuation routes, evacuation procedures, designated fire safe zones, and procedures for sheltering in place in case evacuation becomes infeasible during a fast moving fire storm. Post evacuation information on a sign or with the SWCA proposed information kiosks either along Spring Valley Drive near the intersection with US Hwy 395 or other entrances to the community.

*East Fork Fire and Paramedic Districts Recommendation*

- Increase wildfire issue awareness through community newsletters, publications, meetings, and workshops, as well as through the UNR Cooperative Extension publication *"Living With Fire."*

### *23.2.5 Defensible Space*

*Property Owner Recommendation*

- Replace non-rated or Class C roofing materials with Class B or better materials.

## 23.3 SUMMARY OF RECOMMENDATIONS

**Table 23-1. Spring Valley/Double Springs Priority Recommendations to Reduce Wildfire Risks and Hazards**

| INVOLVED PARTY | RECOMMENDED TREATMENT | RECOMMENDATION DESCRIPTION |
|---|---|---|
| **Property Owners**<br><br>**Nevada Fire Safe Council** | Defensible Space | Remove, reduce, and replace vegetation around homes to create adequate defensible space.<br>Post addresses visible from the road on all homes within the community. |
| | Construction Materials | Replace non-rated or Class C roofing materials with Class B or better materials. |
| | Community Coordination | Read and become fully knowledgeable of evacuation procedures, fire safety zones, and safety procedures for sheltering in place.<br>Install information kiosks at the entrances to the community that provide information pertaining to wildfire safety in the community. |
| | Fire Suppression Capability | Coordinate with the EFFPD and Sierra Forest Fire Protection district to form a new Volunteer Fire Department in the community.<br>Consider purchasing a fire retardant gel or foam product designed for homeowner use. |
| | Fuels Reduction | Cooperate with EFFPD and Sierra Forest Fire Protection District to widen the shaded fuelbreak at the south end of the community to 600 feet. |
| **Property Owners**<br><br>**East Fork Fire and Paramedic Districts** | Fuels Reduction | Construct and maintain shaded fuelbreaks by thinning trees, limbing-up residual trees, and reducing understory vegetation in the locations indicated in Figure 23-1. |
| **East Fork Fire and Paramedic Districts** | Public Education | Increase wildfire issue awareness through community newsletters, publications, meetings, and workshops, as well as through the UNR Cooperative Extension publication *"Living With Fire."* |
| | Fuels Reduction | Widen the shaded fuelbreak installed at the south end of the community to a minimum width of 600 feet. |
| | Fire Suppression Capability | Form a new Volunteer Fire Department in the Spring Valley/Double Spring Community.<br>Obtain at a minimum one Type III engine to station in the community and provide training to new VFD members. |
| | Community Coordination | Complete and distribute copies of a Spring Valley/Double Springs emergency evacuation plan to all residents.<br>Conduct public workshops annually to assure that all residents are knowledgeable of evacuation routes and procedures, designated fire safe zones, and procedures for sheltering in place.<br>Post evacuation information on a sign along Spring Valley Drive near the intersection with US Hwy 395. |
| **Utility Company** | Fuels Reduction | Remove trees or trim any tree branches within fifteen feet of either side of power lines and power poles throughout the Spring Valley/Double Springs community. |

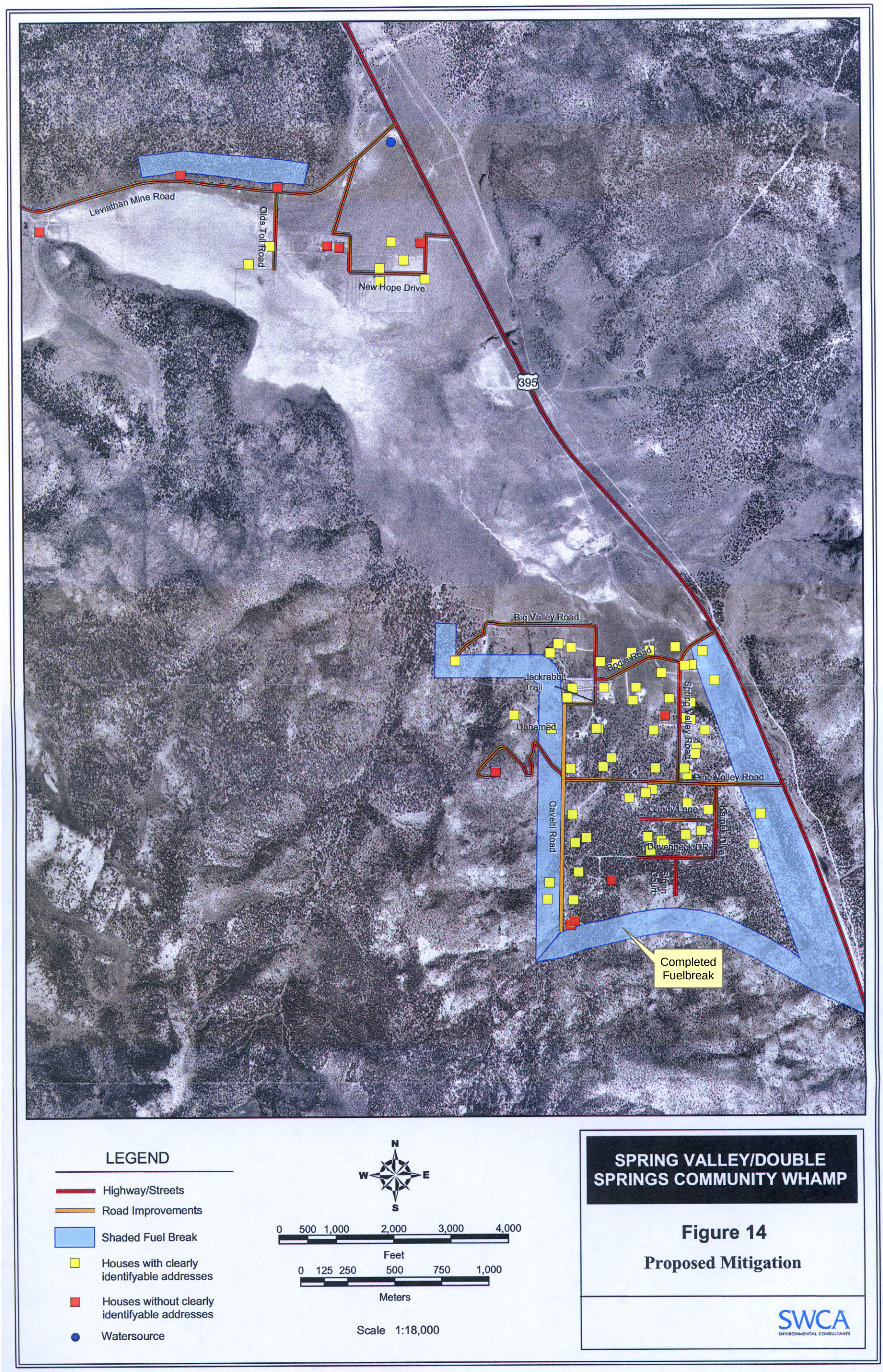
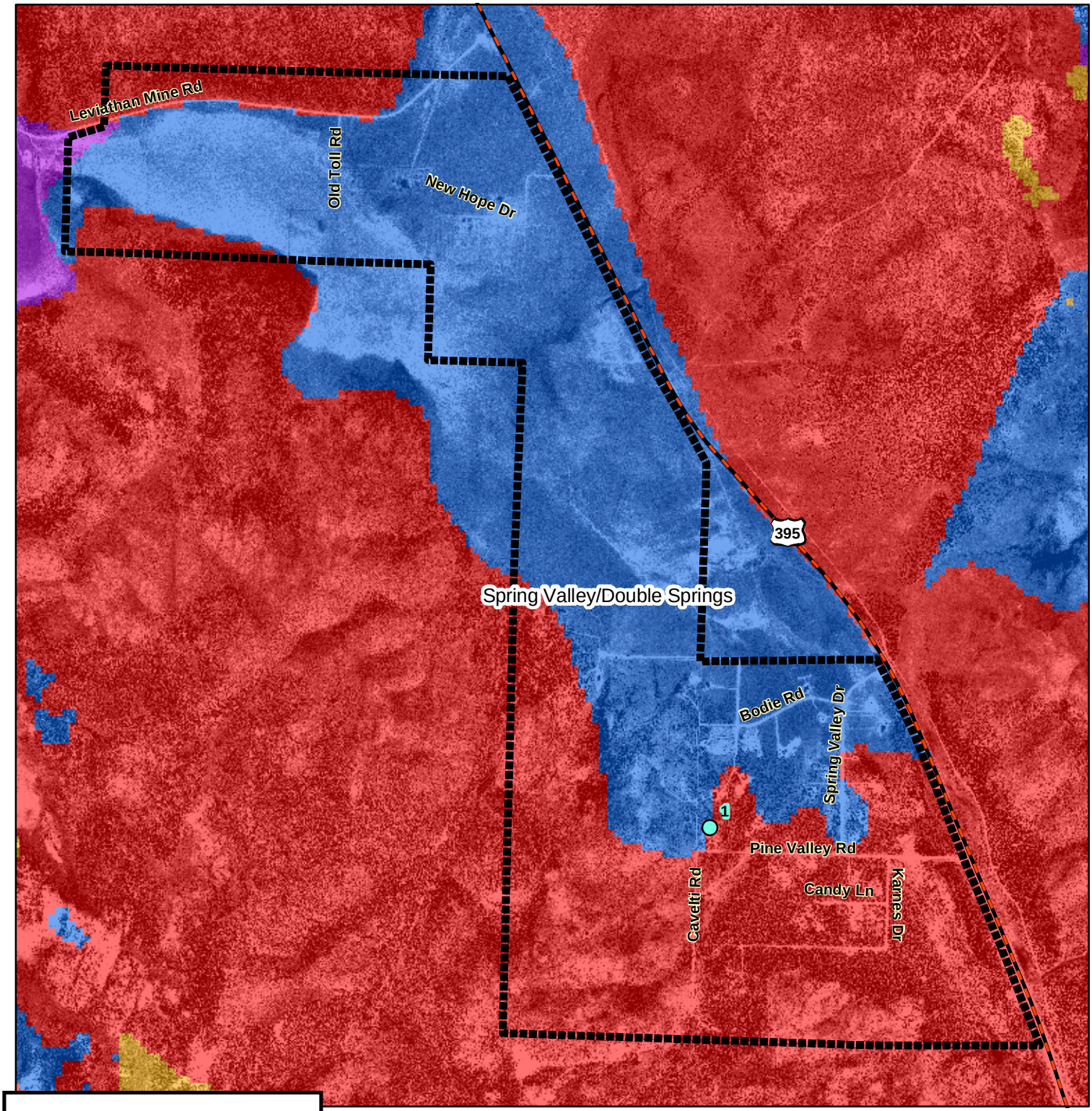



Figure 23-1. Spring Valley/Double Springs
SWCA Proposed Mitigation




**Legend**

- Community Boundary
- Highways and State Routes

**Fuel Hazard**

- Extreme
- High
- Moderate
- Low
- Photo Point

Figure 23-2. Spring Valley/Double Springs
Fuel Hazard Classification

N
W E
S

0 1,000 2,000 4,000
Feet

Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600

***Nevada Community Wildfire Risk / Hazard Assessment Project***

**Figure 23-3. Spring Valley/Double Springs Fuel Hazard Photo Points**

**Photo Point 1**. Spring Valley/Double Springs Fuel Hazard Photo Point. 4294874N, 0274565E, 40°NE. Vegetation in the extreme hazard areas of the community is dominated by pinyon pine. In the moderate hazard areas of the community, the vegetation is dominated by big sagebrush and bitterbrush.

# 24.0 TOPAZ LAKE

## 24.1 HAZARD AND RISK ASSESSMENT

The Topaz Lake community is located in southern Douglas County along US Highway 395 and south of Holbrook Junction (junction with State Route 208), directly adjacent to the California state line. The community is situated on an east-facing slope directly above Topaz Lake. The community is bordered by National Forest lands to the north and west, and by the lake to the east. Approximately 120 homes were observed in the community during the assessment. **The hazard assessment resulted in classifying Topaz Lake in the Moderate Hazard category** (50 points). A summary of the factors that determine this hazard rating is included in Table 24-2. The primary conditions that affected the community hazard score for the Topaz Lake community were potentially hazardous fire behavior, limited community signage, and architectural features that increase structure ignition potential.

### *24.1.1 Community Design*

The Topaz Lake interface area is characterized by the intermix wildland-urban interface condition. Structures are scattered throughout the wildland area with no clear line of demarcation between wildland fuels and residences in the community. In the intermix condition, parcels are generally greater than one acre (see Figure 24-1).

**Roads:** US Highway 395 is the primary access route between the Topaz Lake community and other communities in Douglas County and California. Mark Twain Avenue, Sandy Bowers Avenue, and Topaz Park Road are the primary access roads for the community to access US Highway 395. The roads are paved, usually greater than 24 feet wide, and provide adequate access for fire suppression vehicles. Most of the secondary community roads had adequate turn around space for fire suppression equipment and approximately half of the community roads had a gradient greater than five percent.

**Signage:** Street names were adequately identified with reflective lettering. Residential addresses were visible on a majority of the homes assessed. Clear and visible residential addresses are important to aid firefighting personnel in locating homes during low visibility conditions that occur during a wildland fire.

**Utilities:** Overhead power lines are present within the community. Power line right-of-ways were not properly maintained, which increases the possibility of power lines sparking during windstorms and starting fires in nearby vegetation. Propane tanks throughout the community lack the minimum ten feet of vegetation clearance in many cases.

### *24.1.2 Construction Materials*

Almost all of the homes assessed are built with fire resistant siding materials and non-combustible roofing materials, mainly composition type roofing. About 55 percent of the homes observed have unenclosed balconies, porches, decks or other architectural features that create drafts and provide areas where sparks and firebrands can be trapped, smolder, ignite, and rapidly spread fire to the home.

### *24.1.3 Defensible Space*

Seventy-six percent of the homes observed in the interface have landscaping that would meet the minimum defensible space requirement to help protect the home from damage or loss during a wildfire.

### *24.1.4 Suppression Capabilities*

*Wildfire Protection Resources*

Topaz Lake is provided wildland and structure fire protection by the East Fork Fire and Paramedic Districts Topaz Ranch Estates Volunteer Fire Department Station 4 (a combination career/volunteer station with two career members) and the Topaz Lake Volunteer Fire Department Station 5. At the time interviews were conducted for this report the Topaz Lake VFD reported 14 enrolled members who responded to 92 emergency calls in 2003 (East Fork Fire and Paramedic Districts website). See Tables 4-2 and 4-3 for more information on the typical fire suppression response for first-alarm wildland-urban interface fires in Douglas County. Appendix E lists the type and number of fire suppression vehicles located at each EFFPD and Douglas County VFD station.

*Water Sources and Infrastructure*

Water availability for fire suppression in Topaz Lake includes one 200,000-gallon tank in the community with an emergency generator for the pump that fills the tank. Hydrants are available near Topaz Lodge and the older sections of the community, but not for the entire community. Topaz Lake may be used for helicopter dip sites and as a drafting source.

### *24.1.5 Factors Affecting Fire Behavior*

Vegetation, dead and down fuels, and topographic features contribute to the potential fire hazard around wildland-urban interface communities. The terrain within the Topaz Lake community is gently sloping with average slopes of ten percent; however, just west of the community slopes exceed thirty percent. The fuel hazard on the west side of the Topaz Lake community was considered high, estimated at three to ten tons per acre, depending upon tree density. Vegetation on the west side primarily consists of pinyon pine with big sagebrush, desert peach, Mormon tea, bitterbrush, and rabbitbrush occupying the spaces between trees. Cheatgrass and bottlebrush squirreltail were the dominant grasses.

On the north and east sides of the community, and within the community, the fuel hazard was considered moderate. The primary species present include big sagebrush, desert peach, Mormon tea, bitterbrush, and rabbitbrush; however, the shallow soils limit shrub heights and density. The fuel load was estimated to be one ton per acre in these areas.

Numerous fires have occurred within the vicinity of the community from both human and lightning causes. South of the community the Gate Complex Fire burned over 9,000 acres in 2002. The fuel hazard in the burned areas was considered low where cheatgrass was the dominant species. As the vegetation recovers from the fire, the fuel hazard will likely increase. A 307-acre fire and the sixteen-acre Wildoat Fire occurred northeast of the community in 1994. Numerous other fires have occurred south of the community between

1950 and 1975. The predominant wind direction is from the south especially in the late afternoon.

### *24.1.6 Fire Behavior Worst Case Scenario*

The worst-case scenario for Topaz Lake would likely occur in the event of a lightning or human-caused ignition south of the community near the California state line. With south winds exceeding 25 miles per hour, a fire could rapidly spread through the vegetation and quickly threaten homes. Spot fires could expose numerous community structures to fire. The scenario would be worse if volunteer fire department resources were unavailable at the time of ignition. A minimum of thirty minutes (and more likely one hour) is needed for career-department resources to respond to an emergency in the community.

### *24.1.7 Ignition Risk Assessment*

Topaz Lake has been rated with a high ignition risk, with dry lightning and power lines being the primary risks.

## 24.2 RISK AND HAZARD REDUCTION RECOMMENDATIONS

The Topaz Lake risk and hazard reduction recommendations focus on improving defensible space and promoting homeowner responsibilities. Other recommendations pertain to community coordination efforts that could be initiated to enhance the fire safe nature of Topaz Lake.

### *24.2.1 Defensible Space Treatments*

*Property Owner Recommendations*

Defensible space treatments are an essential first line of defense for residential structures. Significantly reducing or removing vegetation within a prescribed distance from structures (30 feet to 200 feet depending upon slope and vegetative fuel type) reduces fire intensity and improves firefighter and homeowner chances for successfully defending a structure against an oncoming wildfire.

- Remove, reduce, and replace vegetation around homes according to the guidelines in Appendix D. This area should be kept:

  Lean – There are only small amounts of flammable vegetation,

  Clean – There is no accumulation of dead vegetation or other flammable debris,

  Green – Existing plants are healthy and green during the fire season.

- Maintain the area beneath unenclosed wood decks and porches free of weeds and flammable debris. Enclose these areas wherever possible.
- Store firewood a minimum distance of thirty feet from structures.
- Clear all vegetation and combustible materials for a minimum of ten feet around propane tanks.
- Install spark-arresting screens on chimneys.

- Cheatgrass or other annual grasses that have become dominant within the defensible space zone should be mowed or treated with an application of pre-emergent herbicide prior to seed set.[22] Treatments may need to be repeated the following year to ensure that the seed bank of unwanted grasses has been depleted. Refer to Appendix D for recommended seed mixes and planting guidelines that can be used in conjunction with removal of this annual grass.
- Thin pinyon and juniper trees in the defensible space area such that tree canopies are spaced a minimum distance of thirty feet from any other trees, shrubs, or residential structures. Limb remaining pinyon and juniper trees within the defensible space area a minimum of four feet from the ground, or no more than one-third the height of the tree. Reduce the needle and cone duff from under the remaining trees to a depth no greater than one-inch.
- Irrigate all trees and shrubs in close proximity to structures to increase their fire resiliency, especially during drought conditions.
- Immediately remove cleared vegetation to an approved disposal site when implementing defensible space treatments. This material dries quickly and presents a fire hazard if left on site.
- Maintain this defensible space as needed to keep the space lean, clean, and green.

### *24.2.2 Fuel Reduction Treatments*

Fuel reduction treatments are applied on a larger scale than defensible space treatments. By permanently changing the fuel structure over large blocks of land to one of a lower volume or reduced flammability (a fuel reduction treatment), the expected result in the event of a catastrophic wildfire would be one of reduced capacity for uncontrolled spread through the treatment area.

*Property Owner Recommendations*

- Reduce vegetative fuels for a distance of ten feet on both sides of private driveways longer than 200 feet. Remove highly flammable shrubs and pinyon/juniper trees and replace with fire-resistant species such as crested wheatgrass, lawn, or a pre-suppression seed mix. Appropriate seed mixtures and seeding specifications are provided in Appendix D.
- On all private lots with pinyon pine trees, remove ladder fuels (shrubs and grasses) within ten feet of all tree drip lines. Limb pinyon trees a minimum of four feet up from the ground or no more than one-third the height of the trees.
- Coordinate with EFFPD to construct fuel reduction on all private parcels with pinyon pine trees.

*East Fork Fire and Paramedic Districts Recommendation*

- Coordinate with property owners to construct fuel reduction on private parcels, especially those with a pinyon pine tree canopy.

[22] Extreme caution should be taken when using herbicides to completely follow all label instructions. Consult with University of Nevada Cooperative Extension specialists for assistance with appropriate herbicide products and application procedures.

*Douglas County Roads Department Recommendation*

- Remove pinyon/juniper trees, shrubs, and weeds for a distance of 25 feet on each side of roads in the community. For an additional 25 feet on each side of the road, reduce pinyon and juniper tree density to less than ten trees per acre.

*Utility Company Recommendation*

- Remove pinyon pine and shrubs within fifteen feet of power poles and power line throughout the Topaz Lake community.

### *24.2.3 Community Coordination*

Many of the most effective activities aimed at reducing the threat of wildfire for the Topaz Lake community require that individual property owners coordinate with each other and with local fire authorities. Defensible space, for example, is more effective in small communities when applied uniformly throughout entire neighborhoods. Public education and awareness, neighbors helping neighbors, and proactive individuals setting examples for others to follow are just a few of the approaches that will be necessary to meet the fire safe goals in the community. Disposal of biomass generated from defensible space and fuel reduction treatments can sometimes be most efficiently handled through community programs.

*Property Owner Recommendations*

- Assure addresses are visible from the road on all homes within the community. Address characters should be readily visible from the road, at least four inches tall, and reflective.
- Form a local chapter of the Nevada Fire Safe Council. The Nevada Fire Safe Council proposes to work on solutions that reduce the risk of loss of lives and property from wildfires in Nevada's communities. Through establishment of a local Chapter, communities become part of a large information-sharing network that receives notifications of programs and funding opportunities for fire mitigation projects such as those listed in this report. The Nevada Fire Safe Council will accept and manage grants and contracts on the Chapter's behalf through its non-profit status. The Nevada Fire Safe Council provides assistance and support to communities to complete fire safe plans, set priorities, educate and train community members, and promote success stories of its members. For more information on forming a chapter, contact:

  The Nevada Fire Safe Council
  1187 Charles Drive
  Reno, Nevada 89509
  www.nvfsc.org

*East Fork Fire and Paramedic Districts Recommendation*

- Distribute copies of the publication *"Living With Fire"* to all property owners who live in Topaz Lake. This publication is free of charge. Copies can be requested from the University of Nevada Cooperative Extension.

## 24.3 SUMMARY OF RECOMMENDATIONS

**Table 24-1. Topaz Lake Priority Recommendations to Reduce Wildfire Risks and Hazards**

| INVOLVED PARTY | RECOMMENDED TREATMENT | RECOMMENDATION DESCRIPTION |
|---|---|---|
| **Property Owners** | Defensible Space | Remove, reduce, and replace vegetation around homes according to the defensible space guidelines in Appendix D. |
| | Fuels Reduction | Reduce vegetative fuels for a distance of ten feet on both sides of private driveways longer than 200 feet.<br>On all private lots with pinyon pine trees, remove ladder fuels (shrubs and grasses) within ten feet of all tree drip lines. Limb pinyon trees up a minimum of four feet or no more than one-third the height of the trees.<br>Coordinate with EFFPD to implement fuel reduction on all private parcels with pinyon trees. |
| | Community Coordination | Assure addresses are visible from the road.<br>Form a local chapter of the Nevada Fire Safe Council. |
| **Douglas County** | Fuels Reduction | Remove pinyon/juniper trees, shrubs, and weeds for a distance of 25 feet on each side of roads in the community. For an additional 25 feet on each side of the road, reduce pinyon and juniper tree density to less than ten trees per acre. |
| **Utility Company** | Fuels Reduction | Remove trees or trim any branches within fifteen feet of either side of power lines and poles throughout the Topaz Lake community. |
| **East Fork Fire and Paramedic Districts** | Fuels Reduction | Coordinate with property owners to implement fuel reduction on private parcels, especially all pinyon pine tree areas throughout the community. |
| | Community Coordination | Distribute copies of the publication *"Living With Fire"* to all property owners. |

## Table 24-2 Topaz Lake Wildfire Hazard Rating Summary

**A. Urban Interface Condition** ***2***

**B. Community Design**

| | | |
|---|---|---|
| 1. Ingress / Egress | 1 | /5 |
| 2. Width of Road | 1 | /5 |
| 3. Accessibility | 1 | /3 |
| 4. Secondary Road | 1 | /5 |
| 5. Street Signs | 1 | /5 |
| 6. Address Signs | 3 | /5 |
| 7. Utilities | 3 | /5 |

**C. Construction Materials**

| | | |
|---|---|---|
| 1. Roofs | 1 | /10 |
| 2. Siding | 1 | /5 |
| 3. Unenclosed Structures | 5 | /5 |

**D. Defensible Space**

| | | |
|---|---|---|
| 1. Lot Size | 3 | /5 |
| 2. Defensible Space | 1 | /15 |

**F. Fire Behavior**

| | | |
|---|---|---|
| 1. Fuels | 5 | /5 |
| 2. Fire Behavior | 7 | /10 |
| 3. Slope | 4 | /10 |
| 4. Aspect | 3 | /10 |

**E. Suppression Capabilities**

| | | |
|---|---|---|
| 1. Water Source | 2 | /10 |
| 2. Department | 7 | /10 |

***TALLIES***

**119 Total Houses** **15 Residential Streets**

**B5. Street Signs**

| | | | | | |
|---|---|---|---|---|---|
| 0 | not visible | 15 | visible | 100% | visible |

**B6. Address Signs**

| | | | | | |
|---|---|---|---|---|---|
| 13 | not visible | 106 | visible | 89% | visible |

**C1. Roofs**

| | | | | | |
|---|---|---|---|---|---|
| 4 | combust | 115 | not combust | 97% | not combust |

**C2. Siding**

| | | | | | |
|---|---|---|---|---|---|
| 0 | combust | 119 | not combust | 100% | not combust |

**C3. Unenclosed Structures on Lot**

| | | | | | |
|---|---|---|---|---|---|
| 66 | not enclosed | 53 | enclosed | 55% | not enclosed |

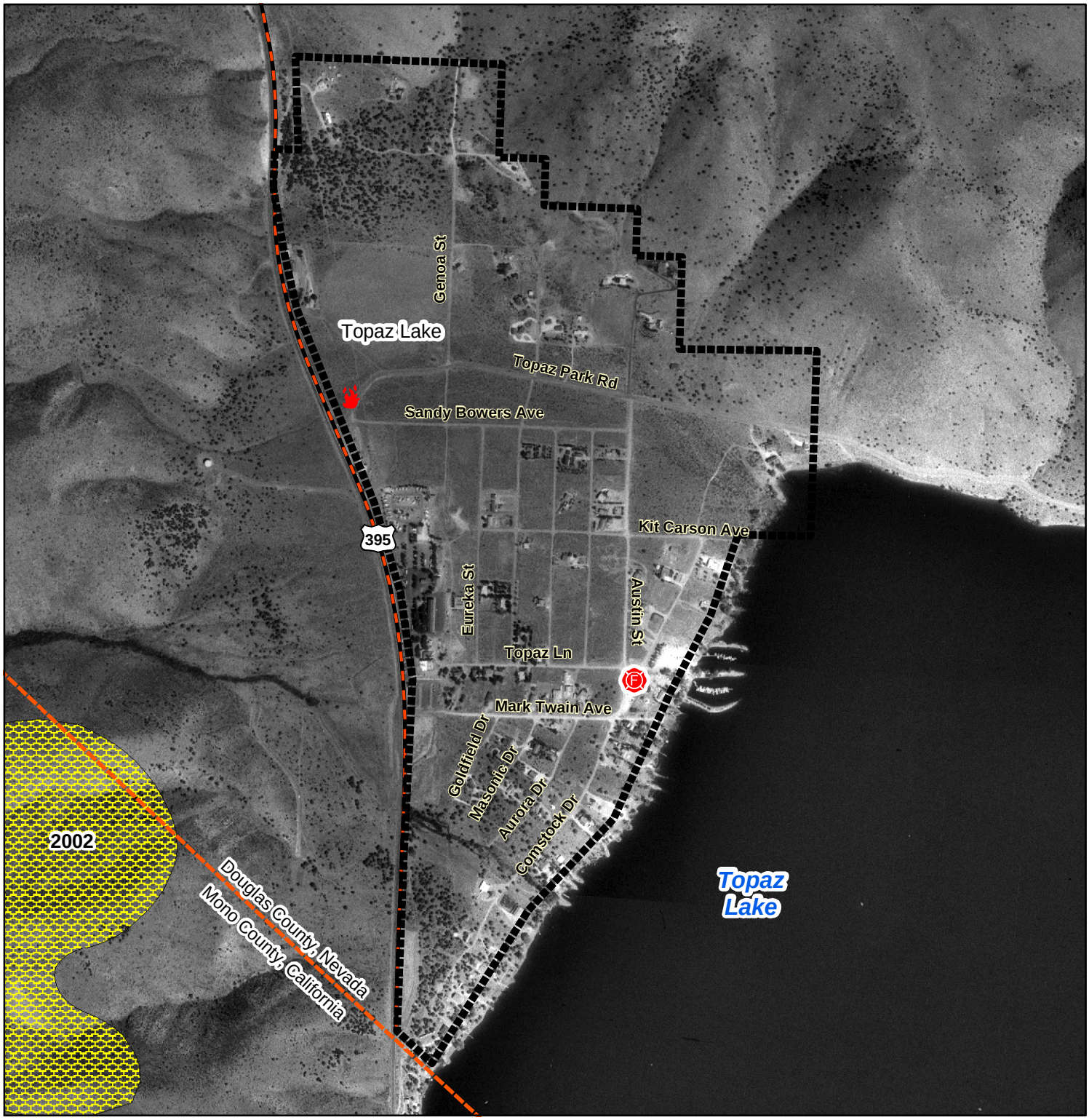
**D1. Lot Sizes**

| | | | | | |
|---|---|---|---|---|---|
| 22 | <1ac | 97 | >1ac <10ac | 0 | >10ac |

**D2. Defensible Space**

| | | | | | |
|---|---|---|---|---|---|
| 29 | not adequat | 90 | adequate | 76% | adequate |

**Score** **50** /128




**Legend**

- Community Boundary
- Fire Ignition
- Fire Station
- Fire Boundary and Date
- Highways and State Routes
- County Boundary

Figure 24-1. Topaz Lake
Fire History and Suppression Resources

N
W E
S

0 500 1,000 2,000
Feet

Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600

***Nevada Community Wildfire Risk / Hazard Assessment Project***

# 25.0 TOPAZ RANCH ESTATES

## 25.1 HAZARD AND RISK ASSESSMENT

The Topaz Ranch Estates community is located in southern Douglas County along State Route 208, just east of the junction between US Highway 395 and State Route 208. The community is primarily situated on a south-facing slope at the southern end of the Pine Nut Mountains and north of Wild Oat Mountain. Public lands border the community to the north and west, and National Forest to the south. Approximately 840 homes were observed in the community during the assessment. **The hazard assessment resulted in classifying Topaz Ranch Estates in the High Hazard category** (65 points). A summary of the factors that determine this hazard rating is included in Table 25-2. The primary conditions in the Topaz Ranch Estates community that affected the hazard score were the potential for hazardous fire behavior, many occurrences of inadequate defensible space, and the distance to water sources for fire suppression.

### *25.1.1 Community Design*

The Topaz Ranch Estates interface area is characterized by the intermix wildland-urban interface condition. Structures are scattered throughout the wildland area with no clear line of demarcation between wildland fuels and residences in the community. In the intermix condition parcels are generally greater than one acre (see Figure 25-1).

**Roads:** State Route 208 is the primary access route between the Topaz Ranch Estates community and other communities in Douglas County. Topaz Ranch Drive and Albite Road are the primary access roads for the community to access State Route 208. The roads are paved, usually greater than 24 feet wide, and provide adequate access for fire suppression vehicles. Most of the secondary community roads have adequate turn around space for fire suppression equipment. Approximately half of the community roads have a gradient greater than five percent.

**Signage:** Street names are adequately identified with reflective lettering. Residential addresses were visible on a majority of the homes assessed; however, more than 100 homes did not have easily visible addresses. Clear and visible residential addresses are important to aid firefighting personnel in locating homes during low visibility conditions that occur during a wildland fire.

**Utilities:** Overhead power lines are present within the community. Power line right-of-ways are not properly maintained in all cases, which increases the possibility of power lines sparking during windstorms and starting fires in nearby vegetation. Propane tanks are present throughout the community and in many cases lack the minimum ten feet of vegetation clearance.

### *25.1.2 Construction Materials*

Almost all of the homes assessed were built with fire resistant siding materials and non-combustible roofing materials, mainly composition type roofing. About 38 percent of the homes observed have unenclosed balconies, porches, decks or other architectural features that create drafts and provide areas where sparks and firebrands can be trapped, smolder, ignite, and rapidly spread fire to the home.

### *25.1.3 Defensible Space*

Sixty three percent of the homes observed in the interface have landscaping that would meet the minimum defensible space requirement to help protect the home from damage or loss during a wildfire. Several landowners have conducted additional fuel reduction treatments on entire lots.

### *25.1.4 Suppression Capabilities*

*Wildfire Protection Resources*

Topaz Ranch Estates is provided wildland and structure fire protection by the East Fork Fire and Paramedic District's Topaz Ranch Estates Volunteer Fire Department Station 4 (a combination career/volunteer station with two career members) and the Topaz Lake Volunteer Fire Department Station 5. The Topaz Ranch Estates VFD responded to 213 emergency calls in 2001. Station 4 actively works with the Topaz Ranch Estates community on the "Compost your Combustibles" and reflective address sign programs (East Fork Fire and Paramedic Districts website). See Tables 4-2 and 4-3 for more information on the typical fire suppression response for first-alarm wildland-urban interface fires in Douglas County. Appendix E lists the type and number of fire suppression vehicles located at each EFFPD and Douglas County VFD station.

BLM / Interagency wildland fire resources will respond to al wildland fire reports within the Topaz Ranch Estates community to protect adjacent public land and National Forest. The closest federal response would come from the Topaz Lake Guard Station. The response will be initiated by the Sierra Front Interagency Dispatch Center.

*Water Sources and Infrastructure*

Water availability for fire suppression in Topaz Ranch Estates includes one 210,000-gallon tank and one 660,000-gallon tank in the community. There is also one static 50,000 gallon tank near Penrod Lane in the Holbrook Junction Community. This tank is not connected to wells and must be filled each fire season. No emergency generators are available for the pumps that fill the tanks. Hydrants are available three miles from the community at Topaz Lodge in the Topaz Lake community. Topaz Lake may be used as a helicopter dip site and drafting source.

### *25.1.5 Factors Affecting Fire Behavior*

Vegetation, dead and down fuels, and topographic features contribute to the potential fire hazard around wildland-urban interface communities. The fuel hazards were mapped for Topaz Ranch Estates, and fuel hazard photos were taken to provide additional information for the vegetation type descriptions (see Figures 25-2 and 25-3).

The terrain within the Topaz Ranch Estates is gently sloping with average slopes of ten percent; however, in the north and northwest parts of the community, slopes exceed twenty percent. The fuel hazard in the Topaz Ranch Estates community ranged from low to extreme due to natural vegetation types and previously completed fuel reduction work within the community. Three fires have occurred within the community and have generally reduced the fuel hazard in these areas to a low hazard. In the burned areas, the vegetation primarily

consists of widely spaced big sagebrush, rabbitbrush, bitterbrush, Mormon tea, Nevada ephedra, and spiny horsebrush, with understory grasses of crested wheatgrass and cheatgrass. In burned areas, the fuel load was estimated between one and two tons per acre. In other areas of the community, characterized by shallow soils, the vegetation consists of widely spaced, low sagebrush (less than one foot high) with traces of rabbitbrush and bitterbrush. The low hazard areas were estimated to have fuel loads less than one ton per acre.

The area where houses are located and the area south of State Route 208 had a moderate fuel hazard. Dominant vegetation consists of big sagebrush, Mormon tea, desert peach, bitterbrush, and rabbitbrush with bottlebrush squirreltail, cheatgrass, and basin wildrye in the understory. Some pinyon pine are scattered throughout this fuel type. Fuel loads were estimated between two and four tons per acre.

On the west side of the community the fuel hazard was considered extreme. The primary species present included big sagebrush, Mormon tea, desert peach, bitterbrush and rabbitbrush, with a dense overstory of pinyon pine. The fuel load was estimated to be ten to fifteen tons per acre.

Numerous fires have occurred within the vicinity of the community from both human and lightning causes. A 307-acre fire and the sixteen-acre Wildoat Fire occurred south of the community in 1994. A 9,833-acre fire also occurred northeast of the community in 1994. A 7,443-acre fire occurred in 1996, northwest of the community. Numerous other fires have occurred south of the community between 1950 and 1975. The predominant wind direction is from the south, especially in the late afternoon.

### *25.1.6 Fire Behavior Worst Case Scenario*

The worst-case scenario for Topaz Ranch Estates would likely occur in the event of a lightning or human-caused ignition in the area of Granite and Brecca Streets. With south winds exceeding 25 miles per hour, a fire could rapidly spread north and upslope through the dense pinyon pine and sagebrush vegetation. Homes could be immediately threatened by fire. The scenario would be worse if volunteer fire department resources were unavailable at the time of ignition. A minimum of thirty minutes (and more likely one hour) is needed for career-department resources to respond to an emergency in the community. Many homes could be lost before fire suppression resources would have the opportunity to respond.

### *25.1.7 Ignition Risk Assessment*

Topaz Ranch Estates has been rated with a high ignition risk, with lightning storms being the primary risk and the overhead power lines posing a secondary risk.

## 25.2 RISK AND HAZARD REDUCTION RECOMMENDATIONS

The Topaz Ranch Estates risk and hazard reduction recommendations focus on improving defensible space and promoting homeowner responsibilities Other recommendations pertain to community coordination efforts that could be initiated to enhance the fire safe nature of Topaz Ranch Estates.

### *25.2.1 Defensible Space Treatments*

*Property Owner Recommendations*

Defensible space treatments are an essential first line of defense for residential structures. Significantly reducing or removing vegetation within a prescribed distance from structures (minimum of 30 feet to 200 feet depending upon slope and vegetative fuel type) reduces fire intensity and improves firefighter and homeowner chances for successfully defending a structure against an oncoming wildfire.

- Remove, reduce, and replace vegetation around homes according to the guidelines in Appendix D. This area should be kept:

  Lean – There are only small amounts of flammable vegetation,

  Clean – There is no accumulation of dead vegetation or other flammable debris,

  Green – Existing plants are healthy and green during the fire season.

- Maintain the area beneath unenclosed wood decks and porches free of weeds and flammable debris. Enclose these areas wherever possible.
- Store firewood a minimum distance of thirty feet from structures.
- Clear all vegetation and combustible materials for a minimum of ten feet around propane tanks.
- Mow or remove brush growing within a distance of 25 feet and grasses growing within ten feet of wood fences in the community.
- Install spark-arresting screens on chimneys.
- Cheatgrass or other annual grasses that have become dominant within the defensible space zone should be mowed or treated with an application of pre-emergent herbicide prior to seed set.[23] Treatments may need to be repeated the following year to ensure that the seed bank of unwanted grasses has been depleted. Refer to Appendix D for recommended seed mixes and planting guidelines that can be used in conjunction with removal of this annual grass.
- Thin pinyon trees in the defensible space area such that tree canopies are spaced a minimum distance of thirty feet from any other trees, shrubs, or residential structures. Limb remaining pinyon and juniper trees within the defensible space area to a minimum of four feet up from the ground, or no more than one-third the height of the trees. Reduce the needle and cone duff from under the remaining trees to a depth no greater than one-inch.
- Irrigate all trees and shrubs in close proximity to structures to increase their fire resiliency, especially during drought conditions.
- Immediately remove cleared vegetation to an approved disposal site when implementing defensible space treatments. This material dries quickly and presents a fire hazard if left on site.
- Maintain this defensible space as needed to keep the space lean, clean, and green.

[23] Extreme caution should be taken when using herbicides to completely follow all label instructions. Consult with University of Nevada Cooperative Extension specialists for assistance with appropriate herbicide products and application procedures.

### *25.2.2 Fuel Reduction Treatments*

Fuel reduction treatments are applied on a larger scale than defensible space treatments. By permanently changing the fuel structure over large blocks of land to one of a lower volume or reduced flammability (a fuel reduction treatment), the expected result in the event of a catastrophic wildfire would be one of reduced capacity for uncontrolled spread through the treatment area.

*Property Owner Recommendations*

- Remove sagebrush within ten feet and pinyon pine within 25 feet on both sides of private driveways longer than 200 feet. Replace highly flammable shrubs and trees with fire-resistant species such as crested wheatgrass, lawn, or a pre-suppression seed mix. Appropriate seed mixtures and seeding specifications are provided in Appendix D.
- On all private lots with pinyon pine trees, reduce tree density for an additional 100 feet beyond the defensible space area. Trees should be thinned such that canopies are spaced two times the height of the trees. Remove ladder fuels (shrubs and grasses) within ten feet of all tree drip lines. Limb pinyon trees a minimum of four feet from the ground, or no more than one-third the height of the trees. Coordinate with EFFPD for assistance with homeowner cooperation and biomass removal programs.
- Coordinate with EFFPD to construct and maintain a 200-foot wide fuelbreak (100-feet each side of State Route 208) for a distance of approximately one mile on the south side of the community, for a total treatment of approximately 23 acres (see Figure 25-1). Thin trees to a maximum density of ten trees per acre within the first fifty feet on both sides of the road. For an additional fifty feet thin trees so that the distance between tree canopies is equal to twice the height of the trees. Thin shrubs to a canopy spacing twice the height of the shrubs and remove all shrubs within ten feet of tree canopies.

*East Fork Fire and Paramedic Districts Recommendations*

- Coordinate with property owners to construct a 200-foot wide fuelbreak (100-feet each side of State Route 208) for a distance of approximately one mile on the south side of the community, for a total treatment of approximately 23 acres (see Figure 25-1). Thin trees to a maximum density of ten trees per acre within the first fifty feet on both sides of the road. For an additional fifty feet, thin trees so that the distance between tree canopies is equal to twice the height of the trees. Thin shrubs to a canopy spacing of twice the height of the shrubs and remove all shrubs within ten feet of tree canopies.
- Coordinate with homeowners to construct and maintain fuels reduction treatments on all private parcels with a pinyon pine trees.
- The biomass generated from construction of the fuelbreak and other fuel reduction treatments should be removed and disposed of at an appropriate site. The fuelbreak should be maintained such that there is no significant increase in shrub and tree density from post-treatment levels.

*Douglas County Roads Department Recommendation*

- Remove pinyon trees, shrubs, and weeds for a distance of 25 feet on each side of roads in the community. For an additional 25 feet on each side of the road, reduce pinyon pine density to less than ten trees per acre.

*Utility Company Recommendation*

- Remove pinyon pine and shrubs within fifteen feet of power poles and power lines throughout the Topaz Ranch Estates community.

### *25.2.3 Community Coordination*

Many of the most effective activities aimed at reducing the threat of wildfire for the Topaz Ranch Estates community require that individual property owners coordinate with each other and with local fire authorities. Defensible space, for example, is more effective in small communities when applied uniformly throughout entire neighborhoods. Public education and awareness, neighbors helping neighbors, and proactive individuals setting examples for others to follow are just a few of the approaches that will be necessary to meet the fire safe goals in the community. Disposal of biomass generated from defensible space and fuel reduction treatments can sometimes be most efficiently handled through community programs.

*Property Owner Recommendations*

- Assure that address signs are visible from the road. Address characters should be at least four inches high, reflective, and composed of non-flammable material. Improving visibility of addresses will make it easier for those unfamiliar with the area to navigate under smoky conditions during a wildland fire.
- Form a local chapter of the Nevada Fire Safe Council. The Nevada Fire Safe Council proposes to work on solutions that reduce the risk of loss of lives and property from wildfires in Nevada's communities. Through establishment of a local Chapter, communities become part of a large information-sharing network that receives notifications of programs and funding opportunities for fire mitigation projects such as those listed in this report. The Nevada Fire Safe Council will accept and manage grants and contracts on the Chapter's behalf through its non-profit status. The Nevada Fire Safe Council provides assistance and support to communities to complete fire safe plans, set priorities, educate and train community members, and promote success stories of its members. For more information on forming a chapter, contact:

  The Nevada Fire Safe Council
  1187 Charles Drive
  Reno, Nevada 89509
  www.nvfsc.org

*East Fork Fire and Paramedic Districts Recommendation*

- Distribute copies of the publication *"Living With Fire"* to all property owners who live in Topaz Ranch Estates. This publication is free of charge. Copies can be requested from the University of Nevada Cooperative Extension.

## 25.3 SUMMARY OF RECOMMENDATIONS

**Table 25-1. Topaz Ranch Estates Priority Recommendations to Reduce Wildfire Risks and Hazards**

| INVOLVED PARTY | RECOMMENDED TREATMENT | RECOMMENDATION DESCRIPTION |
|---|---|---|
| **Property Owners** | Defensible Space | Remove, reduce, and replace vegetation around home according to the defensible space guidelines in Appendix D. |
| | Fuels Reduction | Reduce vegetative fuels for a distance of ten feet on both sides of private driveways longer than 200 feet.<br><br>Coordinate with EFFPD to conduct fuels reduction treatments. On all private lots with pinyon pine trees, reduce tree density for an additional 100 feet beyond the defensible space area. Trees should be thinned such that canopies are spaced two times the height of the trees.<br><br>Coordinate with the NEFFPD to implement fuel reduction on all private parcels with pinyon trees.<br><br>Coordinate with EFFPD to construct shaded fuelbreak along State Route 208. |
| | Community Coordination | Assure that address signs are visible from the road. Address characters should be at least four inches high, reflective, and composed of non-flammable material.<br><br>Form a local chapter of the Nevada Fire Safe Council. |
| **Douglas County** | Fuels Reduction | Remove pinyon/juniper trees, shrubs, and weeds for a distance of 25 feet on each side of roads in the community. For an additional 25 feet on each side of the road, reduce pinyon pine density to less than ten trees per acre. |
| **Utility Company** | Fuels Reduction | Remove trees or trim any branches within fifteen feet of either side of power lines and poles throughout the Topaz Ranch Estates community. |
| **East Fork Fire and Paramedic Districts** | Fuels Reduction | Coordinate with property owners to construct a 200-foot wide fuelbreak (100-feet each side of State Route 208) for a distance of approximately one mile on the south side of the community, for a total treatment of approximately 23 acres (see Figure 25-1).<br><br>Coordinate with property owners to implement fuels reduction treatments on all private parcels with a pinyon pine tree canopy layer. |
| | Community Coordination | Distribute copies of the publication "*Living With Fire"* to all property owners. |

## Table 25-2 Topaz Ranch Estates Wildfire Hazard Rating Summary

**A. Urban Interface Condition** ***2***

**B. Community Design**

| | | |
|---|---|---|
| 1. Ingress / Egress | 1 | /5 |
| 2. Width of Road | 1 | /5 |
| 3. Accessibility | 1 | /3 |
| 4. Secondary Road | 5 | /5 |
| 5. Street Signs | 1 | /5 |
| 6. Address Signs | 3 | /5 |
| 7. Utilities | 3 | /5 |

**C. Construction Materials**

| | | |
|---|---|---|
| 1. Roofs | 1 | /10 |
| 2. Siding | 1 | /5 |
| 3. Unenclosed Structures | 3 | /5 |

**D. Defensible Space**

| | | |
|---|---|---|
| 1. Lot Size | 3 | /5 |
| 2. Defensible Space | 7 | /15 |

**F. Fire Behavior**

| | | |
|---|---|---|
| 1. Fuels | 3 | /5 |
| 2. Fire Behavior | 7 | /10 |
| 3. Slope | 7 | /10 |
| 4. Aspect | 10 | /10 |

**E. Suppression Capabilities**

| | | |
|---|---|---|
| 1. Water Source | 5 | /10 |
| 2. Department | 3 | /10 |

***TALLIES***

**841 Total Houses** **57 Residential Streets**

**B5. Street Signs**

2 not visible | 55 visible | 96% visible

**B6. Address Signs**

109 not visible | 732 visible | 87% visible

**C1. Roofs**

4 combust | 837 not combust | 100% not combust

**C2. Siding**

10 combust | 831 not combust | 99% not combust

**C3. Unenclosed Structures on Lot**

318 not enclosed | 523 enclosed | 38% not enclosed

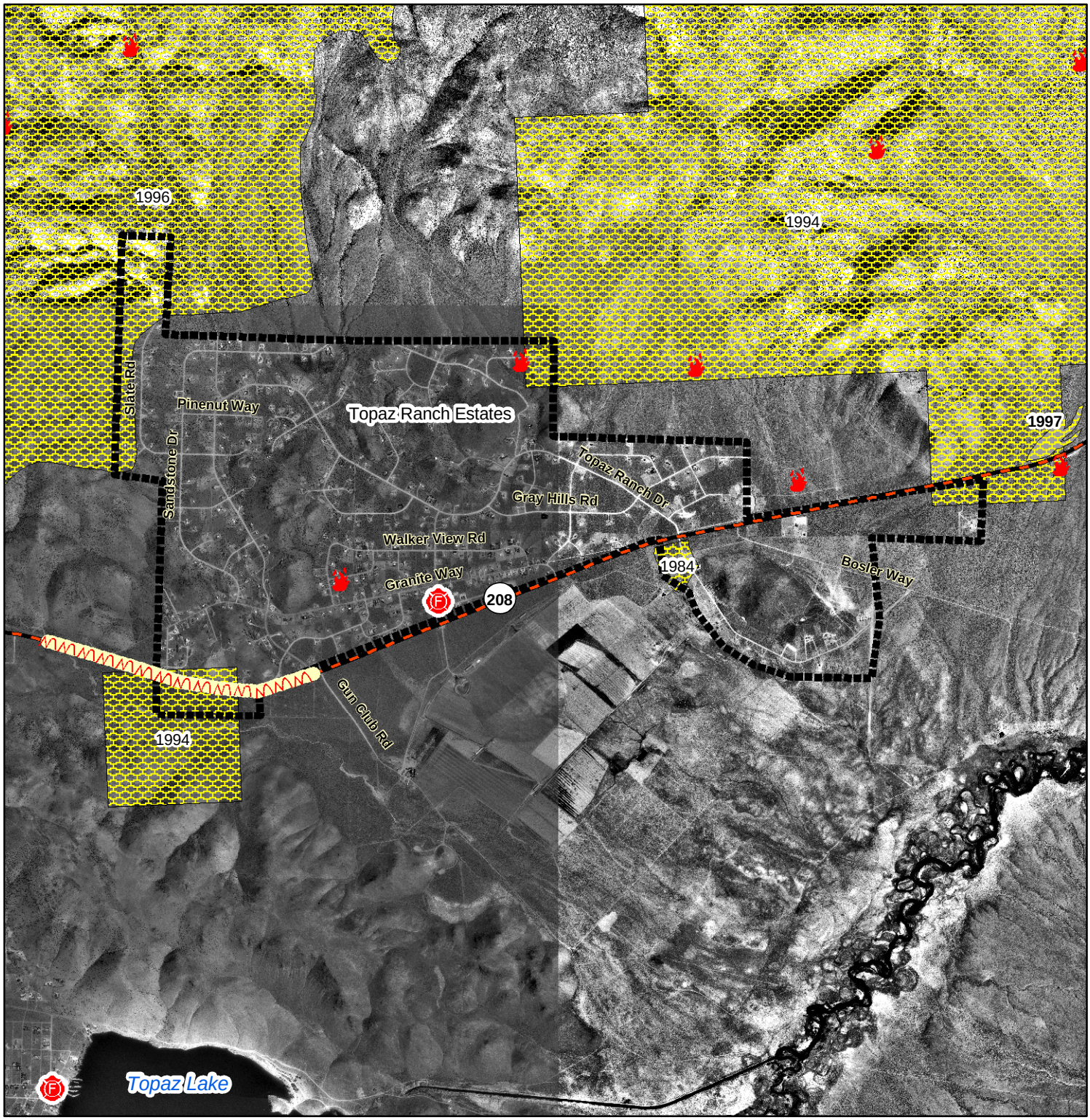
**D1. Lot Sizes**

180 <1ac | 634 >1ac <10ac | 27 >10ac

**D2. Defensible Space**

307 not adequat | 534 adequate | 63% adequate

**Score** **65** /128




**Legend**

- Fire Ignitions
- Fire Station
- Fire Boundary and Date
- Community Boundary
- Highways and State Routes
- Proposed Fuelbreak

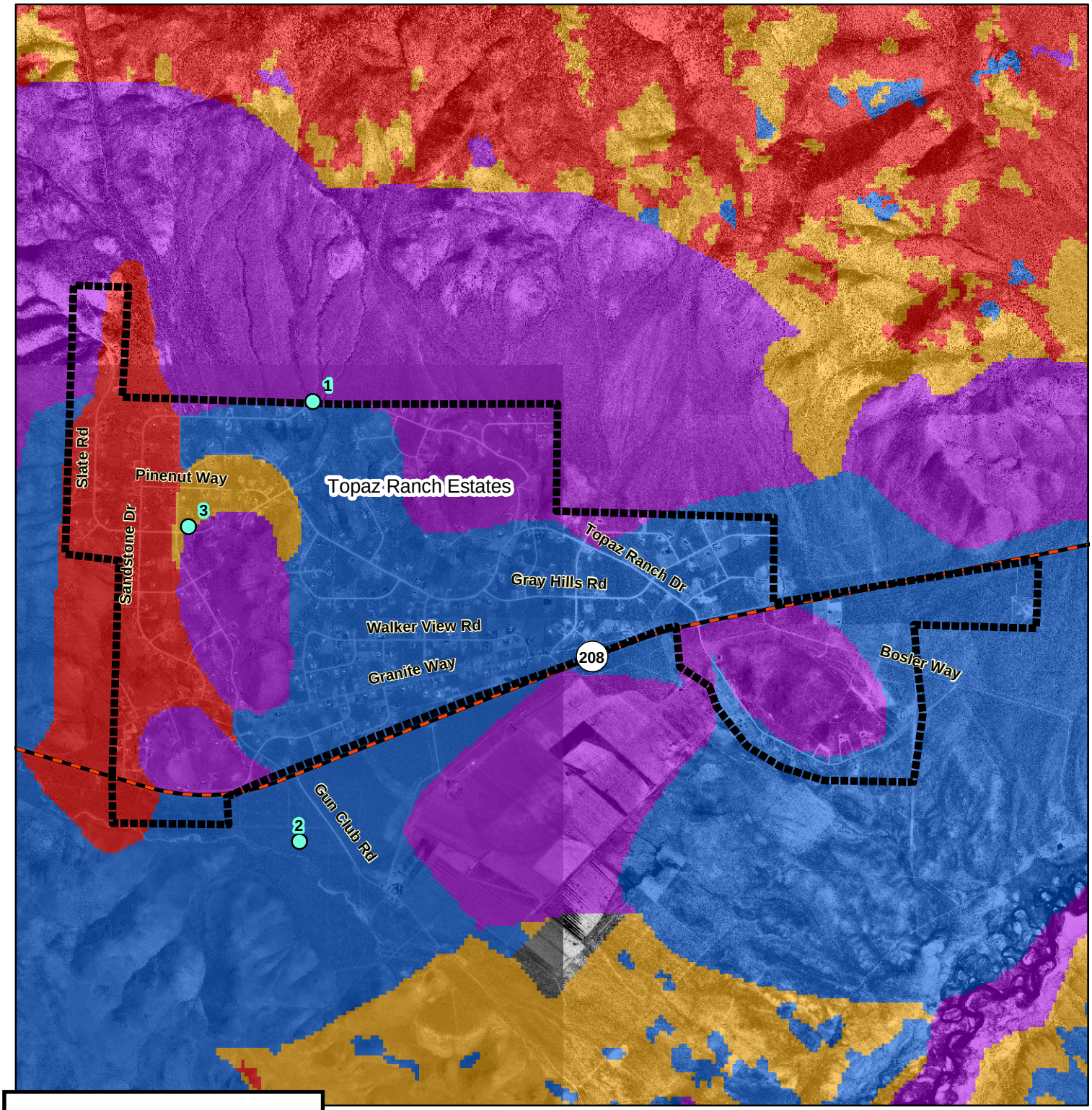
Figure 25-1. Topaz Ranch Estates
Fire History, Suppression Resources,
and Proposed Mitigation Projects

N
W E
S

0 0.5 1 2
Miles

Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600

***Nevada Community Wildfire Risk / Hazard Assessment Project***




**Legend**

- Community Boundary
- Highways and State Routes

**Fuel Hazard**

- Extreme
- High
- Moderate
- Low
- Photo Point

Figure 25-2. Topaz Ranch Estates
Fuel Hazard Classification

N
W E
S

0 0.5 1 2
Miles

Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600

***Nevada Community Wildfire Risk / Hazard Assessment Project***

**Figure 25-3. Topaz Ranch Estates Fuel Hazard Photo Points**

**Photo Point 1.** Topaz Ranch Estates. 4292177N, 0281197E, 20°NE. Low sagebrush and traces of rabbitbrush and bitterbrush were widely spaced and less than one foot in height on shallow soils. The fuel loads were estimated at less than one ton per acre and considered a low fuel hazard.

**Photo Point 2.** Topaz Ranch Estates. 4288925N, 0281099E, 280°W. The fuel hazard within a majority of the area where houses are located and south of State Route 208 was considered moderate. Dominant vegetation consists of big sagebrush, Mormon tea, desert peach, bitterbrush, and rabbitbrush with bottlebrush squirreltail, cheatgrass, and basin wildrye in the understory. Some pinyon pine are scattered throughout this fuel type. Fuel loads were estimated between two and four tons per acre in this area.

**Photo Point 3.** Topaz Ranch Estates. 4291253N, 0280278E, 300°NW. On the west side of the community the fuel hazard was considered extreme. The dominant species include big sagebrush, Mormon tea, desert peach, bitterbrush and rabbitbrush, with a dense overstory of pinyon pine. The fuel load was estimated to be ten to fifteen tons per acre.

# 26.0 DOUGLAS COUNTY RISK/HAZARD ASSESSMENT CONCLUSIONS

The RCI Project Team developed the recommendations in this report for Douglas County based on site-specific conditions observed during the wildfire risk/hazard assessments and from information provided by local fire departments and agencies. Moderate to extreme fuel hazard conditions occur throughout much of the county. Hazardous fuels in conjunction with steep topography and typical lightning patterns during the fire season create a fire prone environment. The community hazard ratings for the communities in Douglas County ranged from low to extreme.

Low hazard ratings for East Valley, Gardnerville, Gardnerville Ranchos, and Minden reflect the benefit of being surrounded by agricultural lands that are inherently low fuel hazard areas and function as greenstrips around these communities. Moderate to extreme fuel hazards surround most of the communities with moderate community hazard ratings (Alpine View, Dresslerville, Jacks Valley/Indian Hills, Johnson Lane, Ruhenstroth, and Topaz Lake). However larger lot sizes, good access, and implementation of defensible space around residences in these communities are compensating factors for the fuel hazard condition. Continued maintenance of defensible space through removal of debris and excess vegetation in accordance with the defensible space guidelines in Appendix D will continue to improve fire safety for these Douglas County residents.

China Springs, Genoa, Fish Springs, Holbrook Junction, Job's Peak Ranch, North Foothill Road Corridor, Pine Nut Creek, Sheridan Acres, Spring Valley/Double Springs, and Topaz Ranch Estates have high community hazard ratings. The predominant factors that increase the wildfire hazard are specific to each community and include such things as the distance from a career fire department, the distance from water sources for fire suppression, the presence of high and extreme fuel hazards, and the lack of adequate defensible space around homes and structures in some areas of the communities. Weather patterns and steep topography are other contributing factors that increase community hazard ratings but cannot be modified to improve community safety. The communities that are located at the base of the Carson Range must pay particular attention to minimizing hazards around residences by implementing and maintaining adequate defensible space and supporting local volunteer fire departments.

Wildfire suppression resources and availability are generally appropriate for the potential risks/hazards in Douglas County. The East Fork Fire and Paramedic Districts, Nevada Division of Forestry Sierra Forest Fire Protection District, the Bureau of Land Management, the US Forest Service and other cooperators as part of the Sierra Front Wildfire Cooperators have been successful in minimizing wildfires through rapid response to both human and lightning caused ignitions. However, if the worst-case scenario for the communities along the east slope of the Carson Range were to occur, fire suppression resources would have difficulty in containing the fire. The recent Waterfall Fire in Carson City is a tragic but real demonstration of the potential worse case scenario in Douglas County.

Adoption of a Douglas County wildland interface ordinance requiring defensible space treatments on both developed and undeveloped land is essential countywide to decrease the likelihood of losing homes if the worst-case scenario should occur.

The recommendations presented for each community in this report are summarized in Table 26-1. Continued implementation of the fuel reduction projects that have been planned by various agencies and professionals will increase protection to homes and mitigate the fuel hazards present in many residential areas of Douglas County. However, this can only be considered a starting point for addressing community wildfire safety. Long-term community safety from wildfire requires a permanent commitment to the enforcement of fire safe ordinances at the local level and dedicated attention to fuels management. Regular monitoring for fuel conditions and periodic updates to this report should include new recommendations for maintenance or implementation of additional treatments as development continues to encroach the wildland-urban interface.

**Table 26-1. Community Proposed Fuel Reduction/Mitigation Projects and Landowners and/or Agencies Involved**

| COMMUNITY | PROJECT DESCRIPTION AND ESTIMATED ACREAGE | STATUS | PRIVATE | USFS | BLM | NVST | WASHOE TRIBE |
|---|---|---|---|---|---|---|---|
| Alpine View | Fuelbreaks - 9 ac. | Proposed | X | X | | | |
| Bodie Flats | Shaded Fuelbreak - 23 ac. | Proposed | X | | X | | X |
| China Springs | Fuelbreak – 2 ac. | Proposed | | | | X | |
| Dresslerville | Fuelbreak – 60 ac. | Proposed | | | | | X |
| Gardnerville Ranchos | Fuelbreaks – 24 ac. | Proposed | X | | | | |
| Genoa | Shaded fuelbreak – 185 ac. | Proposed | X | X | | | |
| Holbrook Junction | Fuelbreaks - 18 ac.,<br>Fuel Reduction Treatment - 150 ac. | Proposed | X | | | | X |
| Jacks Valley/ Indian Hills | Fuelbreak – 12-24 ac.<br>Fuel Reduction Treatment – 340 ac. | Proposed<br>Proposed | X | X<br>X | | | |
| Job's Peak Ranch | Fuelbreaks – 197 ac.,<br>Fuel Reduction Treatments – >50 ac. | Proposed | X | X | | | |
| North Foothill Road Corridor | Shaded Fuelbreak – 48 ac. | Proposed | X | X | | | |
| Pine Nut Creek | Fuel Reduction Treatment – 210 ac.<br>Fuelbreak – 60 ac. | Scheduled<br>Scheduled | X | | X | | |
| Ruhenstroth | Shaded Fuelbreak – 20 ac. | Proposed | X | | X | | |
| Sheridan Acres | Shaded Fuelbreak – 74 ac. | Proposed | X | X | X | | |
| Spring Valley/ Double Springs | Shaded Fuelbreaks – 77 ac. | Planned/ Scheduled | X | | | | |
| Topaz Ranch Estates | Shaded Fuelbreak – 23 ac. | Proposed | X | | | | |

There is no way to completely eliminate the threat that wildfires present to communities at the wildland-urban interface. However, the recommendations in this report are intended to increase public responsibility and encourage concerned community members to be proactive in reducing the risk of wildfire ignitions near their communities. Creating and maintaining defensible space on private property and increasing public awareness of the risks and potential for damage or loss of lives and property associated with living in a fire prone environment are best accomplished at the local level.

To be most effective, fire safe practices need to be implemented on a community-wide basis. There is no guarantee that a wildfire will not occur in any of these communities, even if all of the recommendations in this report are implemented. Nonetheless, public awareness, neighbors helping neighbors, and concerned, proactive individuals setting examples for others to follow are just some of the approaches necessary to reduce the risk of wildfire ignition and the hazards inherent in wildland-urban interface areas.

# 27.0 REFERENCES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# APPENDICES

# *Appendix A*

*Glossary of Terms Used in Wildfire Management and Scientific Plant Names*

# Appendix A  Glossary of Terms used in Wildfire Management

**Agency:** Any federal, state, or county government organization with jurisdictional responsibilities.

**Air Attack:** The deployment of fixed-wing or rotary aircraft on a wildland fire to drop retardant or suppressant, shuttle and deploy crews and supplies, or perform aerial reconnaissance of the overall fire situation. Can also refer to the person functioning as air attack officer and directing aerial operations.

**All-Risk County Plan:** Similar to a pre-attack (pre-fire) plan but encompasses action plans for responding to all types of natural and human caused emergencies such as earthquakes, floods, structure fires, hazardous materials situations, terrorism, train and vehicle accidents.

**Annual Grass Treatment**: The purpose of this treatment is to reduce the volume of flashy fuels associated with annual grass growth (e.g. cheatgrass and red brome). Fuel reduction can be accomplished by chemical treatment or mechanical removal of plant biomass. Pre-emergent herbicides can be applied near residential areas at the proper rates and following all label instructions to inhibit seed germination. After plants have started growth, mowing annual grasses before seed maturity reduces the amount of fine fuels during the summer fire season, limits seed production, and reduces the potential for annual grass in the following year. Repeated mowing over several years should reduce the density of the annual grass in the long term.

**Aspect:** Direction toward which a slope faces.

**Biomass Utilization and Disposal:** Biomass utilization is an alternative to open pile burning or landfill disposal. It results in the use of the natural resource for beneficial purposes such as firewood, wood chips, compost, and other products. If residents cannot find an alternative to burning, then proper burning procedures should be followed.

**Brush Fire:** A fire burning in vegetation that is predominantly shrubs, brush, and scrub growth.

**Buffer Zones:** An area of reduced vegetation that separates wildland areas from vulnerable residential or business developments. This barrier is similar to a greenbelt in that it is often used for another purpose such as agriculture or recreation, or parks or golf courses.

**Classic Interface:** Structures abut native vegetation with a clear line of separation between structures and the wildland vegetation along roads and fences. The fuels do not extend into the developed areas.

**Contain a Fire:** A fuel break around the fire has been completed. This break may include natural barriers such as a river or road, and/or fireline built by hand, and/or fireline constructed mechanically.

**Control a Fire:** The complete extinguishment of a fire, including spot fires. Fireline has been strengthened so that flare-ups from within the perimeter of the fire will not break through the line.

**Crown Fire:** The movement of fire through the crowns or tops of trees or shrubs more or less independently of the surface fire. A fire is said to be crowning when the flames get up into the tops of trees and spreads.

**Defensible Space:** Defensible space is defined as a *minimum of a 30-foot area* around houses and other structures where vegetation has been significantly modified or removed. The purpose of creating defensible space is to reduce the risk of losing homes and other property improvements to a wildfire (Smith and Adams, 1991).

Defensible space is especially important in communities with structures directly adjacent to wildland vegetation, as in the intermix or rural interface conditions, where wildfires can spread quickly through the wildland fuels, threatening homes and lives.

**Dispatch Center:** A facility from which resources are directly assigned to an incident.

**Dry Lightning Storm:** Thunderstorm in which negligible precipitation reaches the ground. Also called a dry storm.

**Duff:** The layer of decomposing organic materials lying below the litter layer of freshly fallen twigs, needles, and leaves and immediately above the mineral soil.

**Extreme Fire Behavior:** "Extreme" implies a level of fire behavior characteristics that ordinarily precludes methods of direct control action. One or more of the following are usually involved: high rate of spread, prolific crowning and/or spotting, presence of fire whirls, a strong convection column. Predictability is difficult because such fires often exercise influence on their environment and behave erratically, sometimes dangerously.

**Fine Fuels:** Fast-drying fuels, generally with a comparatively high surface area-to-volume ratio, which are less than ¼-inch in diameter and have a timelag of one hour or less. These fuels ignite readily and are rapidly consumed by fire when dry.

**Fire Behavior:** The manner in which a fire reacts to the influences of fuels, weather, and topography.

**Firebrands:** Pieces of burning material carried on the wind ahead of an advancing wildfire that, in extreme cases, can ignite spot fires up to a mile removed from the flame front.

**Firebreak:** A strip of land cleared of brush and trees down to the mineral soil.

**Fire Front:** The part of a wildland fire in which continuous flaming combustion is taking place. Unless otherwise specified the fire front is assumed to be the leading edge of the fire perimeter. In ground fires, the fire front may be mainly smoldering combustion.

**Fire Hazard:** As used in this report, vegetative factors that affect the intensity and the rate a fire spreads as well as urban factors that can facilitate or inhibit public safety and the containment of a fire in an interface area.

**Fire Perimeter:** The entire outer edge or boundary of a fire, which may contain within it substantial areas of unburned fuels.

**Fire Regime:** A term used by fire ecologists to describe the recurrence and intensity of fire relative to a specific plant community.

**Fire Risk:** Potential ignition sources and factors that facilitate ignition of wildfires.

**Flash Fuels:** Fuels such as grass, leaves, pine needles, ferns, tree moss, and some types of slash, flash fuels or flashy fuels ignite readily and are consumed rapidly when dry. Also called fine fuels.

**Fuel Bed:** In a research setting, an array of fuels usually constructed with specific loading, depth, and particle size to meet experimental requirements; also commonly used to describe the fuels composition in natural settings.

**Fuelbreaks:** Fuelbreaks are constructed in strategic locations where a cover of dense, heavy, or flammable vegetation has been permanently changed to one of lower fuel volume or reduced flammability. Fuelbreak construction may include removing, controlling and possible replacing highly flammable vegetation with more fire resistant species. Ridge top fuelbreaks should have continuous length and width, which requires long-range planning.

A fuelbreak network system could be used to protect critical watersheds while more remote areas might have narrower fuelbreaks that might serve as anchor points for prescribed fires. A fuelbreak strategy can be effective even if fuelbreaks are not connected.

**Fuel Loading:** The amount of fuels present expressed quantitatively in terms of weight per unit area.

**Fuel Reduction Treatment:** This treatment involves strategically locating blocks of land near communities where flammable vegetation has been permanently changed to one of lower fuel volume or reduced flammability.

**Fuel Type:** An identifiable association of fuel elements of a distinctive plant species, form, size, arrangement, or other characteristics that will cause a predictable rate of fire spread or difficulty of control under specified weather conditions.

**Greenstrips:** Greenstrips are usually non-irrigated linear bands of open space on private or public land (usually a minimum of 300 feet wide) that serve as a buffer zone between wildland and adjacent urban development to promote safer environments. These areas are usually seeded to establish vegetation that is relatively fire resistant or slow burning and with shortened flame lengths. Seedings also decrease soil erosion and prevent invasion of noxious weeds and other aggressive plants such as cheatgrass and Russian knapweed.

**Ground Fuels:** All combustible materials below the surface litter, including duff, tree or shrub roots, punky wood, peat, sawdust, and other materials that can support a glowing combustion without flame.

**High Hazard Day:** Also known as a "red flag day", a combination of conditions such as low humidity (<15 percent), high winds (>25 mph), and low fuel moisture create a high probability of ignition and subsequent increased fire intensity. Various agencies have different trigger points to establish a "high hazard day".

**Initial Attack:** The actions taken by the first resources upon arrival at a wildfire to protect lives and property and prevent further expansion of the fire.

**Interface Condition:** The density and distribution of structures with respect to the surrounding wildland environment. The four Interface Conditions are Rural, Intermixed, Occluded, and Classic.

**Intermix Interface:** Structures are scattered throughout the wildland, with no clear boundary between the wildland vegetation and the community.

**Ladder Fuels:** Fuels which provide vertical continuity between strata, thereby allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease. They help start and continue crowning on a fire.

**Mutual Aid Agreement:** Written agreement between agencies and/or jurisdictions in which they agree to assist one another upon request by furnishing personnel and equipment.

**Occluded Interface:** This condition is usually within towns and cities where there are small islands of wildland fuels such as parks or open space. There is a clear boundary between the community and the wildland vegetation.

**Pre-Attack Plan:** Also known as a pre-fire plan. A plan written in anticipation of a fire in a given community or specific area. This plan is made readily available to all local agencies and typically lists expected need and availability of initial and extended attack resources, includes radio frequencies, name and number of contact person for each agency, and identifies the staging base, incident command post, evacuation center, location of water resources, and additional details unique to the locality being described.

**Red Card Certification:** A fire qualifications management system used by many state and all federal wildland fire management agencies to ensure that individuals are qualified to fight wildland fires.

**Rural Interface:** Clusters of structures such as ranches or summer homes are widely spaced, sometimes more than a mile apart. The rural homes are surrounded by the wildland vegetation, with no clear line of separation between the fuels and homes.

**Shaded Fuelbreaks:** A shaded fuelbreak is created by altering surface fuels, and increasing the height of the base of the live crown, and opening the canopy by removing a portion of the woody plants in the treatment area. This type of fuelbreak spans a wide range of understory and overstory prescriptions. Construction methods include mechanical thinning, manual biomass removal, and the use of prescribed fires.

**Structure Fire:** Fire burning any part or all of any building or structure.

**Volunteer Fire Department (VFD):** A fire department of which some or all members are unpaid.

**Water Tender:** A ground vehicle capable of transporting water in the field, generally used to supply engines.

**Wildland Fire:** Any non-structure fire, other than prescribed fire, that occurs in a wildland area.

**Wildland-Urban Interface:** The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

**SOURCES:**

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**DOMINANT VEGETATION OF THE WILDLAND-URBAN INTERFACE, DOUGLAS COUNTY**

| Common Name | Scientific Name* |
|---|---|
| ***Trees*** | |
| Aspen | *Populus tremuloides* |
| Cottonwood | *Populus fremontii* |
| Jeffrey pine | *Pinus jeffreyi* |
| Singleleaf pinyon pine | *Pinus monophylla* |
| Utah juniper | *Juniperus osteosperma* |
| White fir | *Abies concolor* |
| ***Shrubs*** | |
| Bitterbrush | *Purshia tridentata* |
| Currant | *Ribes* sp. |
| Desert peach | *Prunus andersonii* |
| Elderberry | *Sambucus mexicana* |
| Ephedra | *Ephedra nevadensis* |
| Fourwing saltbush | *Atriplex canescens* |
| Low sagebrush | *Artemisia arbuscula* |
| Mormon tea | *Ephedra viridis* |
| Mountain mahogany | *Cercocarpus* sp. |
| Mountain big sagebrush | *Artemisia tridentata* ssp. *vaseyana* |
| Rabbitbrush | *Chrysothamnus* sp. |
| Smooth horsebrush | *Tetradymia glabrata* |
| Spiny hopsage | *Grayia spinosa* |
| Spiny horsebrush | *Tetradymia spinosa* |
| Willow | *Salix* sp. |
| Wyoming big sagebrush | *Artemisia tridentata* ssp. *wyomingensis* |
| ***Grasses / Forbs*** | |
| Annual mustard | *Brassicaceae* |
| Basin wildrye | *Leymus cinereus* |
| Bottlebrush squirreltail | *Elymus elymoides* |
| Cheatgrass | *Bromus tectorum* |
| Crested wheatgrass | *Agropyron cristatum* |
| Desert needlegrass | *Achnatherum speciosum* |
| Filaree (stork's bill) | *Erodium cicutarium* |
| Indian ricegrass | *Achnatherum hymenoides* |
| Needle and thread grass | *Hesperostipa comata* |
| Russian thistle | *Salsola tragus* |
| Sandberg bluegrass | *Poa secunda* |
| Sedge | *Carex* sp. |
| Sherman big bluegrass | *Poa secunda* |
| Thurber's needlegrass | *Achnatherum thurberianum* |

*All scientific names taken from: Hickman, J.C. editor. 1993. *The Jepson manual: Higher plants of California.* University of California Press, Berkely, CA.

# *Appendix B*

*Community Wildfire Assessment Rating System*

## Appendix B – Community Wildfire Assessment Rating System

| Community Design | Score |
|---|---|
| **1. Ingress/Egress** | |
| Two or more primary roads | 1 |
| One Road | 3 |
| One-way road in, one way out | 5 |
| **2. Width of Primary Road** | |
| >24 feet | 1 |
| >20 feet and <24 feet | 3 |
| <20 feet | 5 |
| **3. Accessibility** | |
| Road grade 5% or less | 1 |
| Road grade more than 5% | 3 |
| **4. Secondary Road Terminus** | |
| Loop roads, cul-de-sac w/outside turning radius of 45' or greater | 1 |
| Dead-end roads 200' or less in length | 3 |
| Dead-end roads greater than 200' | 5 |
| **5. Street Signs** | |
| Present 90-100% | 1 |
| Present 75-89% | 3 |
| Present <75% | 5 |
| **6. Address Signage** | |
| Present 90-100% | 1 |
| Present 75-89% | 3 |
| Present <75% | 5 |

| Existing Building Materials | Score |
|---|---|
| **1. Roofing Materials** | |
| Non-combustible covering 90-100% | 1 |
| Non-combustible covering 80-90% | 5 |
| Non-combustible covering 70-80% | 8 |
| Non-combustible <70% | 10 |
| **2. Siding Materials** | |
| Non-combustible siding >75% | 1 |
| Non-combustible siding <75% | 5 |
| **3. Unenclosed Features** | |
| Less than 25% | 1 |
| 25 - 50% | 3 |
| >50% | 5 |

| Utilities | Score |
|---|---|
| Low risk of ignition | 1 |
| Moderate risk of ignition | 3 |
| High risk of ignition | 5 |

| Defensible Space | Score |
|---|---|
| **1. Average Lot Size** | |
| 10 acres or larger | 1 |
| 1 to 10 acres | 3 |
| <1 acre | 5 |
| **2. Defensible Space** | |
| 70% or more adequate | 1 |
| 30-70% adequate | 7 |
| <30% adequate | 15 |

| Fire Protection | Score |
|---|---|
| **1. Water Source** | |
| 500 gpm hydrants within 500' of structures | 1 |
| 500 gpm hydrants or draft source within 1000 feet of structures | 2 |
| Water source 20 minutes away roundtrip | 5 |
| Water source > 45 minutes away roundtrip | 10 |
| **2. Fire Department Protection Within 5 Miles** | |
| Career Department | 1 |
| Combination Career / Volunteer | 3 |
| Volunteer with Seasonal Staffing | 5 |
| All Volunteer Department | 7 |
| No Organized Department | 10 |

| Fire Behavior | Score |
|---|---|
| **1. Slope** | |
| 8% or less | 1 |
| 8% - 20% | 4 |
| 20% - 30% | 7 |
| >30% | 10 |
| **2. Aspect** | |
| North or <8% slope | 1 |
| East | 3 |
| West | 7 |
| South | 10 |
| **3. Fuels** | |
| Light density | 1 |
| Medium density | 3 |
| High density | 5 |

| Fire Behavior *(continued)* | Score |
|---|---|
| **Situation #3** –<br>Fine and/or sparse fuels surround structures; infrequent wind exposure; flat terrain with little slope and/or north aspect. No large wildland fire history and/or moderate fire occurrence. | 3 |
| **Situation #2 –**<br>Moderate slopes; broken moderate fuels; some ladder fuels; composition of fuels is conducive to torching and spotting; conditions may lead to moderate suppression success; some fire history and/or moderate fire occurrence. | 7 |
| **Situation #1** –<br>Continuous fuels in close proximity to structures; composition of fuels is conducive to crown fires or high intensity surface fires; steep slopes; predominately south aspects; dense fuels; heavy duff; prevailing wind exposure and/or ladder fuels that may reduce suppression effectiveness; history of some large fires and/or moderate fire occurrence. | 10 |

# *Appendix C*

*List of Persons Contacted*

# Appendix C – List of Persons Contacted

| Contact Name | Position | Date Contacted | Telephone |
|---|---|---|---|
| Steve Weissinger | Douglas County Commissioner | Dec. 4, 2003 | (775) 782-9821 |
| Jacques Etchegoyhen | Douglas County Commissioner | Dec. 4, 2003 | (775) 782-9821 |
| Bernard Curtis | Douglas County Commissioner | Dec. 4, 2003 | (775) 782-9821 |
| Tim Smith | Douglas County Commissioner | Dec. 4, 2003 | (775) 782-9821 |
| Kelly Kite | Douglas County Commissioner | Dec. 4, 2003 | (775) 782-9821 |
| Kathy Kite | Douglas County Assessor's Office | Oct. 15, 2004 | (775) 782-9830 |
| Steve Eisele | Fire Marshal/Deputy Fire Chief, East Fork Fire and Paramedic Districts | June 10, 2004 | (775) 782-6187 |
| Brett Reed | Douglas County Road Maintenance Supervisor | Dec. 13, 2004 | (775) 782-9035 |
| Kelly Martin | Fire Management Officer<br>US Forest Service<br>Humboldt-Toiyabe National Forest<br>Carson Ranger District | Jan. 29, 2004 | (775) 882-2766 |
| Leonard Wehking | Fire Management Officer<br>Bureau of Land Management<br>Carson City Field Office | Jan. 26, 2004 | (775) 885-6000 |
| Brad Kosch | Regional Manager<br>Nevada State Parks | Aug. 6, 2004 | (775) 687-4384 |
| Mike Polovina | Center Manager<br>Sierra Front Interagency Dispatch Center in Minden, NV | Jan. 10, 2005 | (775) 883-5995 |
| Rich Riolo | Fire Prevention Chief<br>Nevada Division of Forestry | Nov. 5, 2004 | (775) 849-2500 |
| Tim Roide | Prescribed Fire and Fuels Specialist<br>BLM Carson City Field Office | Dec. 10, 2004 | (775) 885-6000 |
| Lily Taliman | Jacks Valley Volunteer Fire Department | Dec. 21, 2004 | (775) 267-4957 |
| Jessica Wade | National Forest Fuels Coordinator, US Forest Service Humboldt-Toiyabe Supervisor's Office | Jan. 24, 2005 | (775) 352-1223 |

# *Appendix D*

## *Homeowner Guidelines*

*Defensible Space Guidelines,*
*Homeowner's Annual Checklist*
*Fuelbreaks and Fuel Reduction Treatments*
*Seed Mixes*

# DEFENSIBLE SPACE GUIDELINES

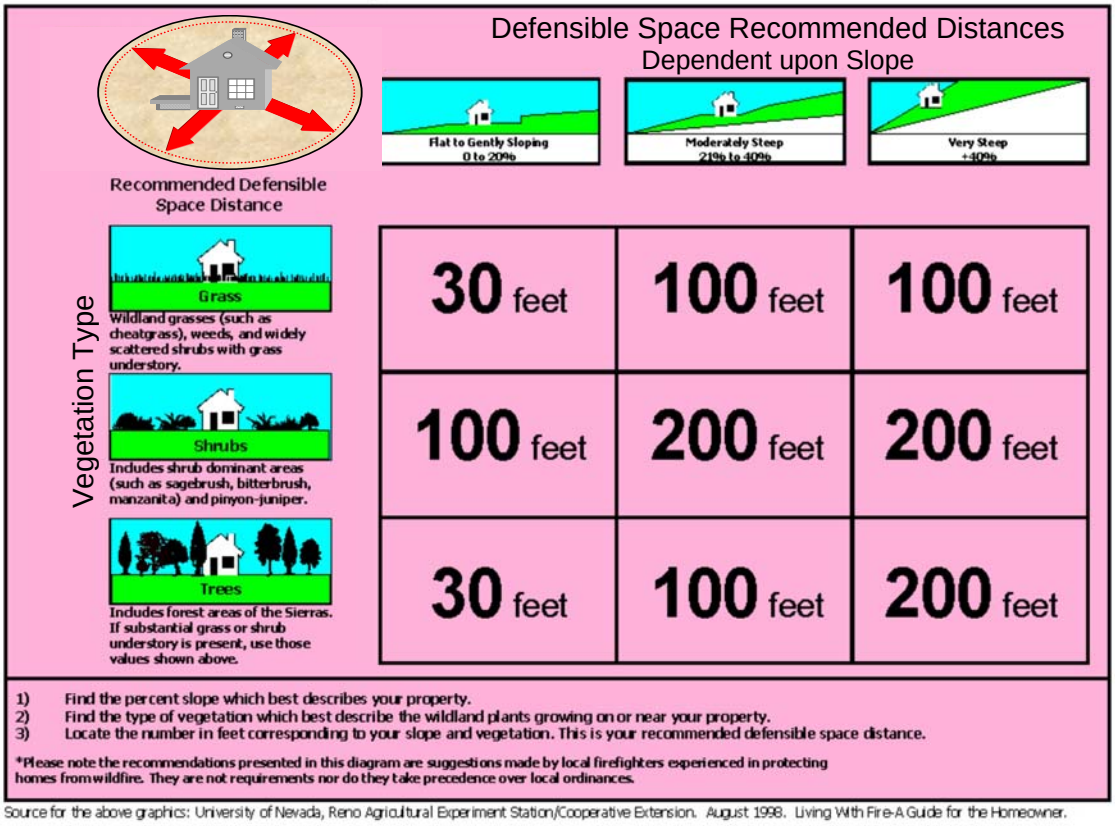
## A FACT SHEET FOR DOUGLAS COUNTY HOMEOWNERS

**Defensible space** refers to a **minimum** 30-foot area around houses and other buildings where vegetation has been significantly reduced or removed. The purpose of creating defensible space is to reduce the risk of losing homes and other property improvements to a wildfire.

### *HOW TO CREATE DEFENSIBLE SPACE*

**STEP 1** **DETERMINE DEFENSIBLE SPACE DISTANCE.** Use the table below to determine the minimum distance for defensible space, dependent upon slope and native vegetation type surrounding homes.

**Standard Defensible Space Guidelines**




Source for the above graphics: University of Nevada, Reno Agricultural Experiment Station/Cooperative Extension. August 1998. Living With Fire-A Guide for the Homeowner.

**STEP 2** **REMOVE.** Cut and remove all dead, diseased or dying trees and shrubs from within the defensible space area. Remove selected trees and shrubs to eliminate continuous fuels extending up to the house. Also remove any flammable debris and firewood piles from within the minimum defensible space distance. Weeds or other dry vegetation should be removed from underneath porches and decks. Eliminate any flammable vegetation or debris within 10 feet of propane tanks. Remove leaves and debris from rain gutters.

**STEP 3** **REDUCE.** Reduce vegetation height of shrubs under mature trees to decrease "ladder" fuels. Prune low tree branches to a minimum height of 4 feet and prune branches within 15 feet of structures and chimneys. Reduce accumulations of annual grasses (cheatgrass) through mowing or pre-emergent selective herbicide treatments in the fall. Reduce the accumulation of vegetation around wood fences through mowing or plant removal.

**STEP 4** **REPLACE.** Substitute flammable vegetation such as juniper, sagebrush, and rabbitbrush with fire resistant plants. Replacement plantings may include low stature shrubs, decorative rock, lawn, flowerbeds, and succulent vegetation. Irrigation of vegetation throughout the fire season will decrease plant flammability.

**STEP 5** **DISPOSE.** It is essential that all tree branches, shrubs, and other plant biomass be removed from the site immediately to a safe disposal area. This material dries rapidly and can contribute to the fire hazard problem if allowed to remain on the premises.

**STEP 6** **MAINTAIN.** Maintenance of the defensible space area requires an annual review of fuel reduction guidelines around the home. Action should be taken to maintain an effective defensible space area.

### *Remember, good defensible space is –*

***Lean – There are only small amounts of flammable vegetation***
***Clean – There is no accumulation of dead vegetation or flammable debris***
***Green – Existing plants are healthy, green, and irrigated during fire season***

(Source: Living With Fire…In the Big Sagebrush/Bitterbrush Environment. Nevada State Bureau of Land Management. Produced by Ed Smith and JoAnne Skelly.)

# FUELBREAKS and FUEL REDUCTION TREATMENTS

## A FACT SHEET FOR DOUGLAS COUNTY HOMEOWNERS

### *DEFINITIONS*:

A **fuelbreak** is a strategically located strip of land, on which a cover of dense, heavy, or flammable vegetation has been drastically changed to one of lower fuel volume or reduced flammability. Fuelbreak construction may include removing, controlling, and possibly replacing highly flammable vegetation with more fire resistant species. Ridgetop fuelbreaks generally have continuous length and width, which requires long-range planning. Fuel density is reduced, ladder fuels removed, and canopy closure reduced in fuelbreak treatments.

**Shaded fuelbreaks** are created by altering surface fuels and increasing the height of the base of the live crown and opening the canopy by removing trees. This type of fuelbreak spans a wide range of understory and overstory prescriptions and methods of creation through manual, mechanical, and prescribed fire treatments.

### *GENERAL RULES FOR FUEL MODIFICATION*:

- Thin Jeffrey pine trees to a minimum spacing of ten feet (spacing increases with slope) between tree crowns. Pinyon and juniper trees should be thinned to a canopy spacing two times the height of the trees. Remove all shrubs from beneath tree crowns (ladder fuels).
- Thin shrubs so that canopies are spaced at least two times the height of the adjacent shrubs.
- For Jeffrey pine trees, remove limbs within a minimum of five feet from the ground and up to a distance one-third the height of the tree. For pinyon and juniper trees, prune limbs up a minimum of four feet and up to one-third the height of the tree.
- If possible, prune/limb trees in the winter to avoid insect infestations. If pruning in other seasons, the tree should be sprayed with approved products to protect tree from insects and disease.
- Contact your local Nevada Division of Forestry (NDF) forester for additional recommendations regarding tree health and extensive tree removal projects.

**When applying thinning and pruning treatments it is essential that all tree branches, shrubs, pine needle litter, and other plant biomass be removed from the site immediately to a safe disposal area. This material dries rapidly and can contribute to the fire hazard problem if allowed to remain on the premises.**

# HOMEOWNERS' ANNUAL CHECKLIST

## A FACT SHEET FOR DOUGLAS COUNTY HOMEOWNERS

This checklist includes actions homeowners can perform annually to help create a fire safe home and community.

- ❑ Check all address signs for ease of visibility. Metal signs with four-inch high reflective numbers are recommended for visibility by emergency responders.

- ❑ Continue clearing of all trees underneath and adjacent to overhead power lines and poles. This includes the poles and lines to individual parcels. Trees that can touch or blow into the power lines can easily be trimmed or removed, and maintained to reduce fire hazard.

- ❑ Remove shrubs and trees for a distance of 10 feet from propane tanks.

- ❑ Remove all tree limbs within at least 15 feet of chimneys, decks, and open overhangs.

- ❑ Remove woodpiles, obvious accumulations of trash, pine needles or other debris from defensible space areas.

- ❑ Remove all dead and diseased branches. After initial emergency treatments, it is recommended that tree limbing occur during late fall and winter to prevent disease and attacks by pests.

- ❑ Harvested vegetation and trimmings must be immediately removed from the premises to assure that fuel reduction treatments are effective. All harvested biomass should be moved to a predetermined disposal area or safe zone approved by the Fire Department.

- ❑ All soil disturbances including those during biomass removal should be broadcast seeded according to the recommended species and rates provided in the "pre-suppression seeding" section.

- ❑ Where possible, improve driveway access to assure an adequate turning radius for firefighting apparatus.

- ❑ Clear rain gutters of leaves, needles and other debris. Screen vents to prevent any embers from entering attics in the event of a wildfire.

- ❑ Check hoses, valves, and other water equipment to assure operability should a fire occur.

- ❑ During high precipitation years, when growing conditions produce exceptional amounts of weeds, care should be taken to reduce the height of fire-prone vegetation, particularly weeds and grasses that carry fire to the adjacent shrubs. Implements such as weed-eaters work well for this job.

**REVEGETATION SPECIFICATIONS FOR FUEL REDUCTION AREAS – EAST SLOPE, CARSON RANGE**

| COMMON NAME | SCIENTIFIC NAME | DRILL SEEDING RATE (PLS[1] LBS./ACRE) | BROADCAST SEEDING RATE (PLS LBS./ACRE) |
|---|---|---|---|
| 'Sodar' streambank wheatgrass | *Elymus lanceolatus* ssp. *psammophilus* | 1.50 | 4.00 |
| Sandberg bluegrass | *Poa secunda* | 0.25 | 1.00 |
| 'Roadcrest' crested wheatgrass* | *Agropyron cristatum* | 2.00 | 3.00 |
| 'Secar' bluebunch wheatgrass | *Pseudoroegneria spicata ssp. spicata* | 1.00 | 2.00 |
| Blue flax | *Linum lewisii* | 0.25 | 0.50 |
| Prostrate summer cypress* | *Kochia prostrata*[2] | 1.00 | |
| | ***Total PLS pounds per acre*** | **6.00** | **11.50** |

***Species marked with an asterisk are nonnative plants, but have been included because of their ability to establish and endure a variety of site conditions. In addition, they are recognized for fire retarding qualities.**

**REVEGETATION SPECIFICATIONS FOR FUEL REDUCTION AREAS – EASTERN AND SOUTHERN DOUGLAS COUNTY**

| COMMON NAME | SCIENTIFIC NAME | DRILL SEEDING RATE (PLS[1] LBS./ACRE) | BROADCAST SEEDING RATE (PLS LBS./ACRE) |
|---|---|---|---|
| 'Sodar' streambank wheatgrass | *Elymus lanceolatus ssp. psammophilus* | 1.50 | 4.00 |
| Sandberg bluegrass | *Poa secunda* | 0.25 | 1.00 |
| 'Roadcrest' crested wheatgrass* | *Agropyron cristatum* | 2.00 | 3.00 |
| Bottlebrush squirreltail | *Elymus elymoides* | 1.00 | 2.00 |
| Prostrate summer cypress* | *Kochia prostrata*[2] | 1.00 | |
| Blue flax | *Linum lewisii* | 0.25 | 0.50 |
| | ***Total PLS pounds per acre*** | **6.00** | **11.50** |

*1/ Seeding rates are specified in terms of Pure Live Seed (PLS).*
*2/ Kochia prostrate should always be broadcast seeded on the soil surface, never drill seeded.*

These seed mixtures are for treating all disturbed areas and areas cleared for fuel reduction purposes. Seeding application rates are specified on a **"pure live seed"** (PLS) basis. All seeds should be thoroughly mixed and seeded together at the same time. Drill seeding is recommended where feasible. Drill rows should be spaced twelve (12) inches apart and seed should be planted at a depth of 1/2 inch. Broadcast seeding is recommended for rocky, steep, or small treatment areas. The seed can be broadcast using hand held seeders such as a "Whirlybird" or a broadcast seeder mounted on an ATV. Continually mix the seed while seeding to equally distribute the small seeds throughout the mix. Following the broadcast seed application, seeded areas should be lightly raked to assure seed placement at an average depth of 1/2 inch. This can be done with hand held rakes, or by pulling a drag or piece of chain link fence behind a truck or ATV in areas that are less rocky.

These guidelines are provided as overall recommendations. However, site-specific evaluation of the treatment areas by a specialist from a land management agency, the Natural Resources Conservation Service, or the University of Nevada Cooperative Extension will provide even greater assurance for success.

## THINNING GUIDE

***Thin Jeffrey Pine trees to reduce the stocking level to between 60 and 80 square feet of basal area per acre. Basal area of a tree is defined as the cross–sectional area at breast height (4.5 feet above the ground) and is expressed in square feet. A guide for the spacing needed for 80 square feet of basal area is, multiply a trees diameter breast height (in inches) by 1.7. The product will be the spacing in feet you should have between another tree of the same size. The following is a chart of tree sizes and the spacing needed between trees of the same size.***

**Thinning Guide**
Basal Area (sq. ft.) / Acre

| DBH (Inches) | 60 Dia. x 2 | 80 Dia. x 1.7 | 100 Dia. x 1.5 | |
|---|---|---|---|---|
| 10 | 20 | 17 | 15 | Spacing (ft.) |
| | 110 | 147 | 183 | Trees/Acre |
| 12 | 24 | 21 | 18 | Spc. |
| | 76 | 101 | 127 | T/A |
| 14 | 27 | 24 | 22 | Spc. |
| | 56 | 74 | 93 | T/A |
| 16 | 32 | 28 | 25 | Spc. |
| | 42 | 57 | 71 | T/A |
| 18 | 36 | 31 | 28 | Spc. |
| | 33 | 45 | 56 | T/A |
| 20 | 40 | 34 | 31 | Spc. |
| | 27 | 36 | 45 | T/A |
| 22 | 44 | 38 | 34 | Spc. |
| | 22 | 30 | 37 | T/A |
| 24 | 48 | 41 | 37 | Spc. |
| | 19 | 25 | 31 | T/A |
| 26 | 52 | 45 | 40 | Spc. |
| | 19 | 25 | 31 | T/A |
| 28 | 56 | 48 | 43 | Spc. |
| | 14 | 18 | 23 | T/A |
| 30 | 60 | 52 | 46 | Spc. |
| | 12 | 16 | 20 | T/A |

1. Remove the trees with forked tops. Forked topped trees can be become a hazard, as part of the top could fail and damage buildings, cars, and people.
2. Remove trees with basal scars that are showing signs of wood boring insects and ants in the bole of the tree.
3. Remove trees with dead or broken tops. These trees will attract bark beetles.
4. Remove trees that are infested with dwarf mistletoe. If a tree only has dwarf mistletoe in the lower branches, then prune the branches off. Dwarf mistletoe is a parasitic plant that spreads by seed and will eventually kill the tree.
5. Remove the smaller trees that are not in a dominant position in the canopy and are being crowded by the taller trees. Remove enough trees to all for ten to fifteen (10-15) feet of space between crowns. Jeffrey and ponderosa pine need direct sunlight to survive. Trees in a shaded condition will slowly die from lack of sunlight, but until they die, they will continue to use moisture and nutrients the larger trees could use. This stress for moisture in a overstocked condition will predispose all the trees to attacks from bark beetles, especially during years of drought.
6. Treat the stumps with borax powder (decca hydrate borax) to prevent harmful root rot fungi (*Fomes annosus)* from becoming established.
7. Thinning debris (limbs, tops and tree trunks) should be promptly removed from the site. Ips beetles will breed in wood larger than three (3) inches in diameter if the wood and slash remain on the site longer than four weeks. If the homeowner wants to keep the wood to burn in a fireplace, then the wood should cut to the proper length and split to help dry it out. Do not stack the wood between trees, next to buildings or under decks. Dispose of the limbs and tops by burning or chipping and hauling the chips away.

# *Appendix E*

*East Fork Fire and Paramedic Districts*
*Station Wildfire Equipment List*

# Appendix E – EFFPD Station Wildfire Equipment List

| **STATION 1 – DOUGLAS COUNTY ENGINE COMPANY** | **STATION 8 – SHERIDAN VFD** |
|---|---|
| Type I Engine | Type I Engine |
| Type I Engine, reserve | Type III Brush Engine |
| Type III Brush Engine | Type I Water Tender (3,000-gal) |
| Type I Water Tender (3,000-gal) | |
| **STATION 2 – GARDNERVILLE VFD** | **STATION 9 – FISH SPRINGS VFD** |
| Type I Engine | Type I Engine |
| Type I Engine, reserve | Type IV Brush Engine |
| Type IV Brush Engine | Type I Water Tender (3,000-gal) |
| **STATION 3 – GENOA VFD** | **STATION 10 – RUHENSTROTH VFD** |
| Type I Engine | Type I Engine |
| Type I Water Tender (3,500-gal) | Type III Brush Engine |
| Type IV Brush Engine | Type I Water Tender (3,000-gal) |
| | Type I Water Tender (4,200-gal) |
| | Type II Water Tender (1,800-gal) |
| **STATION 4 – TOPAZ RANCH ESTATES VFD** | **STATION 12 – INDIAN HILLS** |
| Type I Engine | Type I Engine |
| Type III Brush Engine | Type III Brush Engine |
| Type II Water Tender (1,800-gal) | |
| **STATION 6 – JOHNSON LANE VFD** | **STATION 14 – MINDEN** |
| Type I Engine | Type I Engine |
| Type II Engine, reserve | |
| Type IV Brush Engine | |
| Type I Water Tender (3,000-gal) | |
| **STATION 7 – GARDNERVILLE RANCHOS VFD** | **STATION 15 – JACKS VALLEY VFD** |
| Type I Engine | Type II Engine |
| Type I Engine | Type II Brush Engine |
| Type III Brush Engine | Type I Water Tender (3,000-gal) |