United States Department of Agriculture Forest Service

Nevada Division of Forestry

Nevada Division of State Lands

Nevada Division of State Parks

Nevada Fire Safe Council

Carson City – Parks and Recreation, Open Space Commission

Carson City Fire Department

Washoe County, NV

Douglas County, NV

Washoe Tribe of Nevada and California

Sierra Fire Protection District

City of Reno Fire Department

Truckee Meadows Fire Protection District

Whittell Forest, University of Nevada, Reno

East Fork Fire and Paramedic Protection District

Carson Range

Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy

With Addendum

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United States Department of Agriculture **Forest Service** **Intermountain Region** **324 25th Street Ogden, UT 84401 801-625-5605**

File Code: 5150
Date: January 30, 2008

Ron Wenker
Nevada State Director
Bureau of Land Management
1340 Financial Blvd.
PO Box 12000
Reno, NV 89520

Dear Mr. Wenker:

I am pleased to announce that the Carson Range Multi-jurisdictional Comprehensive Fuels Reduction & Wildfire Prevention Strategy is complete and approved. This strategy encompasses those portions of Washoe, Carson City, and Douglas counties in western Nevada along the Carson Front. This strategy was directed to be developed by the White Pine County Conservation, Recreation and Development Act of 2006 (P.L. 109-432) which amended the Southern Nevada Public Land Management Act of 1998.

This strategy represents culmination of many months and long hours of collaboration by 15 federal, state and local agencies in western Nevada, including the Nevada Fire Safe Council which represents the private land owners within the Carson Range. This strategy will form the foundation of fuels treatments for all the agencies for the next 10 years, including projects proposed for funding under Round 8.

Each of the 15 agencies has reviewed the strategy, and concur that the strategy is complete and meets their expectations. Therefore, it is my pleasure to approve the plan, and notify you of its completion.

Sincerely,

/s/ Cathrine L. Beaty (for)
HARV FORSGREN
Regional Forester

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Executive Summary

This multi-jurisdictional fuels plan facilitates the strategic decisions that must be made by land management, fire, and regulatory agencies to reduce the probability of a catastrophic fire in the Carson Range strategic planning area. It was developed to comply with the White Pine County Conservation, Recreation, and Development Act of 2006 (Public Law 109-432 [H.R.6111]). Coordinating the efforts of 16 federal, state, and local agencies, the strategy comprehensively combines all existing plans that have been developed within the planning area, and provides a framework for participating agencies to identify priority areas and a strategy to work collaboratively on accomplishing those priorities. In addition, it builds upon fuel reduction projects that have already occurred on approximately 8,300 acres and the efforts of community-based fire departments and Fire Safe chapters that are actively treating fuels around residences. Fire Safe chapters are the primary means for private landowners to treat hazardous fuels using grant funds such as those available through the Southern Nevada Public Land Management Act, which will not grant money directly to private landowners.

The plan incorporates approximately 223,000 acres, including portions of Carson City, Washoe, and Douglas counties in western Nevada. This area includes nearly 100,000 homes in the communities of Reno, West Washoe Valley, Galena, Galena Country Estates, Pleasant Valley, Jacks Valley, Carson City, Lakeview, Kings Canyon, Timberline, Clear Creek, Job's Peak, Genoa, and Eagle Ridge. Approximately 60,000 of these homes are outside of core urban areas and are at risk to increased wildland fire conditions in the Carson Range.

Studies in the planning area indicate that current wildland fuels conditions could support high-intensity wildfires that are difficult to suppress. As part of the National Fire Plan, many communities in the planning area were designated in the *Federal Register* (2001) as high risk to damage from wildfire. In addition, values uniquely associated with the Carson Range that are at risk to wildfire include municipal watersheds, community infrastructure, wildlife habitat, forest resources, tourism, and scenic values. Approximately 40 percent of the water supply for Carson City and its outlying communities rely on a municipal watershed that is located in the analysis area. Other major municipalities, such as the City of Reno, also depend upon water sources that are directly affected by the increasing fuel conditions in the planning area. Roads, utilities, and water delivery infrastructure are also at risk. Habitats are at risk because many of the forest resources that make up the Carson Range could potentially burn with high intensities. Finally, residents and tourists are attracted to the scenic beauty of the Carson Range. Large-scale and high-intensity fires have the potential to diminish these values and thus affect the local economies.

This plan recognizes that wildfire protection in the Carson Range planning area requires three components:

1. Buildings and homes should be built of fire-resistant materials and have effective defensible space;
2. Accumulations of hazardous vegetative fuels must be reduced in the areas directly adjacent to communities (community defensible space); and
3. Accumulations of hazardous vegetative fuels surrounding the community defensible space should be reduced.

To accomplish these needs, this plan proposes a continued public involvement strategy to work with homeowners on making their residences fire safe. In addition, the plan proposes approximately 49,000 acres of vegetative fuel treatments and 18,112 acres of maintenance treatments (the same area treated again to maintain its condition) across multiple jurisdictions to create community defensible space and reduce wildland fuels. The treatments are designed to reduce potential fire behavior and facilitate conditions that will ensure safe and effective fire suppression. They are prioritized to protect communities and people in areas that are most at risk. Final implementation of the plan will ultimately result in greater protection of the area's unique values at risk including its people, infrastructure, and natural resources.

Implementing all of the proposed projects and maintenance treatments will increase annual acres treated by fuel reduction activities by 210 percent in the Carson Range. Implementation of this plan is predicted to cost from $89,000,000 to $149,000,000 over 10 years with annual predicted expenditures of $7,600,000 to $16,500,000. To accomplish this, a variety of funding sources will be required including funds provided through direct appropriations, the Southern Nevada Public Lands Management Act (SNPLMA), and other grants through the State of Nevada, USDA Forest Service State and Private Forestry, and the National Resource Conservation Service. These activities will increase the availability of biomass, wood-based products, and jobs associated with vegetation removal.

To ensure the success of this plan, cooperating agencies will focus on several key factors. These include addressing current staffing levels and the availability of qualified mechanical contractors, collaborating with regulatory agencies, and identifying pathways to implement projects with multiple ownerships. While each responsible agency may have its own prescriptions, guidelines, philosophies, and principles, all agree to the overall priorities and strategic guidelines of this plan. It is recognized that unforeseen events, such as wildfires, may affect the priority, scheduling, size, timing, or implementation of any given proposed treatment; consequently, the plan will be reviewed annually by its participants to meet changing conditions within the planning area. The federal, state, and local land managers and Nevada Fire Safe Council will meet annually to review the results of the prior year fuels reduction efforts and identify fuels reduction projects and priorities, within the scope of this strategy, for each upcoming year. Future projects identified by this group will meet the intent of this strategy and meet the intent of all the underlying implementation plans including the Community Wildfire Protection Plans for the planning area.

Projects will be prioritized for funding submission consistent with this strategy and current direction and intent. Where projects cross jurisdictional boundaries, the group will collaborate on implementing the project with the goal of facilitating environmental compliance, permitting, reducing contracting costs, identifying appropriate measures for protection of forest ecosystems, reducing the risk of wildfire, and protecting homes, lives, and firefighters. Projects may be prioritized through a variety of funding mechanisms recognizing that, at this time, the Southern Nevada Public Lands Management Act will not provide enough resources to fully fund the plan.

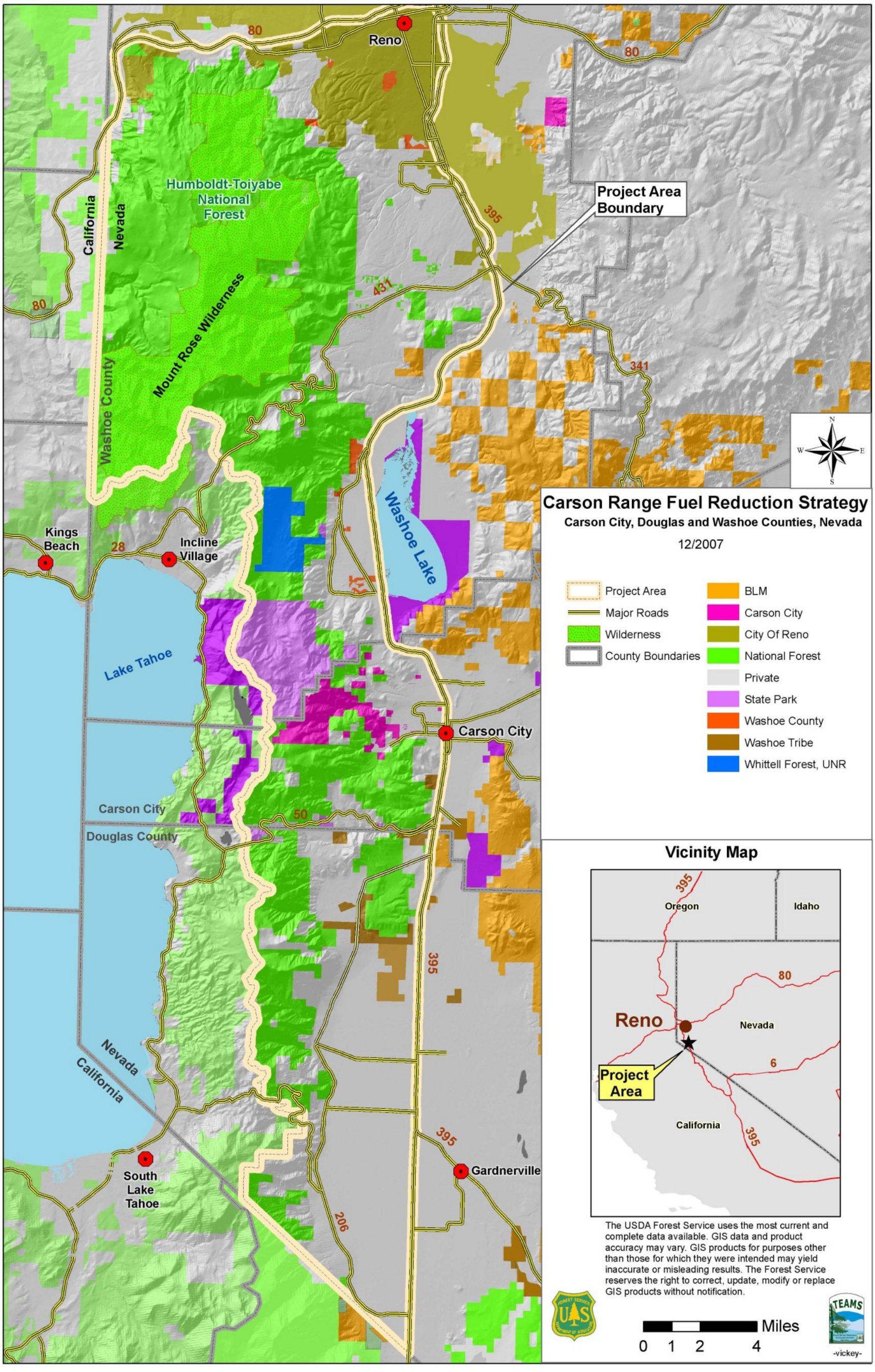


Figure 1. Carson Range strategic planning area

Section 1: Introduction

Purpose of this Plan

This comprehensive fuels reduction and wildfire prevention plan is a unified, multi-jurisdictional strategic synopsis of the planning efforts of local, county, state, tribal, and federal entities. The proposed projects in this plan provide a 10-year strategy to reduce the risk of large and destructive wildfire in the Carson Range planning area. The plan's outcome is to 1) propose projects that create "community defensible space", 2) comprehensively display all proposed fuel reduction treatments, and 3) facilitate communication and cooperation among those responsible for plan implementation. If implemented, this plan will provide greater protection to the people, infrastructure, and resources in the planning area.

This plan was developed to comply with the White Pine County Conservation, Recreation, and Development Act of 2006 (Public Law 109-432 [H.R.6111]), which amended the Southern Nevada Public Land Management Act of 1998 (Public Law 105-263) to include the following language:

> *"development and implementation of comprehensive, cost-effective, multi-jurisdictional hazardous fuels reduction and wildfire prevention plans (including sustainable biomass and biofuels energy development and production activities) for the Lake Tahoe Basin (to be developed in conjunction with the Tahoe Regional Planning Agency), the Carson Range in Douglas and Washoe Counties and Carson City in the State, and the Spring Mountains in the State, that are--*
>
> *(I) subject to approval by the Secretary; and*
>
> *(II) not more than 10 years in duration"*

This *comprehensive* plan is supported by 15 partners who each have a role in wildland fuels or fire management in the planning area (see "Agencies Involved" below). The proposed strategic treatments are *multi-jurisdictional*, occurring on federal, state, county, and private lands (Figure 1 shows plan area). The strategic treatments are *cost effective* because they are economical, based on the tangible benefits produced for the money spent (see "Proposed Project Costs", p. 22). "Cost effective" is defined here as targeted, priority-based fuel reduction treatments conducted at a reasonable cost that produce meaningful protection of life, property, and the environment within the operating guidelines defined by this plan. Finally, the plan details potential utilization strategies of vegetation removal products, including *biomass*, which could occur when the plan is implemented (see "Utilization Potential", p. 27).

Agencies Involved or Consulted

This plan was developed by the following cooperators:

- Nevada Division of Forestry
- Nevada Division of State Lands

- Nevada Division of State Parks
- Nevada Fire Safe Council
- Washoe Tribe of Nevada and California
- Carson City Parks and Recreation, Open Space Division
- Washoe County
- Douglas County
- Carson City Fire Department
- Sierra Fire Protection District
- Reno Fire Department
- Truckee Meadows Fire Protection District
- East Fork Paramedic and Fire Protection District
- Whittell Forest, University of Nevada, Reno
- USDA Forest Service, Humboldt-Toiyabe National Forest, Carson Ranger District

Collaborative Process

The USDA Forest Service, Humboldt-Toiyabe National Forest, Carson Ranger District assumed the lead role in coordinating the development of this plan. The district recruited a cadre of representatives (planning cadre) from fire districts and land management and regulatory agencies (see “Planning Cadre Members” p. 61) to function as a plan work group. The group met for more than 6 months throughout 2007. Members of this group and agency level fire and fuels specialists formed a planning group (Carson Fuels Analysis Team) that developed the proposed projects and supporting analysis. Subsequent review and coordination of the plan occurred after those meetings. Participants reviewed and discussed the White Pine legislation, and agreed on a plan outline that would best address the requirements of the bill. Work group representatives served as points of contact for their respective groups or agencies, and provided information used in the development of this plan.

Roles and Responsibilities

The roles and responsibilities of individuals and agencies involved with wildland fire management and prevention in the planning area are summarized in Table 1. All individual landowners and most agencies have land management responsibilities. This includes identifying concerns on parcels under their ownership or administration, and recommending and implementing actions that remedy those concerns.

Table 1. Summary of roles and responsibilities of agencies and individuals to implement the strategy

Agency/Land	Land Management	Regulatory	Lead Agency for Environmental Compliance	Funding	Programmatic Oversight
Washoe Tribe of Nevada and California	X	X	X	X	X
Carson City Parks and Recreation - Open Space Division	X	X		X	X
Nevada Fire Safe Council representing private landowners: •Job's Peak Fire Safe Chapter •Foot Hill Chapter (Sheridan Acres) •Genoa •Eagle Ridge Fire Safe Chapter (Genoa assessment) •Jack's Valley Fire Safe Chapter •Clear Creek Fire Safe Chapter •Kings Canyon Fire Safe Chapter (Carson City Assessment) •Timberline Fire Safe Chapter (Carson City Assessment) •Lake View Fire Safe Chapter (Carson City Assessment) •West Washoe Chapter •Pleasant Valley Chapter •Galena I Fire Safe Chapter (Mount Rose Corridor) •Galena II Fire Safe Chapter (Mount Rose Corridor) •Montreau Fire Safe Chapter (Mount Rose Corridor) •Scotch Pine Fire Safe Chapter (Mount Rose Corridor) •St. James Fire Safe Chapter (Mount Rose Corridor) •Galena Country Estates Fire Safe Chapter (South West Reno Assessment) •Saddle Horn Fire Safe Chapter (South West Reno Assessment) •Mt. Rose Estates Fire Safe Chapter (South West Reno Assessment) •Vista Pointe Fire Safe Chapter (South West Reno Assessment)				X	X
USDA Forest Service Humboldt-Toiyabe National Forest Carson Ranger District	X	X	X	X	X
Fire Protection Districts	X		X		X
Washoe County	X	X		X	X
UNR – Whittell Forest	X			X	X
Nevada Division of Forestry	X	X		X	
Nevada Division of State Parks	X			X	
Nevada Division of State Lands	X				X

Section 2: Wildland Fuel Reduction Projects

The planning cadre reviewed all past and currently proposed fuel reduction projects. After reviewing these, and comparing the landscape to current fire risk models, additional treatments were proposed in a comprehensive manner. These proposed treatments were prioritized into an implementation schedule. Since this plan is strategic, a majority of projects will require site-specific design and planning, which may result in final projects that vary in size, location, and scheduling as compared to this plan. Coordination between agencies as to the implementation and prioritization of projects in the community wildfire protection plans, to which this plan is tiered, is critical to the overall success of this comprehensive plan.

Current Accomplishments

Elected officials and agencies have recognized the need to reduce hazardous fuels and restore forest health on National Forest, State of Nevada, tribal, county, and private lands. Several key steps have been taken to address that need. Sixteen local Fire Safe Council chapters have been established within the project area. These local chapters are community-based organizations where local residents actively engage in obtaining political and financial support to create defensible space and accomplish projects around their communities. Community wildfire protection plans have been prepared for the communities and approved by local and state agencies (Figure 2).

All of the land management agencies and most of the local fire agencies have been actively treating hazardous fuels within the Carson Range for some time. An overview of estimated acreage of hazard reduction accomplishments from 2000 to the present are displayed in Figure 3.

Proposed Projects

Representatives from the USDA Forest Service, Nevada Division of State Parks, Washoe Tribe of Nevada and California, Nevada Division of Forestry, Washoe County, Sierra Fire District, Douglas County Fire, Carson City Fire, Carson City Parks and Recreation, Open Space Division, Nevada Fire Safe Council and Whittell Forest (University of Nevada Reno) worked to identify, design, consolidate and prioritize fuels treatment projects for protecting life and property, modifying fire behavior on a landscape level, and improving forest health. The projects were delineated by jurisdiction and ownership. Proposed projects involve approximately 49,000 acres of private, county, tribal, state, and federal lands (Figure 4).

Proposed treatments were also prioritized and assigned an accomplishment interval. The accomplishment intervals are within 0 to 5 years and from 5 to 10 years. Figures 5a, 5b, 6, 7a, and 7b display proposed treatment units by 5-year intervals.

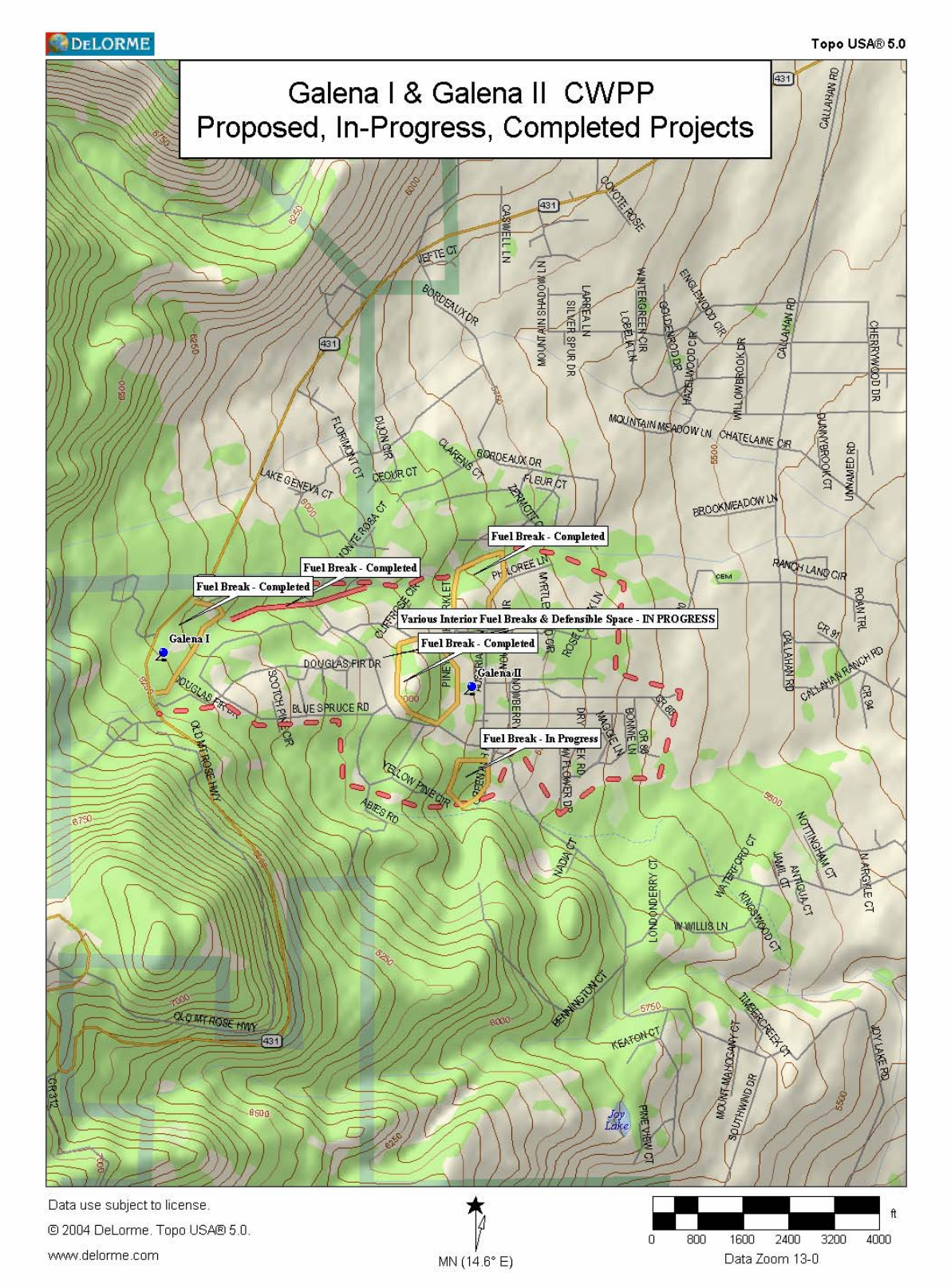


Figure 2. Example community wildfire protection plan incorporated in this plan

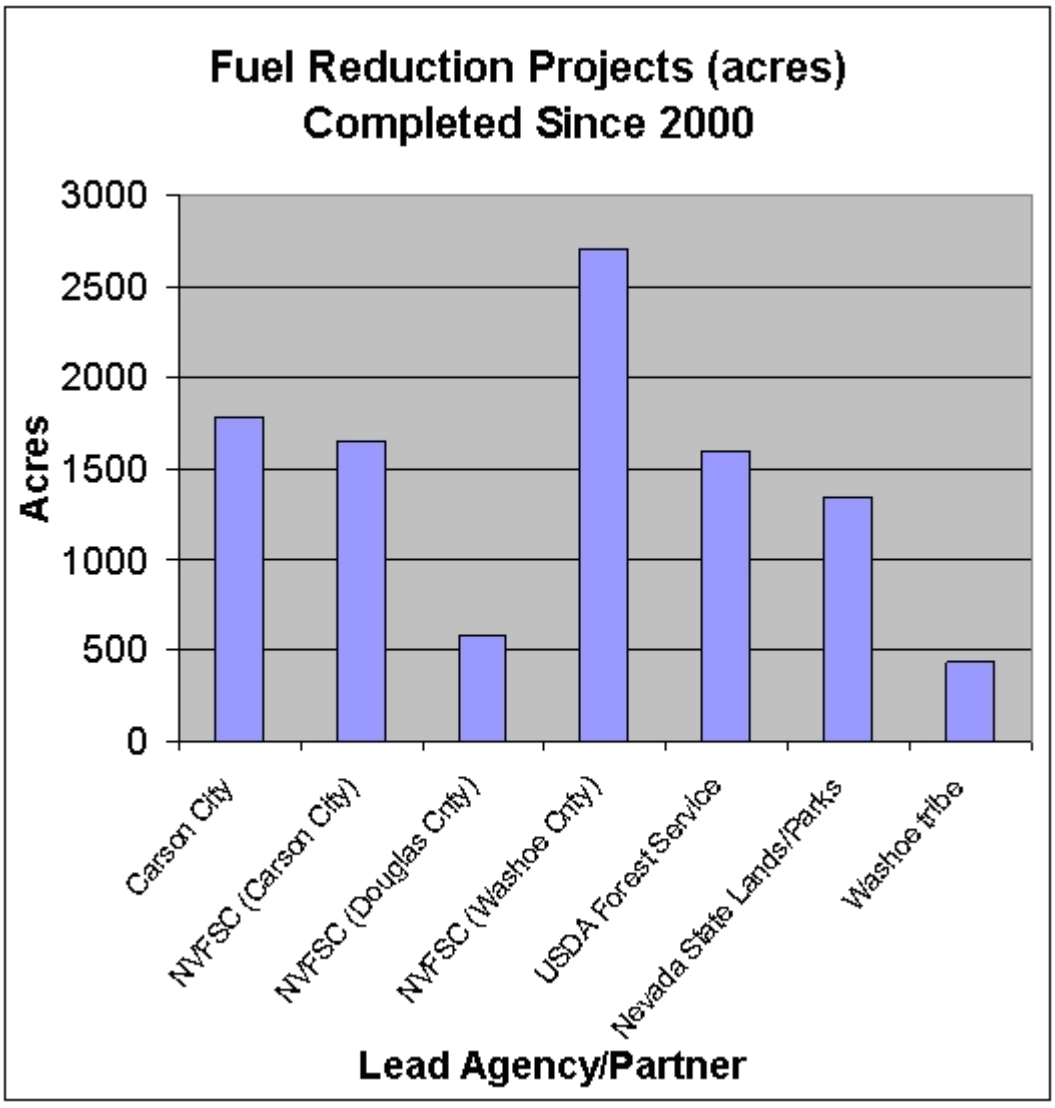
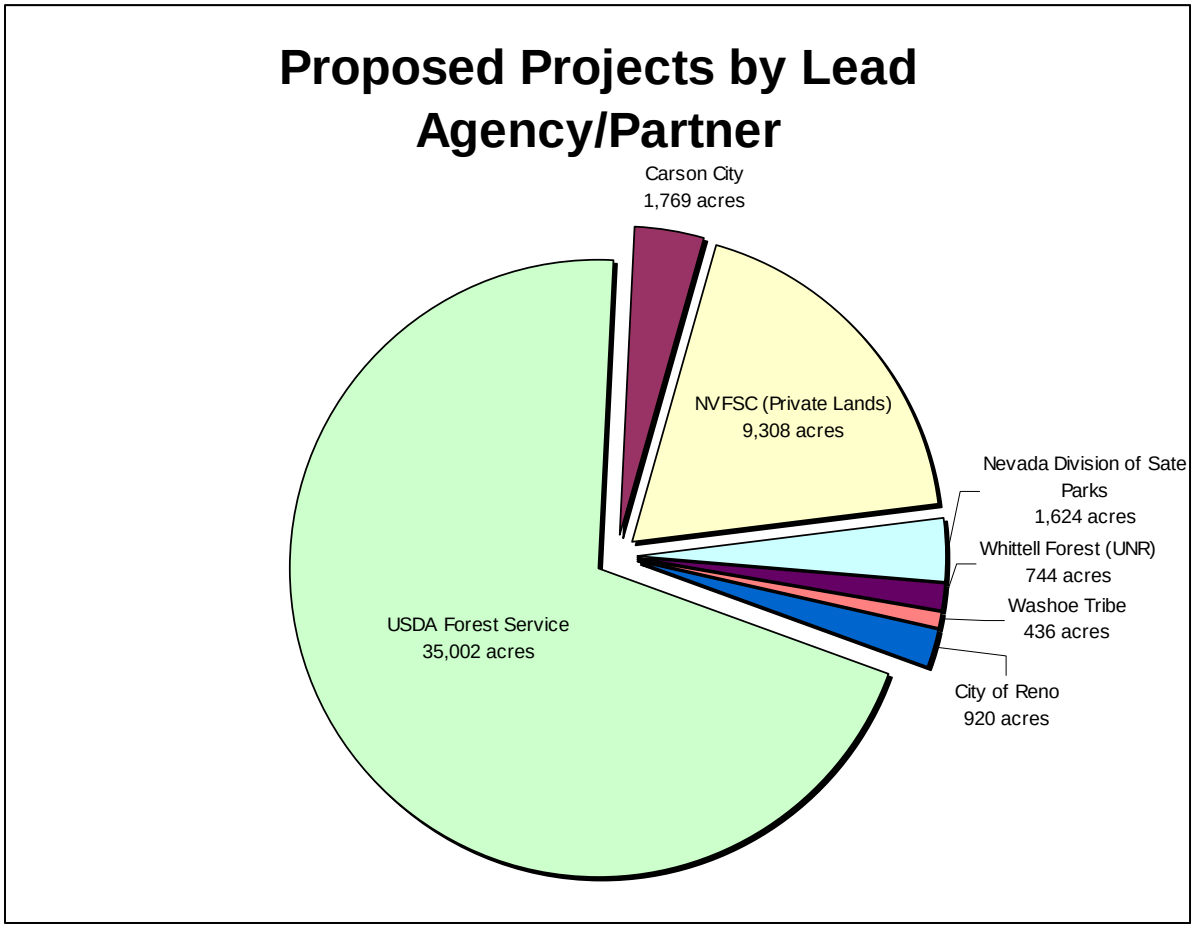


Figure 3. Acres of fuel reduction projects completed by jurisdiction from 2000 to present



Treatment Period	Washoe County	Carson City	Douglas County	Total Acres
0-5 Years	12,800	5,350	3,900	22,000
5–10 Years	16,800	2,050	8,130	27,000
Total Acres	29,600	7,400	12,000	49,000

Figure 4. Percent and acres of proposed projects lead by each jurisdiction

Prescriptions and Treatment Methodologies

In all proposed projects, vegetation structure and composition will be modified to reduce fire behavior (see "Desired Conditions", p. 48). Site-specific *prescriptions* that explicitly define what vegetation would be removed in the project and how it would be accomplished would be developed for each project. General prescriptions and treatment methodologies are described in the subsequent sections.

Prescriptions

Prescriptions would vary with location, vegetation type, and objectives, and in most cases, would require a combination of treatments. The primary treatment objective for all projects focuses on the protection of life and property within the wildland-urban interface (Figure 8). However, for some treatment areas, additional objectives including improving forest health, creating and maintaining fire-resilient ecosystems, and modifying fire behavior on the landscape level have been identified or would be identified during project planning. Generally, prescriptions will be developed to reduce surface, ladder, and crown fuels, with the objective of altering predicted fire behavior and severity.

Community Defensible Space – Wildland-Urban Interface

Community defensible space is a protection area directly adjacent to a wildland fuel type that may threaten the community. Community-specific treatment recommendations differ among the community wildfire protection plans that contribute to this comprehensive plan; however, they all are defining needs of the community defensible space with a consistent strategy and tactics recommended for meeting those needs. The Carson fuels analysis team modified the wildland-urban interface zones (defense and threat zone areas) within the project area considering past fire history, risk, expected future development, and other are specific factors. The final defined defense and threat zones do not necessarily follow other established definitions (such as the National Fire Plan or the Sierra Nevada Framework) but represent the combined collective experience of local fire managers.

Community Wildfire Protection Plan WUI Prescriptions

Sixteen Community Wildfire Protection Plans were developed in 2005 for communities at risk in and around the analysis area. General prescriptions for each project were identified describing vegetation that should be removed to achieve the desired conditions. Recognizing that each agency will develop its own prescriptions, guidelines for development of prescriptions were identified in the CWPPs. These guidelines focused on vegetation and fuel management in the urban core, defense zone, and threat zone.

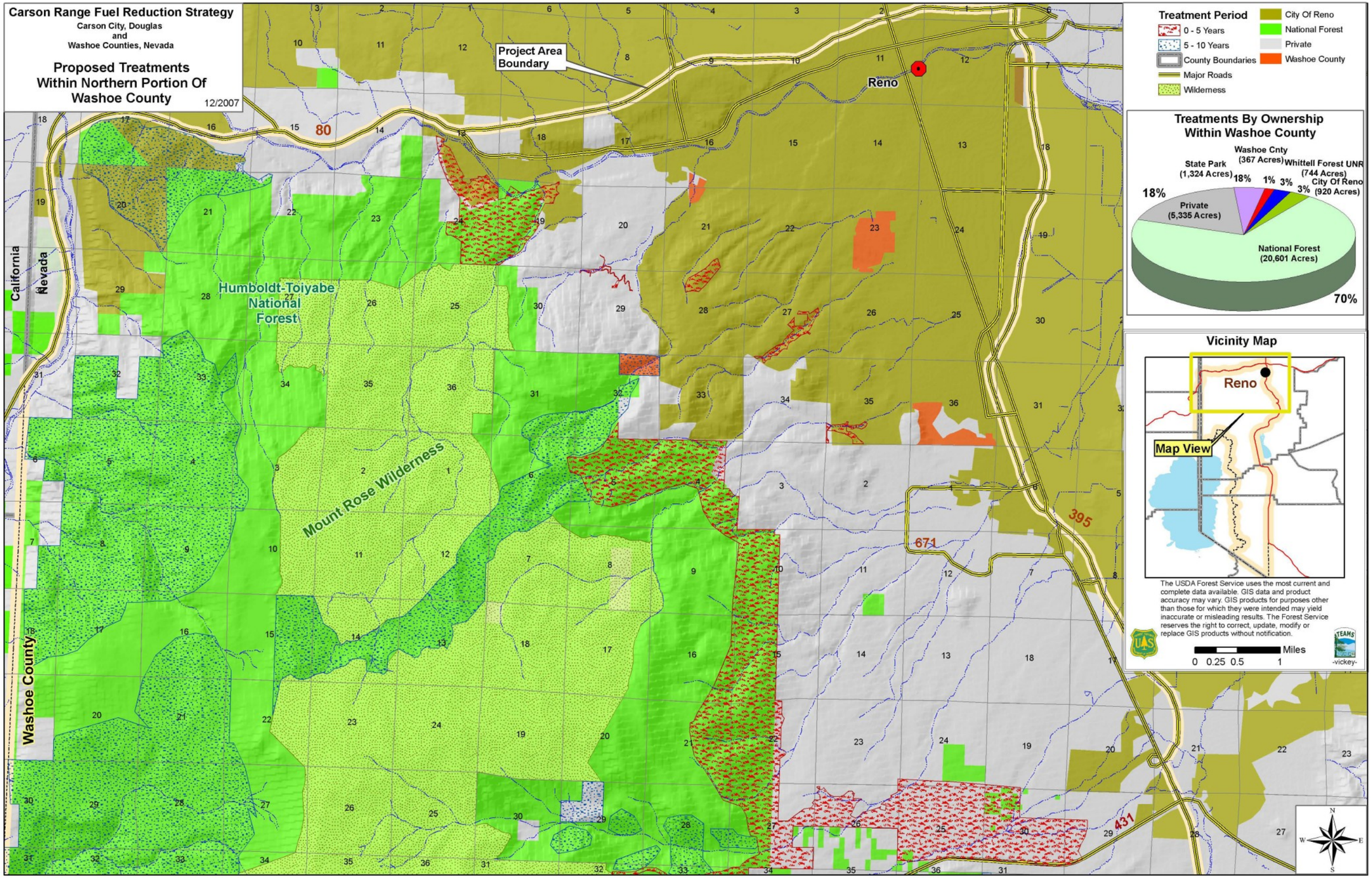


Figure 5a. Proposed treatments within the northern portion of Washoe County

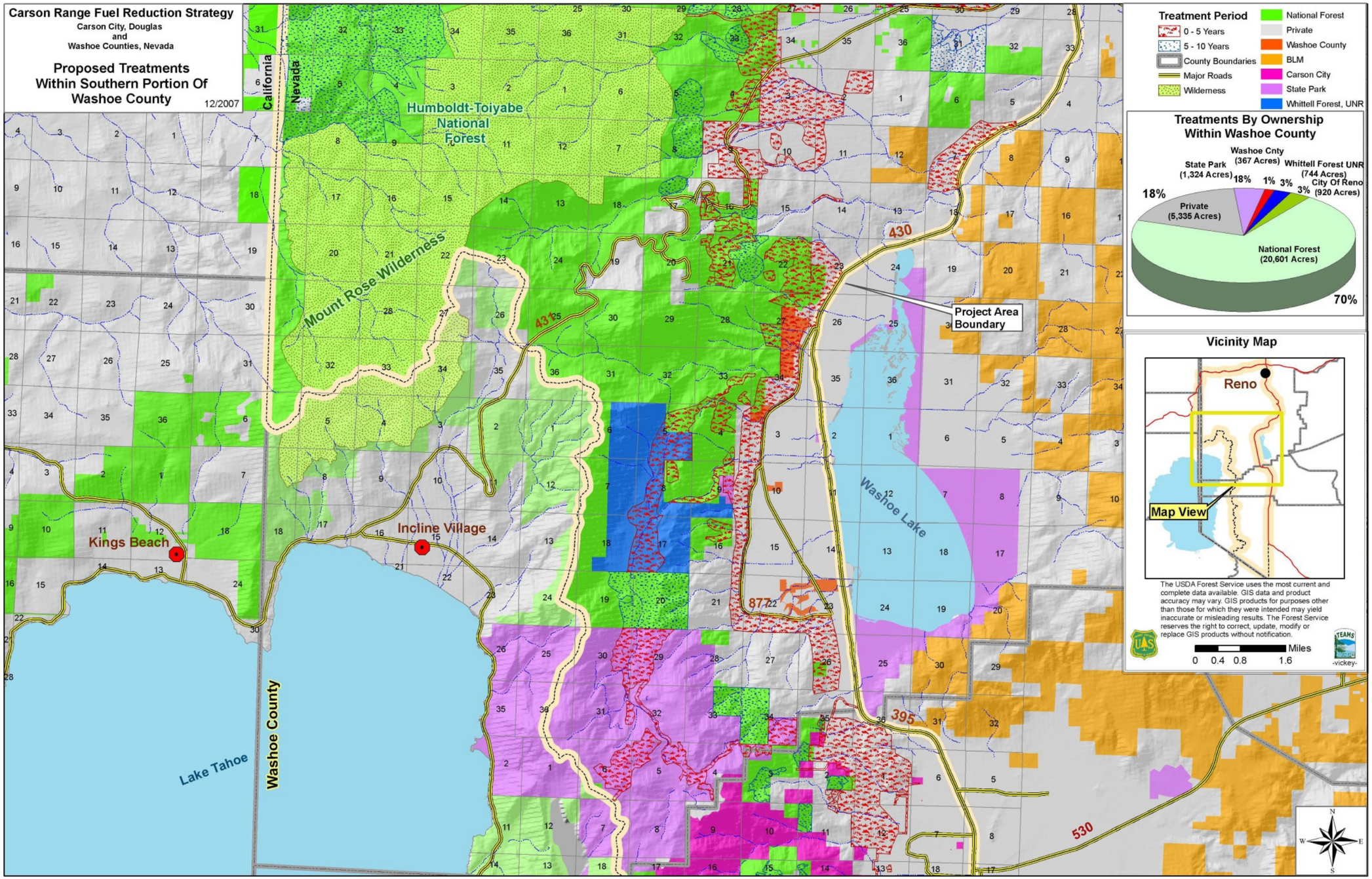


Figure 5b. Proposed treatments within the southern portion of Washoe County

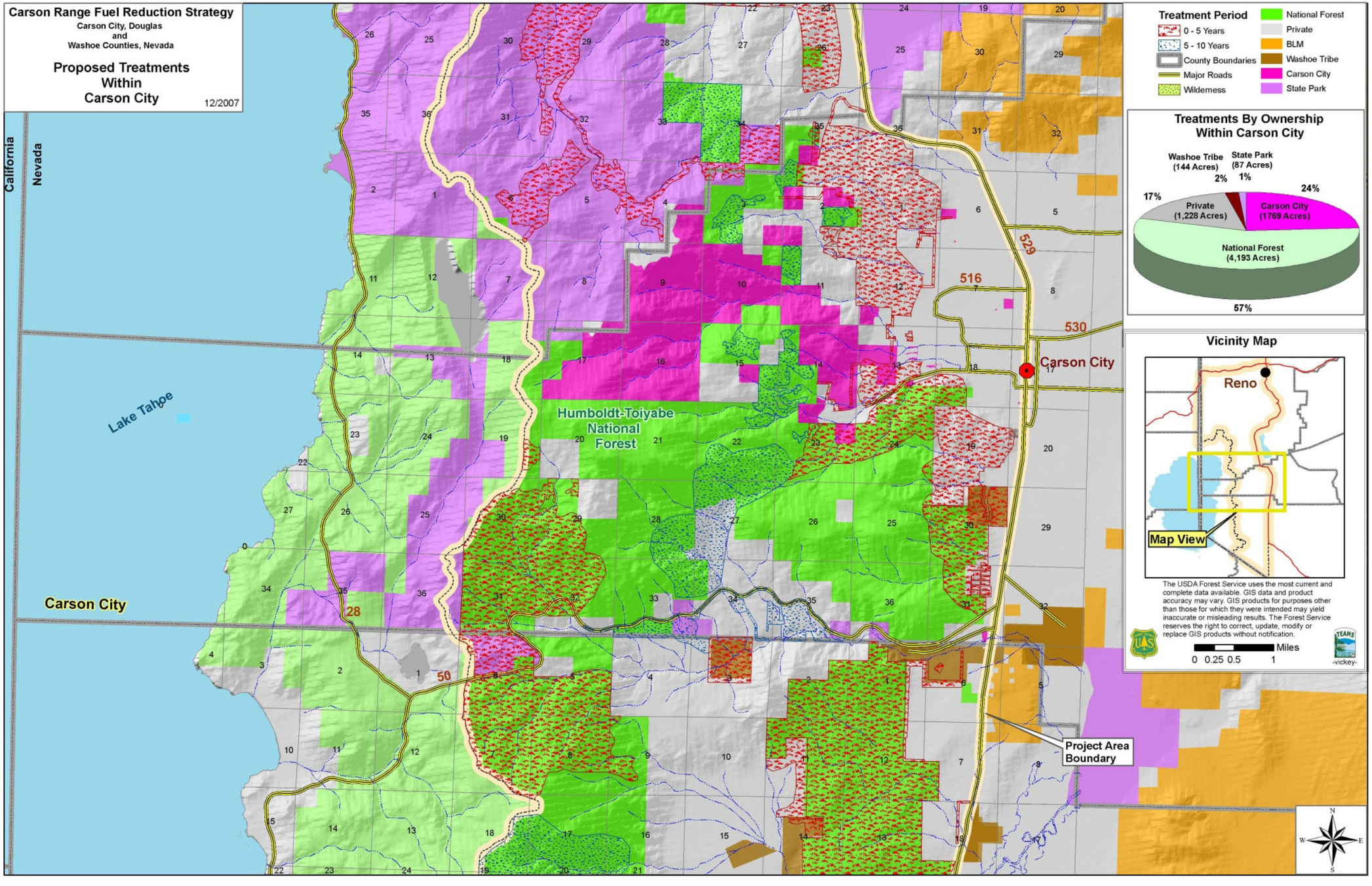


Figure 6. Proposed treatments within Carson City

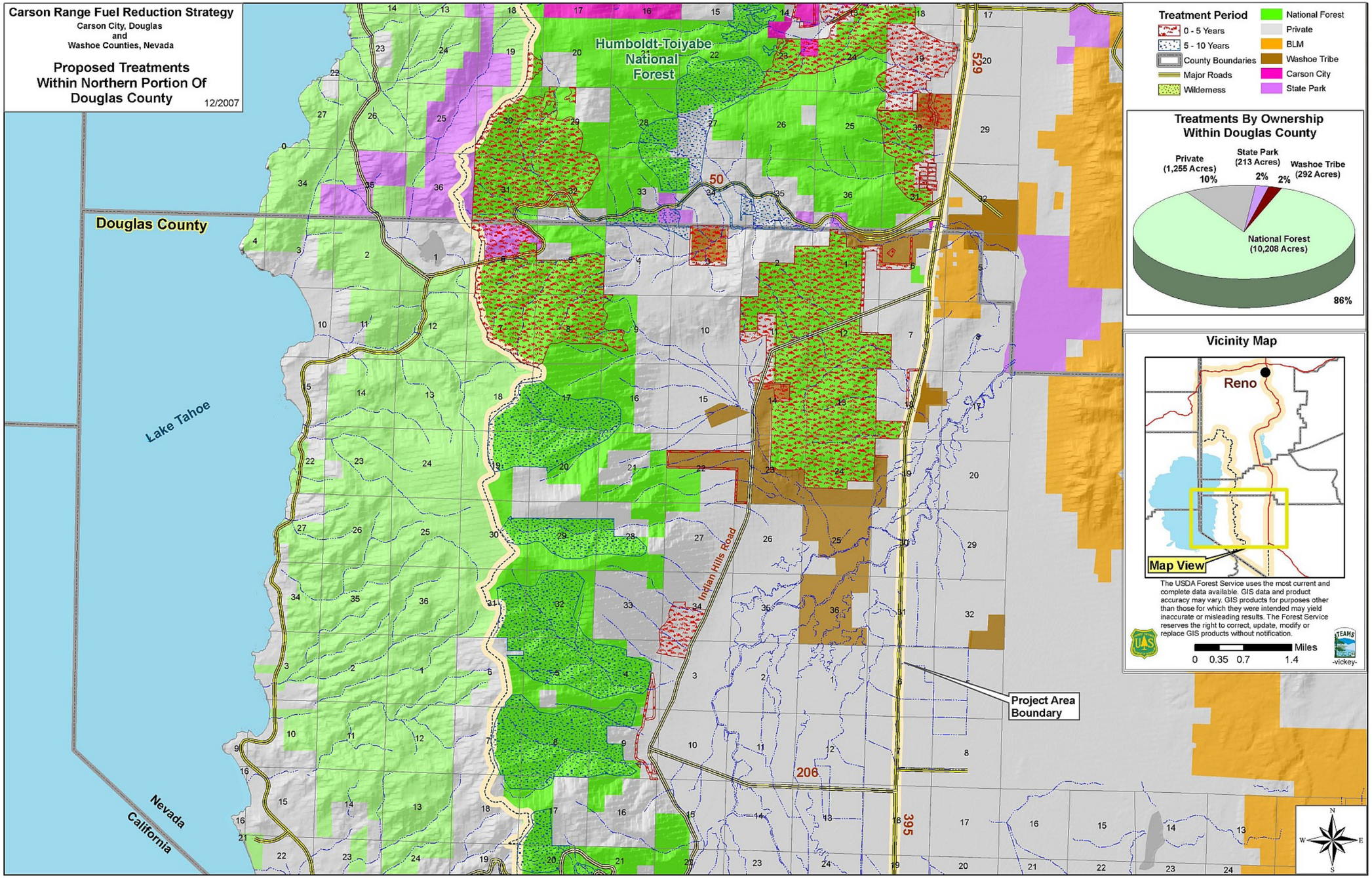


Figure 7a. Proposed treatments within the northern portion of Douglas County

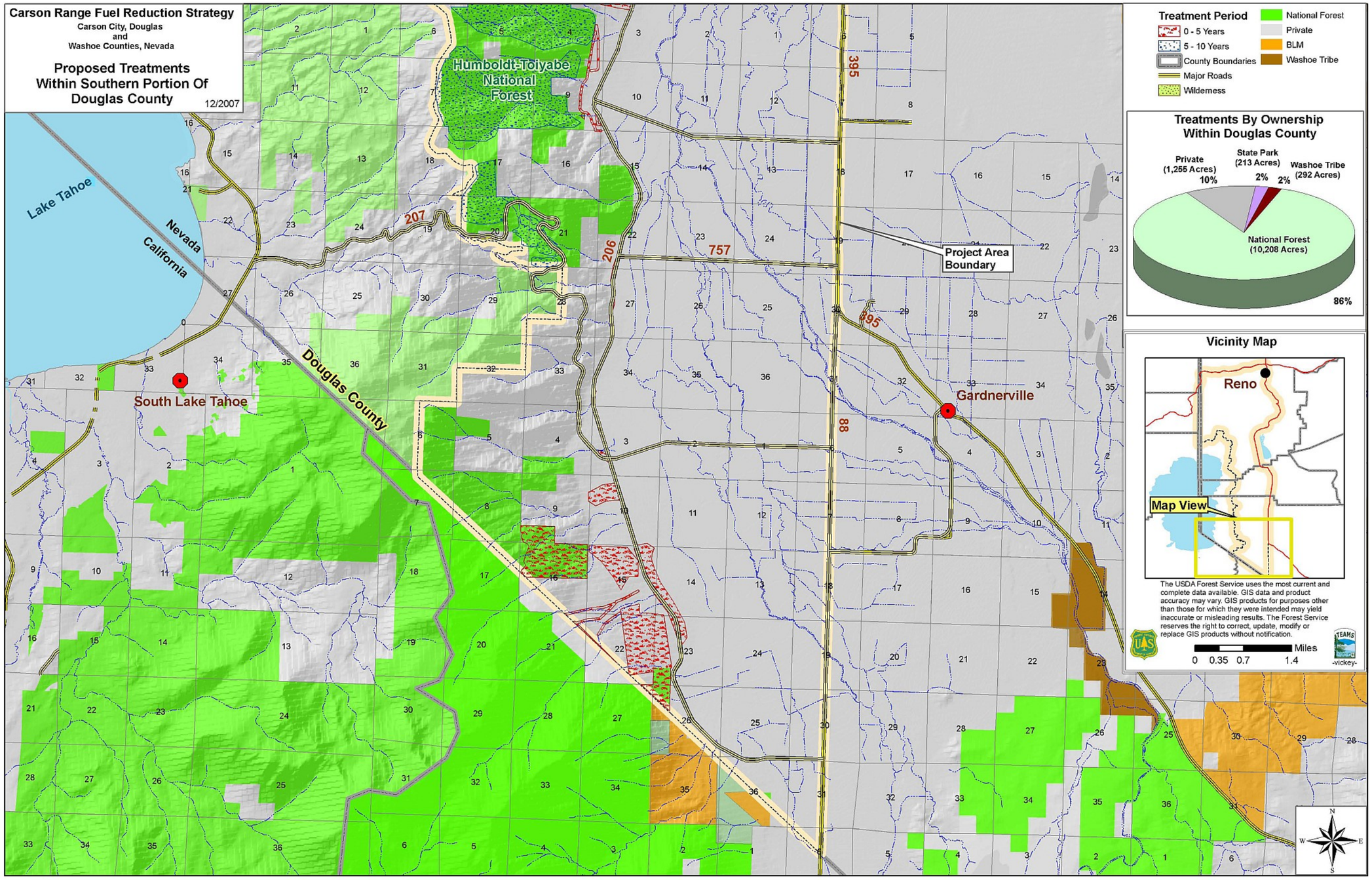


Figure 7b. Proposed treatments within the southern portion of Douglas County

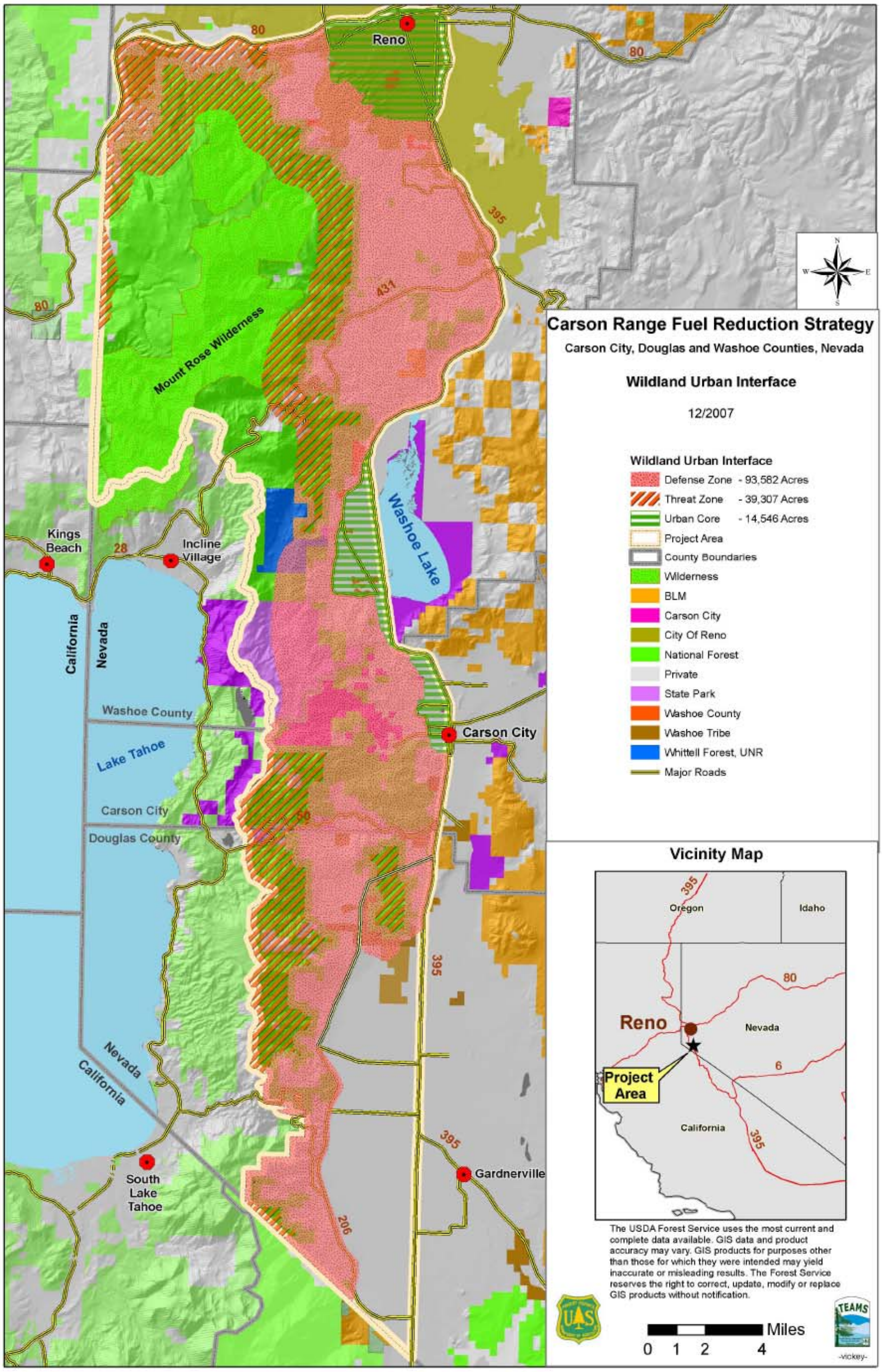


Figure 8. Wildland-urban interface areas in the Carson Range strategic planning area

Urban Core and Proposed Urban/Community Based Projects

All projects on private developed lots and small individual undeveloped lots will be consistent with prescriptions and management practices described in "Living with Fire" (Nevada Division of Forestry, Wildfire Protection Guide 1997, Smith 2004). In most cases, projects derived from community wildfire protection plans identify areas where potential treatments could occur. Often these project areas include mixed ownerships where agreements with local landowners are necessary before work can occur. These proposed project zones represent areas of potential projects. If local landowners do not agree to the work then some areas within the project may not be treated (Figure 9).

Figure 9. Example community project zone

Defense Zone and Threat Zones

The defense zone is defined as the populated urban interface or intermix areas containing primary private property values. In these highly sensitive areas, defense of social values are paramount. Defense zone treatment areas are approximately one-quarter mile wide. The defense zone areas were extended as necessary by the Carson fuels analysis team considering past fire history, and risk. Treatments are needed within the defense zone areas to reduce the risk of high-severity wildfire that would threaten highly valued areas. Defense zone areas will focus on reducing tree density and ladder fuels consisting of smaller diameter trees and low hanging limbs, continuous patches of brush, grass, and down woody surface fuels. Treatments are intended to reduce potential for stand-replacing crown fire and fire intensity. The largest trees would be left unless they are deemed a hazard.

Threat zones consist of areas that are immediately adjacent to defense zones. Threat zones need specific and intense management and treatments. Planned treatments will reduce the spread and intensity of fire developing or moving through these areas, and increase our ability to successfully defend interface perimeters. Breaking up the continuity of vegetative fuels is a key action required to reduce risks in the threat zone. In addition to reducing the risk of high-severity wildfire in close proximity to highly valued areas, treatments in the defense and threat zones are also being proposed that modify fire behavior on a landscape level, and create fire-resilient forest stands. The strategy for implementing these treatments relies on a mosaic of fuel treatments that reduces fire spread and intensity. These fuel treatments are called strategically placed landscape area treatments (SPLATS). To be effective, the pattern of the SPLATS must interrupt fire spread and the prescriptions must significantly modify expected, predicted, and potential fire behavior. The prescriptions in these SPLATS are general and will be refined site

specifically during the planning and implementation phase. A visual representation of SPLAT application is presented in Figure 10. By thinning trees in forested stands and retaining larger trees of the more fire-resistant species available, treatments in SPLATS would create stands where the wildfires, under most conditions, would be of low intensity and severity, with low tree mortality.

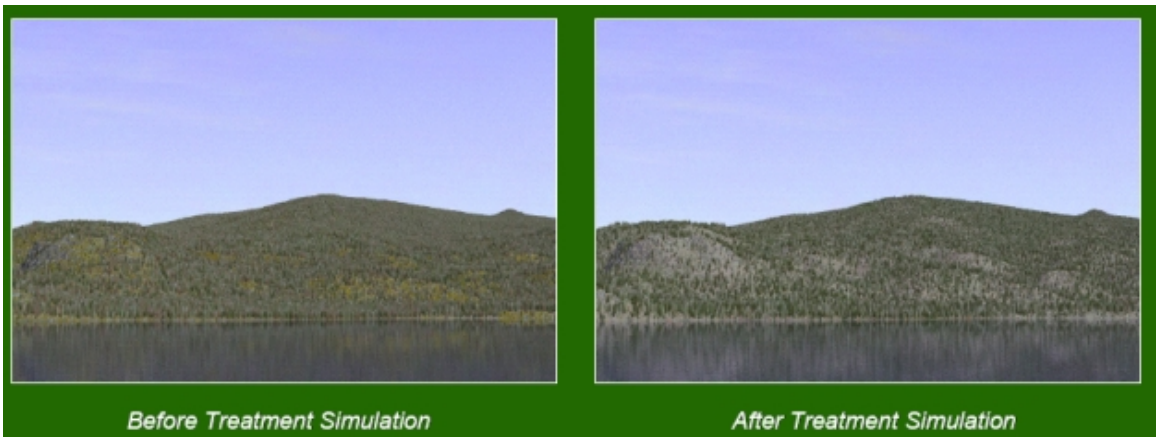


Figure 10. Computer simulation of a SPLAT treatment

Mixed-conifer stands within the project area are much denser, and have smaller, more shade-tolerant, and more fire-intolerant trees than they did historically. This led to high levels of tree mortality from bark beetles in the early 1990s and a high level of tree mortality overall. The tree thinning prescriptions in forested areas would remove small trees, retain the larger trees, remove the less fire-resistant trees such as white fir, and retain the more fire-resistant trees such as ponderosa and Jeffery pine. The stands would become more resilient to wildfires, and to insects and disease.

Treatment Methodology

Treatments are methods used to achieve the prescriptions and desired conditions. The treatment strategy selected depends upon cost effectiveness, availability of implementation resources, the size and type of vegetation to be removed, and site-specific resource protection needs. The primary treatments used in the project area include (but may not apply to every agency):

- thinning (hand and ground-based)
- removal (ground-based and aerial)
- pruning
- prescribed burning (pile and broadcast burning)
- mastication
- chipping
- animal-based treatments (such as grazing)

Thinning and Removal

Tree and shrub thinning are used to reduce ladder and crown fuels that affect fire behavior and severity. Ground-based mechanical thinning is generally used on slopes less than 30-35 percent and restricted on sensitive areas, such as riparian conservation areas. Hand thinning is generally used on steeper slopes, and in sensitive areas. Thinned trees and shrubs can be removed by ground-based equipment from slopes generally less than 30-35 percent or by aerial removal systems (helicopter or cable systems) from slopes generally greater than 30-35 percent and sensitive areas.

Biomass Removal

Pruning

Pruning removes lower branches on trees, increasing the crown-base height (the distance from surface fuels to tree crowns). Pruning is a hand treatment used in conjunction with thinning. Because it must be done by hand and is relatively expensive, its use is generally limited to small areas and where it is most effective and needed.

Prescribed Burning

Prescribed burning reduces fuels using pile burning and broadcast burning. Pile burning is used in areas to reduce concentrations of surface fuels and in situations where it is desirable to burn the fuels under very low-risk wet conditions. Broadcast burning are used on a broader scale to reduce fuels, restore forest health, and mimic the historic process of low-intensity fire.

Mastication (foreground)

Mastication and Chipping

Mastication and chipping are used to reduce ladder and surface fuels. Masticators are tracked or rubber-tired machines that move through the forest grinding, chewing, and shredding fuels. Fuels are ground up into irregular-shaped chunks and left on the ground. The irregular-shapes allow air and water to seep between them, hastening decomposition. Chips are created when material is fed into a chipper and either

removed from the site as biomass or spread on site. Chipping creates uniform-sized chips that can form an interlocking mat that decomposes very slowly and inhibits regeneration of shrubs and grasses.

Sheep grazing outside of Carson City

Animal-based Treatments

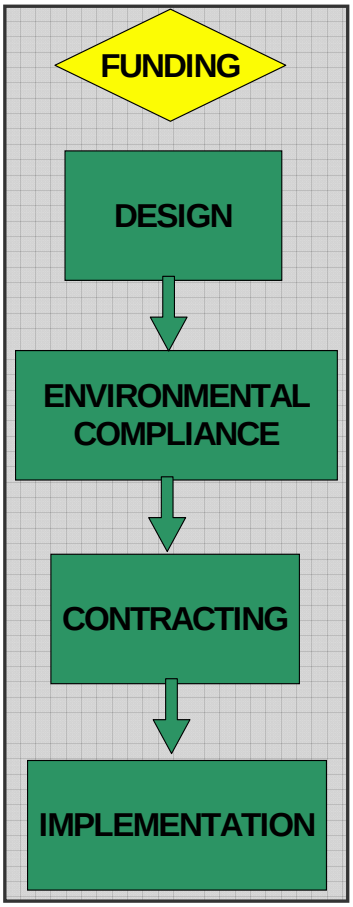
The use of animals such as goats or sheep may be used to reduce grasses, forbs, and brush vegetation especially on steeper slopes. Herders would be on site and temporary fencing may be constructed to facilitate this treatment. The intensity of grazing would be determined by specific objectives and vegetative composition.

Maintenance and Second-entry Treatments

In most cases, fuel reduction areas will need second-entry treatments to move projects towards their final objective. In addition, to continue these conditions, maintenance treatments may be required. These maintenance treatments and the prescriptions that drive them will depend upon the effectiveness of the initial treatments and how the vegetation responds afterward. In general, fine fuels, such as those in the lowest elevations will need several entries to maintain project fuel conditions in desired states. In other cases, such as where shrub reduction is the primary focus, subsequent treatments with prescribed fire or animal treatments may be necessary to reduce subsequent fine fuel growth.

Section 3: Proposed Project Priority

To determine project priorities, all of the proposed fuel reduction projects, the projectwide values at risk, and the relative risk of fire hazard were reviewed. Projects were delineated as those that should occur in the first 5 years of treatment and those in the later 5 years of treatments. In most cases, projects that occur in the second 5 years of treatment represent maintenance or second-entry treatments, projects that require further site-specific planning, or have lowered risk as compared to other project areas. Areas of highest risk in the wildland-urban interface and where treatments were already initiated were designated first. Within the 0-to-5 and 5-to-10-year timeframes, priority projects, by county, were established by the planning cadre based on areas that were considered most at risk (Table 2, Figure 11). These projects are the first projects that should be considered during their respective timeframes.



Another consideration is the timeframe it takes to move an individual project through the process of design, compliance, contracting, and final implementation (see flow chart at right). This process may take several months to several years. Therefore, the result of this process is that any given project may actually be accomplished in a different timeframe than that established by this plan. This plan merely represents a strategic framework for the agencies responsible for implementing the projects contained within the plan.

Table 2. Priority projects (acres) and schedule by county

	Carson City		Douglas County		Washoe County		Total
	0 to 5 Years	5 to 10 Years	0 to 5 Years	5 to 10 Years	0 to 5 Years	5 to 10 Years	
National Forest	749	262	34	3,300	1,921	2130	8,396
Carson City	278	0	0	0	0	0	278
State Parks	20	0	0	0	1,324	0	1,344
Whittle Forest UNR	0	0	0	0	744	0	744
City Of Reno	0	0	0	0	0	0	0
Washoe County	0	0	0	0	293	0	293
Private	2,207	0	258	0	3,142	0	5,607
Washoe Tribe	83	0	400	0	0	0	483
Total Priority Acres	**3,337**	**262**	**692**	**3,300**	**7,424**	**2130**	**Total *Priority* Acres: 17,145[1]**

1 Project Total All Acres = 49,000

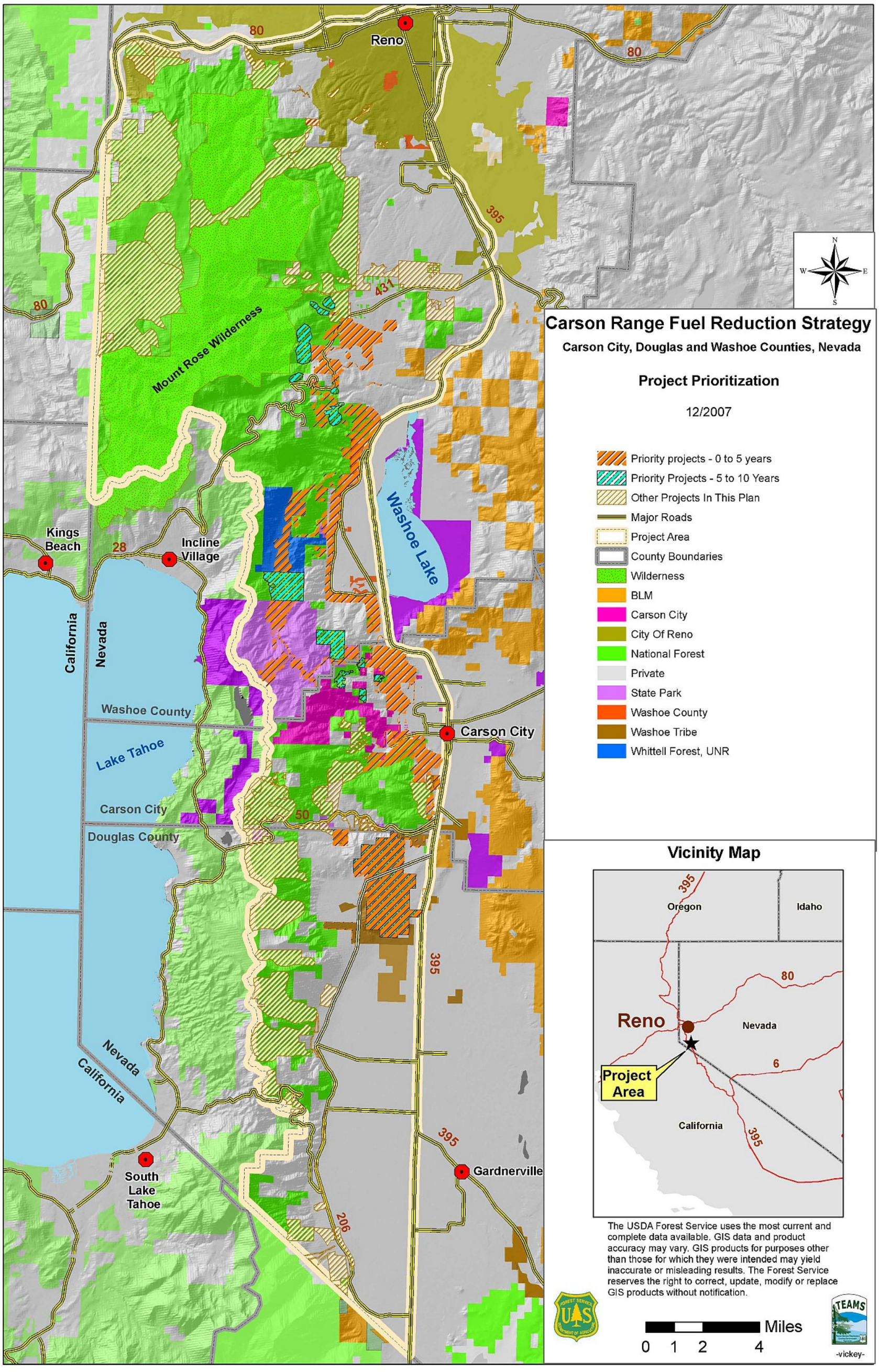


Figure 11. Priority and scheduling of projects

Section 4: Proposed Project Costs

Proposed projects costs reported by different agencies in the Carson Range vary by treatment (Table 3). Accurate comparisons among communities are difficult because of variations in the condition of individual treatment areas and accounting methods, and because the sequence of implementing treatments affects costs. The most detailed projected cost estimates are found in the individual plans from which this comprehensive plan is tiered.

Implementation Costs

In general, implementation costs in the Carson Range are lower compared to those reported by Fire Safe Councils or individuals in nearby communities (as of 2007). This is a result of established programs, known operators, and reduced haul distances. It also represents collaborative efforts, innovative treatment methodologies, and community partnerships that work with local agencies to accomplish fuel reduction work in the Carson Range.

Table 3. Implementation costs in the Carson Range and adjacent communities

Treatment	Cost/Acre in Different Sierra Nevada Communities (2007 Costs)					
	Carson Range	Lake Tahoe Basin	Foresthill FSC	El Dorado County FSC	Plumas County FSC	Truckee
Mechanical thinning	$350–$3,500	$1,000–3,500	$1,250		$600–$2,300	$500
Hand thinning	$350–$2,500	$650–$3,500	$1,300*	$1,425	$750–$900*	
Chipping	$50–$700	$200–$700	$1,100			
Mastication	$550–$950	$700–$1,500			$700–$1,300	$700–$1,400
Pile burning	$300–$1500	$300–$700				
Broadcast burning	$400–$900	$400–$1500				
Animal Based	$200-$350					
Community Biomass	$100-$1000					

* hand thinning and pile burning

Although costs per acre can be lower, hand thinning is not necessarily less expensive than mechanical thinning because it may also require pile burning or chipping to remove all of the harvested material. Additionally, *hand*-removed material is generally limited to small trees and sufficient numbers of trees may not be removed to achieve forest health and/or fuels reduction objectives. Mitigation measures associated with environmental compliance, lack of road access, steep topography, operating near residential areas, and areas with high recreational use, a limited operating season, and coordination between multiple agencies add significant cost to treatments. Treatments in urban lots, parcels, or steeper slopes are generally more expensive than those in other areas.

Planning Costs

Treatment costs in Table 3 represent implementation costs; they do not include costs for project planning (surveys and project design), environmental compliance, final project layout, contracting, or monitoring. Accurate costs for these items are difficult to establish because agencies track these costs differently. The Nevada Tahoe Resource Team estimates that planning costs for their projects range from $700 to $1,500 per acre. These costs are considered similar for Nevada Division of State Parks, Carson City, and Washoe County. Cost estimates for project planning, compliance, and final layout on National Forest System lands in the Carson Range range between $100 and $300 an acre. The Washoe Tribe estimates planning costs from $150 to $300 an acre.

Total Costs of the Proposed Projects

Note that all implementation and planning cost estimates in this plan represent the best-known data at the time of this writing. Market forces and inflation can obviously affect project costs over time. In addition, because specific prescriptions and treatment methodologies have not been determined for all projects, projected cost estimates must rely on average cost-per-acre ranges. Costs were estimated based on current contract rates and average price per acre for each involved agency. In addition, maintenance treatments were estimated on a project basis. A summary of these costs, by implementing agency or jurisdiction is displayed in Table 4.

Given the wide range of variables and estimates, this comprehensive plan projects that total plan implementation cost will range between $89,000,000 and $149,000,000 over all jurisdictions, with annual expenditures ranging between $7,600,000 and $16,500,000 (based on variation in acres treated by year).

Table 4. Ten-year projected costs for first and second entry/maintenance treatments

First Entry – 48,681 acres, Second entry/Maintenance 18,112 acres			
Jurisdiction	Cost Types	Projected Costs (Low)	Projected Costs (High)
Carson City	Planning Costs	$229,643	$382,738
	Implementation Costs	$577,341	$962,236
	Total Costs	*$806,984*	*$1,344,973*
USDA Forest Service	Planning Costs	$7,875,355	$13,125,592
	Implementation Costs	$50,224,270	$83,707,117
	Total Costs	*$58,099,626*	*$96,832,710*
Private Lands (CWPP)	Planning Costs	$4,994,515	$8,324,192
	Implementation Costs	$12,843,039	$21,405,064
	Total Costs	*$17,837,554*	*$29,729,256*
City of Reno	Planning Costs	$690,439	$1,150,732
	Implementation Costs	$2,796,279	$4,660,466
	Total Costs	$3,486,719	$5,811,198
Nevada Division of State Parks	Planning Costs	$1,461,606	$2,436,010
	Implementation Costs	$3,893,223	$6,488,704
	Total Costs	*$5,354,829*	*$8,924,714*
Washoe County	Planning Costs	$193,112	$321,854
	Implementation Costs	$689,686	$1,149,477
	Total Costs	*$882,798*	*$1,471,331*
Washoe Tribe	Planning Costs	$42,716	$71,194
	Implementation Costs	$112,336	$187,227
	Total Costs	*$155,053*	*$258,421*
Whittell Forest - UNR	Planning Costs	$558,741	$931,235
	Implementation Costs	$1,955,593	$3,259,322
	Total Costs	*$2,514,334*	*$4,190,557*
Total Planning Costs		$16,046,128	$26,743,547
Total Implementation Costs		$73,091,768	$121,819,614
Total Costs		$89,137,896	$148,563,160

Section 5: Utilization Potential

The primary objectives of the proposed hazardous fuel reduction projects are to reduce the potential of a catastrophic fire, protect valuable assets at risk, and restore forest health. As a result, forest materials that are removed will generally be smaller diameter trees. Materials that are removed may provide some revenue to reduce the cost of the proposed projects, allowing public funds to be used elsewhere for hazardous fuels reduction. On National Forest System lands, this may be accomplished through the use of stewardship contracts. Potential forest products from the proposed projects include biomass, small logs, and large logs.

Biomass

Biomass is used to generate heat, steam, and electricity, and create products such as ethanol, soil amendments, or landscaping material. Developing a biomass facility or utilizing existing facilities in or near the Carson Range would be consistent with recent federal and state policies (Appendix A). However, sustainable production of biomass may be limited because projected biomass outputs from treatments proposed in this plan will decrease significantly in 10 to 15 years after first- and second-entry treatments are completed and because access to projects will be limited.

Support for Biomass

Over the past 12 to 18 months, several strategic actions have occurred that collectively provide the impetus necessary to develop and support a biomass program in or near the Carson Range. Key to this success has been commitments for funding and exploration of solutions to resolve regulatory concerns affecting air quality, including:

- The White Pine County Conservation, Recreation, and Development Act recently amended (December 2006) the Southern Nevada Public Land Management Act to provide funding for implementation of hazardous fuels treatments, including biomass energy development.
- The USDA Forest Service's, Lake Tahoe Basin Management Unit (LTBMU) provided $355,000 in grants to the South Lake Tahoe High School for replacement of a boiler to heat the school with biomass. Additionally, the LTBMU has awarded a contract to remove excessive fuels as biomass from 105 acres.
- The USDA Forest Service has prepared a Coordinated Resource Offering Protocol study to determine the potential supply of biomass within a 100-mile radius of Grass Valley, California (Mater Engineering 2007).
- In Nevada, the Nevada Division of Forestry has initiated the "Fuels for Schools" program which promotes biomass as source for heat in public schools.

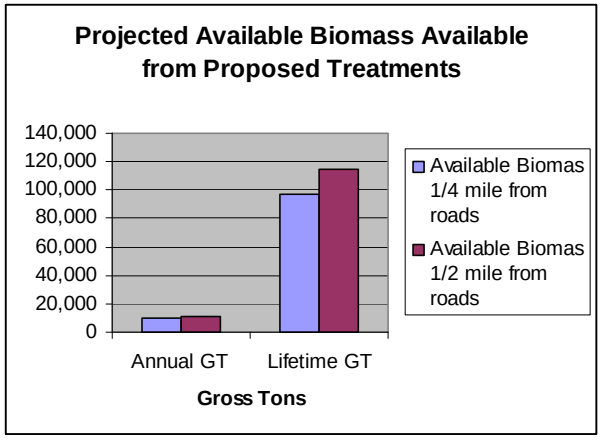
- The Nevada Biomass Working Group, organized by the Nevada Department of Energy, holds conferences around the state promoting biomass initiatives.
- Placer County is providing curbside boxes for residents to deposit biomass removed from their properties and is evaluating construction of a 1-megawatt heat and power facility in the Lake Tahoe Basin.

Availability of Biomass

Machines are required to harvest trees or shrubs, process them into biomass, and transport the biomass from the project site to a facility. Under current operating conditions, machine access is limited to one-quarter mile from existing roads, making approximately 13,000 acres available for biomass throughout the Carson Range. Every acre available for biomass may reduce the number of acres that could be burned. Therefore, if access can be developed (temporary or permanent), the number of acres available for biomass throughout the Carson Range increases approximately 27 percent to 11,500 acres. Temporary access assumes it is only for the project; such access will be removed, and the site rehabilitated once the project is completed.

Biomass availability is also affected by the timeframe identified for completion of the proposed projects. If access is limited to one-quarter mile from a road and all projects are completed within 10 years, approximately 1,300 acres would be treated annually. If temporary access is approved for machines, approximately 1,570 acres would be treated annually over 10 years.

Additional biomass may be available from private residences in the course of clearing and maintaining defensible space (up to 100 feet clearance) around occupied buildings. Substantial amounts may be available from initial treatments; however, little will be available from subsequent maintenance treatments because little woody material will develop between the frequent treatments.



The amount of biomass available from fuel reduction projects was estimated assuming an average biomass yield of 11,330 green tons (GT) per acre (Mater Engineering 2007)[1]. Based on the number of acres treated annually, this would provide approximately 9,720 GT annually for 10 years (97,200 GT over life of plan) if access were limited to one-quarter mile from a road; or 11,500 GT annually, if temporary access was gained, or 115,000 GT over the life the plan. These

[1] Mater Engineering (2007) estimated 11,330 GT of biomass would be available annually from National Forest System lands in the Lake Tahoe Basin. This assumes biomass is obtained from trees less than 7 inches dbh. Per acre output was adjusted (weighted) for shrub-based acres.

estimates are gross calculations and may not be accurate based upon final site-specific prescriptions and project design. They represent material available but removal of the material may be further limited by terrain and legal access requirements that may affect the removal methodology.

Existing Demand for Biomass

Currently, eight agencies, organizations, or companies in or adjacent to the Carson Range are using or are planning to use biomass as a product (Table 5). Based on these estimates, they could absorb at least 20,000 GT annually and perhaps more than 35,000 GT annually.

Table 5. Demand for biomass in and near the Carson Range

Facility	Use	Estimated Annual Capacity	Status
Northern Nevada Correctional Center (Carson City, NV)	Electricity–1MW capacity	12,000–24,000 GT[1/]	Operational June, 2007; expansion over the next 3 years is possible
South Lake Tahoe High School	Wood-fired heating boiler	2,200 GT tons[2/]	Planning
Placer County Justice Center	Heat and electricity–1 MW capacity	10,000–16,000 GT[3/]	Planning
Carson City Renewable Energy	Biomass processing yard; Wood chips for correctional center, landscaping, and soil amendment	Large quantities, but not quantified [1/]	Fully operational
Full Circle Compost (Minden, NV)	Landscaping mulches, compost, and soil amendment	3,000–4,000 GT [4/]	Fully operational
Bently Agrow Dynamics (Minden, NV)	Compost and soil amendment for application to company farm	Large quantities, but not quantified [5/]	Fully operational
South Lake Tahoe Refuse	Transfer facility for chips and needles, storage site for South Lake Tahoe High School	Variable[6/]	Operational, proposing to build storage facility
Loyalton Co-Generation Plant - CA	Electricity -20MW Capacity	74,000 GT	Fully Operation

1 Stan Raddon, Carson City Renewable Energy
2 McNeil Technologies 2003
3 Brett Storey, Placer County
4 Craig Witt, Full Circle Compost
5 Carlo Luri, Bently Agrow Dynamics
6 Jeanne Lear, South Lake Tahoe Refuse

Firewood and Christmas Trees

When possible, agencies may also make available material that could be classified as biomass or small logs as firewood (see below). For example, on urban lots (in the adjoining Lake Tahoe Basin) Nevada Division of State Lands provides, when possible, the use of firewood to local

communities and the citizens of Nevada where treatment is accomplished. This benefits Nevada Division of State Lands by removing the material from the treated parcel and benefits the public by providing a resource at no cost. In addition, Nevada State Parks offers approximately 100 cords of firewood each year at a cost of $45 per cord. The USDA Forest Service sells personal and commercial use firewood. In 2007, this included sales of nearly 1,900 cords of personal use firewood for $15/cord and 1,500 cords (from 2005-2007) of commercial firewood. In addition, the USDA Forest Service sells nearly 3,500 Christmas trees each year often in areas targeted for fuel reduction.

Small Logs

There is a growing interest in the use of small logs for constructing traditional structures (USDA Forest Service 2000b). In the recent Coordinated Resource Offering Protocol study (Mater Engineering 2007), it was estimated the Carson Ranger District would produce 8.9 million board feet of timber from smaller diameter logs (defined as trees 7 to 12 inches dbh) during the next 5 years. This represented 1 percent of the volume from the entire study area, defined by a 100-mile radius from Grass Valley, California. This estimate is probably high because most of the material from small logs removed in the Carson Range is projected to be used as biomass.

Small logs have been used to produce pulp, veneer for laminated lumber, oriented-strand board, posts and poles, and sawn lumber. Sawn lumber provides the lower economic return because the juvenile wood that is sawn is subject to extensive warping and cupping. Posts and poles are less susceptible to warping than sawn lumber; however, there is a lack of information on structural use and how to fasten and secure round pieces of wood in traditional structures (USDA Forest Service 2000b).

Large Logs

Fuel reduction treatments in the Carson Range will emphasize removal of small, suppressed, and intermediate-sized trees through prescriptions that thin from below. These prescriptions will include removal of trees greater than 8 inches diameter to be sold as large logs. The Coordinated Resource Offering Protocol study (Mater Engineering 2007) estimates that approximately 4 million board feet of large logs may be made available from the Carson Ranger District of the Humboldt-Toiyabe National Forest (based on historic funding). If funding increases, this output may increase. These lands represent the majority of acres capable of producing large logs in this study area.

Section 6: Values at Risk

Communities, Safety, and Infrastructure

Within the 222,300-acre Carson Range planning area, 128,000 acres (57 percent) are within the wildland-urban interface. Of the nearly 100, 000 homes in the area, approximately 60,000 are considered to be at risk to uncharacteristic wildfire. Depending on the community, average property values vary between $130,000 and $350,000, with many homes worth more than one million dollars. Including homes and businesses, all private and commercial property values at risk in the analysis area are estimated to be well over 6.5 to 9 billion dollars. In addition to homes, present conditions diminish firefighter safety, and threaten community infrastructure. In 2005, Resource Concepts Inc. completed the Nevada Community Wildfire/Risk Assessment. This assessment found that 15 assessed communities are in the analysis area and detailed risk assessments were prepared that describe community infrastructure that is at risk.

Communities at risk: structures lost to the Waterfall Fire

In addition, based on the assessment of values at risk by the planning cadre, communities in the Mount Rose Area, around Carson City, around Galena, and the outskirts of Reno were determined to be the most at risk to uncharacteristic fire behavior. However, it is the planning cadre's assessment, that all communities within or adjacent to the defined wildland-urban interface of the Carson Range analysis area or the Nevada Community Wildfire/Risk Assessment are at risk.

For example, outside of the Carson City area, there are many homes abutting the wildland-urban interface, and a few subdivisions with only one access road. There is not only a challenge in evacuation of residents but also in protection of their safety. The area in question is populated by nearly 20,000 residents. Because of this concentration of people, there is a risk to firefighter safety in both protecting the citizens and the firefighters themselves.

Another example is the Evan's Creek open space area. This site is part of a designated community area that was rated as part of the Nevada Community Wildfire Risk/Hazard Assessment. In this initial rating, the community hazard rating for this area is the low hazard category (40 points). Subsequent site-specific analysis using the same rating methodology utilized in the study reveals the true community hazard rating for this area is the high hazard

category (82 Points). Primary factors that determined the hazard rating in this area include fire behavior potential in the area and the high availability of permanent fire suppression resources throughout the community. This area is characterized as the classic interface condition. There is no clear demarcation between wildland fuels and the residential structures of the community. Powerlines run along the southern property edge. Recently, several structures were lost in a similar area, where small wildland fires were started in open space areas adjacent to the community.

Power lines serving Lake Tahoe in the Lake Tahoe Nevada State Park

In addition, infrastructure that serves both local and adjacent communities is at risk. This includes roads, bridges, transmission lines, communication lines, water and sewer lines, and communication facilities. For example, in the Lake Tahoe Nevada State Park, there is the 120 kV Sierra Pacific Power utility lines serving Lake Tahoe Basin, the Snow Valley Peak cellular relay service tower and the Marlette-Hobart-Virginia City water system.

Municipal Watersheds

The City of Reno, Carson City, Virginia City, Sparks, Mt. Rose, Minden, Gardnerville, Jobs Peak, Genoa, Gold Hill, Silver City, and the Washoe Tribe are all dependent upon watersheds that are currently at risk in the analysis area. Surface and ground water sources originate within the watersheds located in this plan. Outside of Carson City, there are nine water tanks along the eastern foothills of the city, which collect and store surface water, and supply nearly 40 percent of the water supply to the city. In addition, the western slopes supply water and provide the water system for Virginia City.

Vicee Canyon water detention basins

Carson City experienced first-hand the damaging effects of wildfire on the watershed. During the Waterfall Fire, four of the water tanks received minor damage. The distribution system suffered damage to pumps, supply lines, electrical control, and filters. Following the fire, denuded slopes increased the erosion and stormwater runoff.

The city lost hundreds of thousands of gallons of water due to ash and debris contamination.

Burned area from Waterfall Fire adjacent to reservoir

There are pipelines in Lakeview, Timberline, Vicee, and Ash Canyons that supply water from Marlette/Hobart Water System to Virginia City and Carson City. These pipelines are vulnerable in several places where they cross streams. There are two pipelines: one that supplies water to the historic inverted siphon to Virginia City (which is their only source of municipal water), and another to the Ash Canyon Water Treatment chlorination facility in Carson City. The access road to the Marlette Lake pump was within the Waterfall Fire and was burned. The Marlette Lake pump operates on diesel fuel, which must be trucked in three times a week. Loss of access on this road to the Marlette/Hobart Water System would inhibit system adjustments. Substantial investments are currently being made to upgrade this system including a new pumping system that will continue to be vulnerable to wildfire.

Scenic and Intrinsic Values

Scenic and intrinsic values are a major factor driving tourism in the Carson Range. Each participating agency has the responsibility to protect these resources. For example, a primary responsibility of Nevada Division of State Parks is to identify, protect, and interpret the cultural resources under its jurisdiction. All jurisdictions include historic and pre-historic resources that must be protected by the partnering agency. These encompass the physical remains of past cultures, including prehistoric archaeological sites and historic buildings and structures. For example, Lake Tahoe Nevada State Park includes a number of at-risk infrastructure components, including two historic structures, Red House and Hannah's Cabin; numerous documented and undocumented historic sites related to Comstock-era mining and lumbering activities; 20th century Basque sheepherder aspen carvings; and the federally registered historic Marlette water system, which includes roads, pipes, railroad grades and flumes, and reservoirs. In addition to its historic significance, the Marlette water system currently provides municipal water to a portion of Carson City, and all of Virginia City, Gold Hill, and Silver City. Also, the Washoe Tribe has the responsibility to protect ecosystem and human environment components that have both physical and spiritual qualities. These include the Clear Creek Parcel, which is part of the designated scenic overlook of the Carson Valley, natural and cultural resources, and protection of culturally sensitive medicinal plants and associated native practices.

Forest and Ecosystem Health

A majority of the analysis area is managed by the Humboldt-Toiyabe National Forest, Carson Ranger District. These lands provide the primary forested resources of the Carson Range. In addition, forested lands are managed by the Washoe Tribe, Nevada Division of Forestry, Nevada Division of State Lands, and the 2,700-acre Whittell Forest of the University of Nevada at Reno. The foothills and valleys contain a mix of sagebrush and rabbitbrush, gradually transitioning into pinyon pine and Utah juniper. At the lower reaches of the timber community, Jeffrey pine and white fir communities dominate the landscape. In the upper reaches of the timber communities, lodgepole pine, western white, sugar and washoe pine, incense cedar, and California red fir are plentiful. At timberline, you can find mountain hemlock and whitebark pine. Due to years of fire suppression and historic Comstock logging, these forest resources are at risk to stand-replacing events occurring elsewhere in the Sierra Nevadas.

Wildfire has the potential to damage or destroy suitable habitat for wildlife, including critical threatened, endangered, proposed and other special-status species, such as the mountain yellow-legged frog, California spotted owl, Northern goshawk, and the Lahontan cutthroat trout.

High-intensity wildfires will directly result in high tree mortality in forest stands, especially within moderate- and high-density forests having increased canopy cover. Tree mortality (representing severity of fire effects on vegetation) likely will be high in most fires, given current surface and ladder fuel conditions.

Native flora is also at risk as noxious weeds and invasive species tend to spread rapidly following wildfires. Wildfire areas are especially vulnerable to weed infestations because: 1) although equipment used in wildfire suppression and burned area emergency rehabilitation is cleaned prior to use, some seeds may still be brought into the area; and 2) burned areas provide ideal conditions for weed germination. Weed populations can easily gain a foothold before native vegetation has a chance to recover from the fire.

Section 7: Proposed Project Predicted Outcomes

To determine the efficacy of this plan and its associated proposed projects, it is important to first establish the current wildland fuel conditions, then determine a desired wildland fuel condition for the Carson Range, and finally determine whether the proposed projects will meet that desired condition.

Current Condition

Background

Fire is a natural disturbance regime and an agent of ecological change in many forested ecosystems in the western United States. Prior to European settlement, fire ignited by lightning or Native American Indians was the primary means of vegetative change. The natural recurrence intervals of wildfires in lower elevation vegetation types in the Sierra Nevada has changed as a result of fire exclusion in fire-dependent ecosystems, changing climatic conditions, and human activities (USDA Forest Service 2001). Forest types with frequent, low-intensity fire regimes generally recover quickly, whereas forests with less frequent, more intense fire regimes take longer to recover (Campbell and others 2000). Exceptions to this (including lodgepole pine systems) exist, but in general, this describes the fire regimes in the Carson Range.

Insects and diseases are integral components of forest ecosystem function. The size and severity of insect or disease infestations are influenced by the biological characteristics of the insect or pathogen, availability of susceptible host materials, and favorable environmental conditions. In the Carson Range, drought since the 1970s has made the Jeffrey pine and white pine susceptible to bark beetles (UNR 2003a). Aerial surveys compiled from 1992 to 2006 revealed areas of bark beetle infestation and tree mortality within the Carson Range increasing the risk of high-severity wildfire (Figure 13). This map represents the aggregate of these surveys. Individual infestations in any one given year are more limited in scope. According to the western bark beetle assessment risk map, this area is at risk to significant bark beetle risk (www.wflcweb.org).

Forest succession (or vegetation change) is influenced by disturbances such as fire, insects, diseases, climate, and human activity (or lack there of). Disturbance processes dictate the direction and rate of vegetative change (Rogers 1996). While natural disturbance regimes, such as wildfires and insect outbreaks, are common and healthy for many forest types, they present more difficult management situations in developed and wildland interface areas (Rogers 1996). In the Carson Range, large areas of developed and wildland-urban interface are located in or near National Forest System lands.

Fire History and Occurrence

The number of acres burned by wildfires in the Carson Range has been higher in the last few decades than previous decades (Figure 12). Note that the decade "2000" only includes acres burned during the years 2000-2007. These fires are often severe and burn with rapid rates of spread. Some of the more notable fires are the Little Valley Fire in 1981 (5,000 acres), Belli Ranch Fire (6,724 acres) in 1990, the Arrowcreek fire in 2000 (3,000 acres) the Martis Fire in 2001 (14,000 acres), Waterfall fire (8,724 acres) in 2004 and Hawken Fire (8,799 acres) in 2007. The recent Hawken Fire occurred just west of Reno and burned right up to the back fences of several homes, which were saved by quick work from several area fire agencies. The Waterfall Fire started west of the Carson City Community. It was human-caused from an illegal, abandoned campfire. In the seven days until containment, 8,724 acres burned and the total suppression cost was estimated at $8,000,000. Within the first three days of the fire, over 98,300 gallons of retardant were dropped, three fire apparatus were lost, and five firefighters and one civilian were injured. Over 1,075 homes and businesses were threatened, 66 structures and outbuildings were lost or damaged, and over 1,000 homes evacuated. Fortunately, there were no fatalities. Even with highly effective suppression resources, the crown fires and sizes of these fires provide additional evidence that fuel hazards in the Sierra Front have increased substantially and will continue to increase in the years ahead.

Large fires by decade recorded within the planning from 1980 to the present are displayed in (Figure 14).

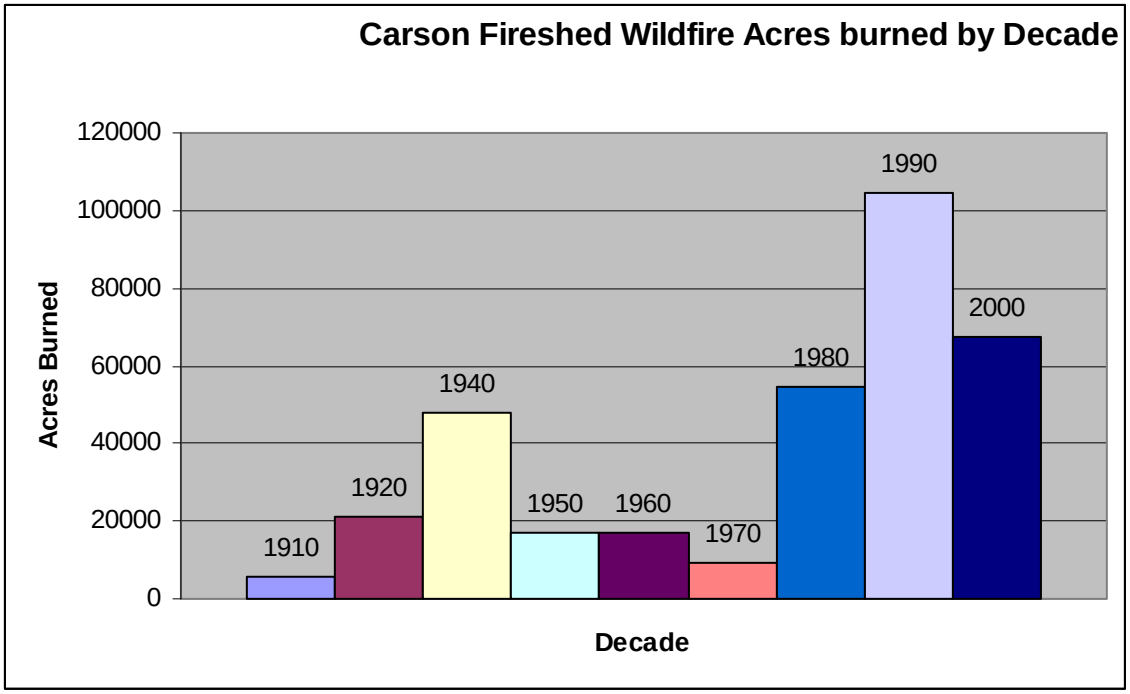


Figure 12. Wildfire acres burned in the Carson Range area by decade

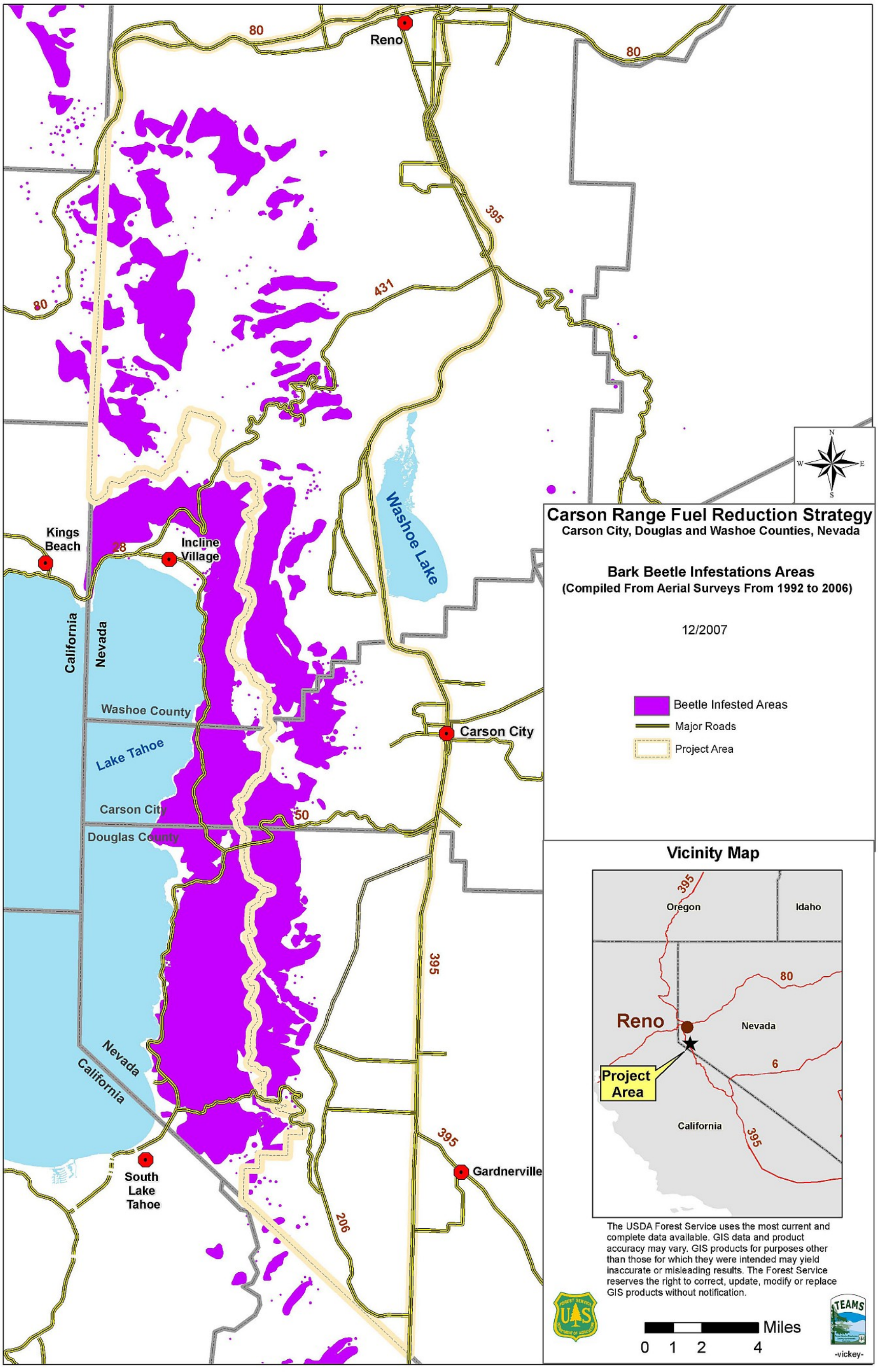


Figure 13. Bark beetle infestation areas in the Carson Range

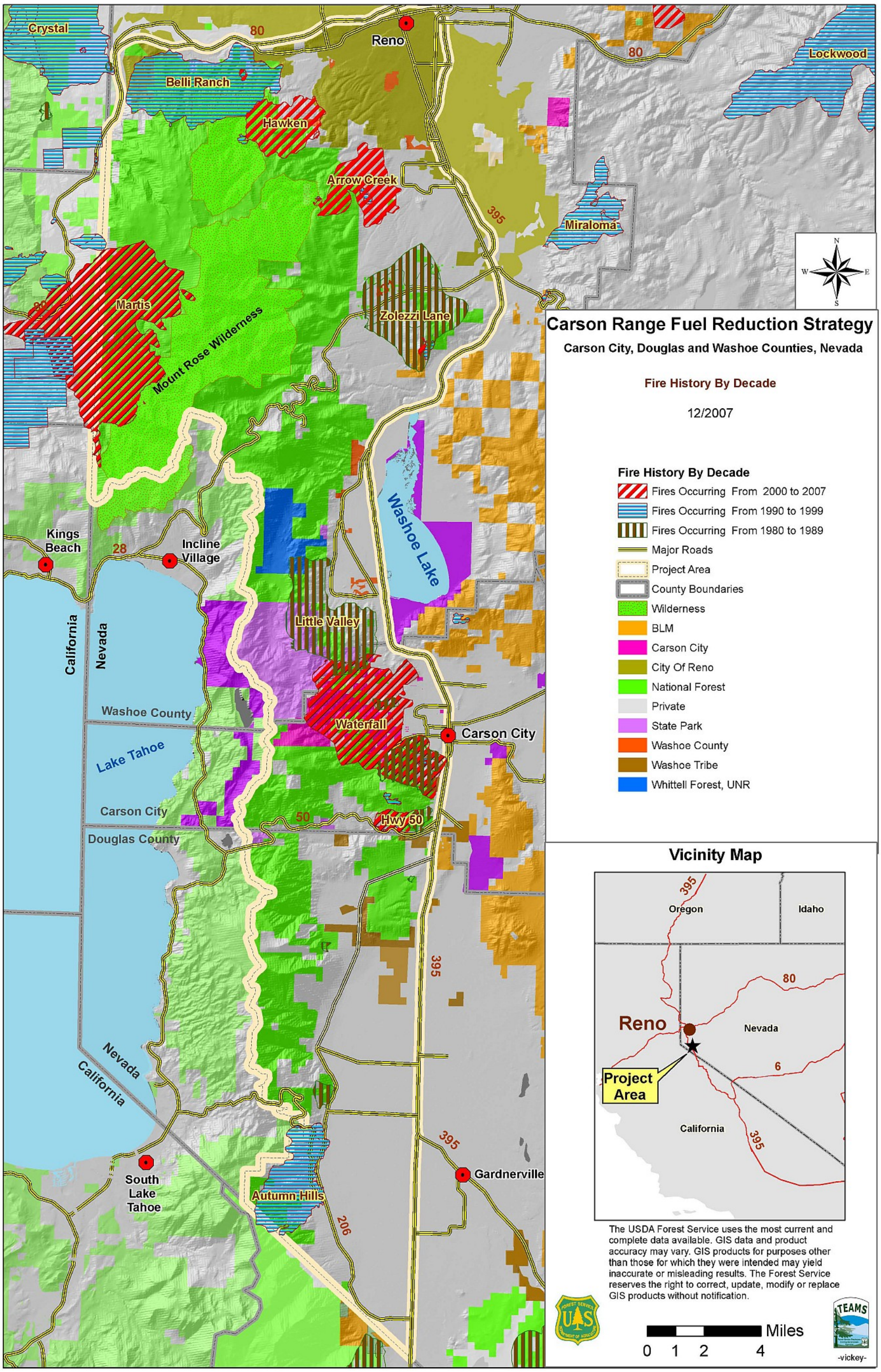


Figure 14. Historic fire history and ignitions in the Carson Range area

The long history of fire suppression combined with incidences of drought and insect-induced mortality has resulted in stands with a high concentration of hazardous fuels. This condition has increased the threat of large catastrophic fire and is indicative of a forest where many natural processes have been excluded.

Current Vegetative Conditions and Fire Regimes

The Carson Range contains a large number of vegetation types. Existing vegetation classification (source: LANDFIRE) recognizes 42 vegetation types including non-vegetated areas such as "Developed-Medium Intensity" which is in the urban area. The major vegetation types are "California Montane Jeffery Pine (Ponderosa Pine Woodland)" at 20 percent of the analysis area, "Mediterranean California Red Fir Forest" at 15 percent, and "Inter-Mountain Basins Montane Riparian Systems" at 11 percent (Table 6). Table 6 only lists vegetation types greater than or equal to 1 percent. Vegetation types not listed sum to about 3 percent of the analysis area.

Table 6. Existing vegetation types within the Carson analysis area

Existing Vegetation Type	Percent
California Montane Jeffrey Pine(-Ponderosa Pine) Woodland	20
Mediterranean California Red Fir Forest	15
Inter-Mountain Basins Big Sagebrush Shrubland	11
Agriculture-General	6
Inter-Mountain Basins Montane Riparian Systems	6
Developed-Low Intensity	5
Artemisia tridentata ssp. *vaseyana* Shrubland Alliance	5
California Montane Woodland and Chaparral	4
Inter-Mountain Basins Sparsely Vegetated Systems	3
Developed-Medium Intensity	3
Inter-Mountain Basins Montane Sagebrush Steppe	3
Mediterranean California Mesic Mixed-conifer Forest and Woodland	3
Great Basin Pinyon-Juniper Woodland	2
Developed-Open Space	2
Mediterranean California Sparsely Vegetated Systems	2
Mediterranean California Subalpine Woodland	1
California Montane Riparian Systems	1
Developed-High Intensity	1
Rocky Mountain Aspen Forest and Woodland	1
Great Basin Semi-Desert Chaparral	1
Inter-Mountain Basins Curl-leaf Mountain Mahogany Woodland and Shrubland	1
Sierra Nevada Subalpine Lodgepole Pine Forest and Woodland	1
Northern California Mesic Subalpine Woodland	1

Tree species found in area forests and woodlands include Jeffrey pine (*Pinus jeffreyi*), ponderosa pine (*Pinus ponderosa*), sugar pine (*Pinus lambertiana*), incense cedar (*Calocedrus decurrens*), lodgepole pine (*Pinus contorta*), white fir (*Abies concolor*), red fir (*Abies magnifica*), whitebark pine (*Pinus albicaulis*), quaking aspen (*Populus tremuloides*), pinyon pine (*Pinus monophylla*), and juniper (*Juniperus* spp.).

The vegetation types shown above form general zones based on precipitation and temperature changes with elevational changes. At the lowest elevations, non-forest shrubland vegetation types dominate. With increased elevation, the shrublands transition to coniferous woodlands. Within the generalized zones, slope, aspect, soil types, precipitation, temperature, and disturbances interact to create a very mixed landscape.

Past natural disturbances, land use, and management influenced the landscape vegetation patterns and ecosystem dynamics in the Carson Range. Human settlement in the Carson Range has potential impacts on the forest and shrubland composition and structure that subsequently contribute to the changes in fire hazard, watershed hydrology, and terrestrial habitats.

Fire suppression, grazing (conifer species are generally not grazed), and favorable climatic conditions for conifer establishment have led to high stocking levels and fuel accumulations in the coniferous forests and an increase in white fir abundance compared to historic levels (USDA Forest Service 2004; see photo, left). In some areas historically maintained as open pine-dominated stands, the density of trees has reached three to five times historic stocking levels (USDA Forest Service 1997). High densities of trees increase competition for nutrients resulting in higher tree mortality rates due directly to competition, and higher potential for mortality due to insects and diseases. During a period of reduced precipitation in the late 1980s and early 1990s, fir engraver (*Scolytus ventralis*), Jeffrey pine beetle (*Dendroctonus jeffreyi*), and mountain pine beetle (*Dendroctonus ponderosae*) induced tree mortality increased. During this time, fir engraver-induced mortality ranged from 15 to 55 percent of the trees (USDA Forest Service 1993). Since the early to mid-1990s, insect mortality has declined to more endemic (natural) levels and are building up again to epidemic levels.

Dense forests in the Carson Range

High levels of tree mortality, particularly white fir, have dramatically increased the number of standing dead trees and downed logs. Smaller mid-story trees create fuel ladders that allow fires to readily move into dense crowns. The lack of frequent, low-intensity fires has resulted in accumulations of dead fuels, increased understory shrubs, and dense young trees. As a result,

flame lengths and rates of fire spread lead to higher intensity fires (Fire Modeling 2007). Residential, commercial, and infrastructure construction have also influenced today's vegetation patterns.

Historic Fire Regime

Prior to European settlement, fires in the analysis area were ignited by lightning or members of the Washoe Tribe, who inhabited the area during the summer months. Potter (1998) estimated the historical fire return interval in pine-dominated stands to range from 5 to 20 years. In the Jeffrey pine/white fir mixed-conifer forest type, the fire return interval was estimated to be 20 to 30 years (USDA Forest Service 1997). Taylor (1998) found fire return intervals of 12 to 32 years in the Jeffrey pine/white fir forests in the Lake Tahoe Basin and surrounding areas. Because frequent fires reduced surface and ladder fuels in the pine and mixed pine/fir stands, fire intensities were generally low and there was little mortality of mature trees.

In the higher elevation, whitebark pine and lodgepole pine vegetation types, fire return intervals were longer and more variable, resulting in either slow-burning, low-intensity fires or infrequent stand-replacing fires (USDA Forest Service 2004). Estimates of fire return intervals in the red fir forest have been estimated to be 10 to 150 years (USDA Forest Service 1994b), and in the lodgepole pine forest to be between 25 and 150 years.

As Europeans settled in the area, several factors contributed to changes in the fire regime and fuel hazards. The frequent seasonal fires set by the Washoe Tribe were eliminated and being replaced by active suppression of all fires by federal land managers. Grazing by livestock reduced fine fuels and in turn reduced fire ignition and spread. Active fire suppression reduced the number of fires and fire sizes. As a result, fire return intervals have been lengthened and fires have become more intense and severe. In conclusion, disturbance by fire was a frequent and normal part of the historic vegetative condition, but conditions have changed since the 1860s.

Current Fire Regime

Previous management direction that focused on protection of natural resources by suppressing all wildfires removed a natural source of vegetation disturbance. Simulated fire behavior in the analysis area and observed fire behavior in wildfires that have occurred within the last two decades demonstrates that current fire behavior is characterized by high-intensity fires. The historic fire regime is characterized by frequent, low-intensity fires. The frequency of these fires has been altered by this management and thus has resulted in denser vegetative stands. High-intensity wildfires will result in high tree mortality in forest stands, could result in extensive property loss, and could cause large amounts of erosion and sedimentation that would adversely affect water quality.

Fire Regime Condition Class

Fire regime condition class is a national landscape classification scheme describing the degree of departure in the current fire regime from the historic fire regime. The classification scheme is based on changes in vegetative characteristics, fuel composition, and fire frequency and intensity and described as low (I), moderate (II), or high (III) departure.

- **Low (I)** condition class means vegetative characteristics and fire behavior are considered to be within the historic range of variability.
- **Moderate (II)** condition class means vegetative characteristics and fire behavior are moderately altered from historic conditions.
- **High (III)** condition class means vegetative characteristics and fire behavior are highly altered and there is a risk of losing key ecosystem functions.

Fire regime condition classes have been generalized for the area (see Figure 15). Ten percent of the project analysis area is classified in a low (I) condition class, 64 percent is classified in a moderate (II) condition class, and 7 percent is classified in a high (III) condition class. The majority of the analysis area is in condition class II. These are areas where fire behavior has been moderately altered and an intense fire could have significant impacts on the local ecosystem. Areas in condition class II are upper montane forests and alpine areas where historic fire return intervals were much longer than those in the lower montane forest.

Current Wildfire Potential

Fire behavior modeling was conducted to evaluate fire behavior and risk in the analysis area. Fuels analyses, fire history (Figure 14) and fire behavior modeling were used to predict fire susceptibility in the analysis area. Wildfire potential based on FLAMMAP (Version 3.2, 2006), predicted fire behavior characteristics such as flame lengths and fire type. The model uses spatial information on topography and fuels along with weather and wind data. It incorporates existing models for surface fire, crown fire, and rate of spread. Predicted fire behavior outcomes were determined for the analysis area using local weather conditions. This analysis found that on normal high fire days (90^{th} percentile weather conditions) approximately 55 percent of fuel conditions in the Carson Range would have flame lengths exceeding 4 feet with approximately 28 percent of the area potentially developing into passive or active crown fire (Figure 17) and approximately 56 percent of the area experiencing high-extreme rates of spread (Figure 18). Under these conditions, fire crews cannot use direct attack strategies and must rely on mechanized equipment and aerial support to suppress these fires. Under extreme fire weather conditions, these estimates would be worse.

Surface Fire - A fire that burns loose debris on the ground surface including dead branches, leaves, and low vegetation.

Passive Crown Fire – A surface fire that rises into the tree tops to consume single or small groups of trees or bushes

Active Crown Fire - A fire in which a surface fire ignites tree tops and then the fire spread is able to propagate through the tree canopy

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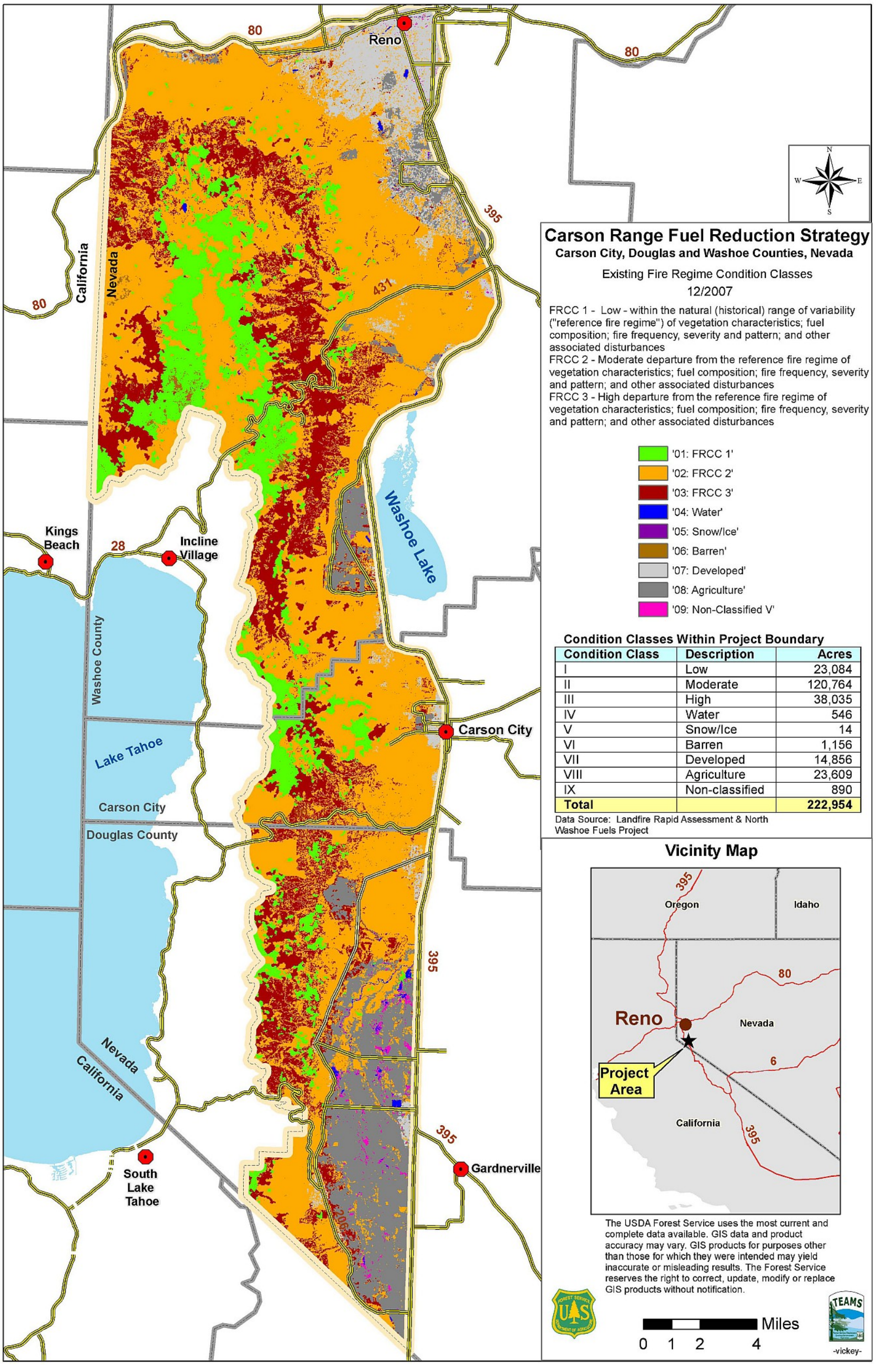


Figure 15. Existing fire regime condition classes

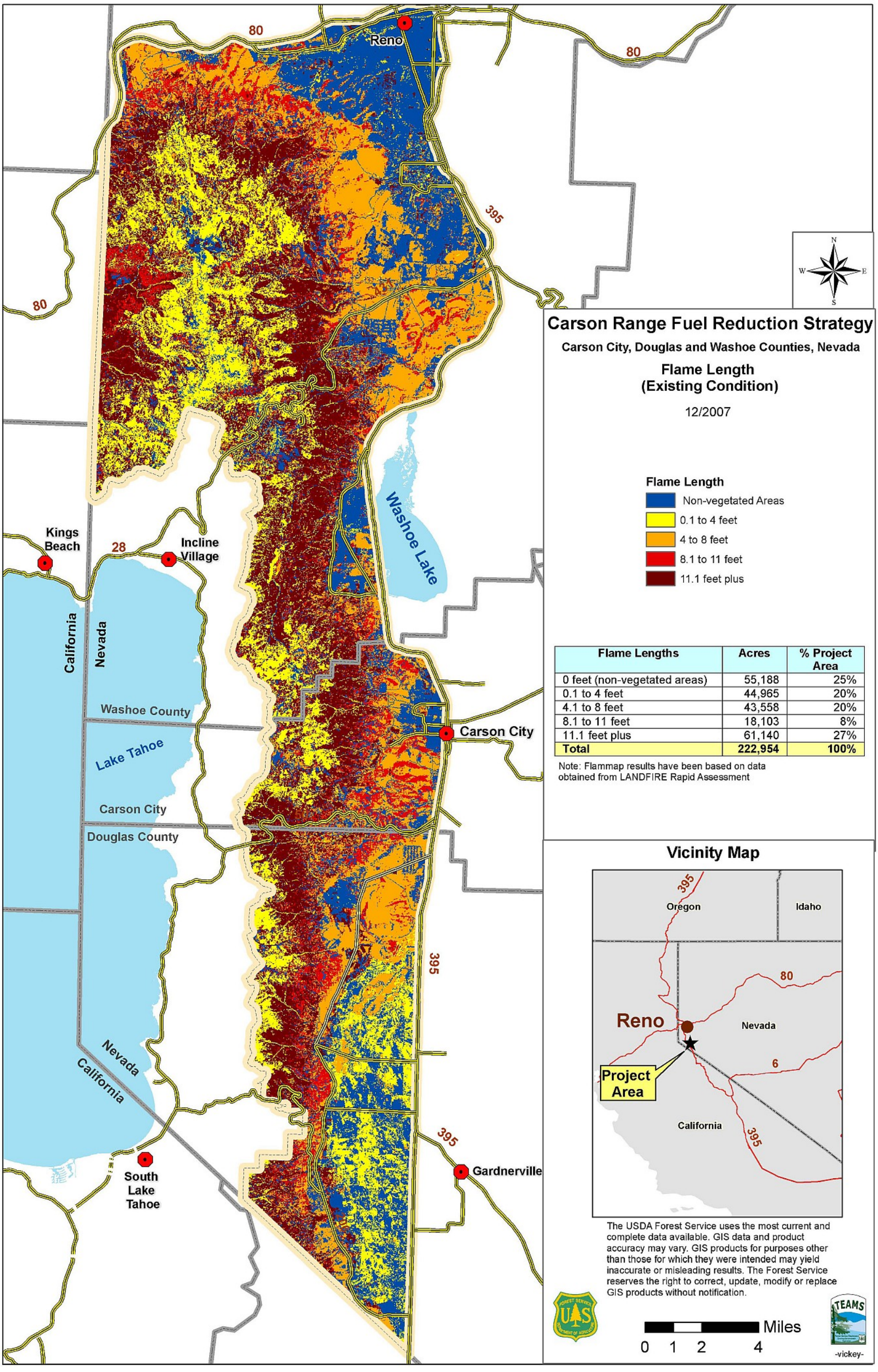
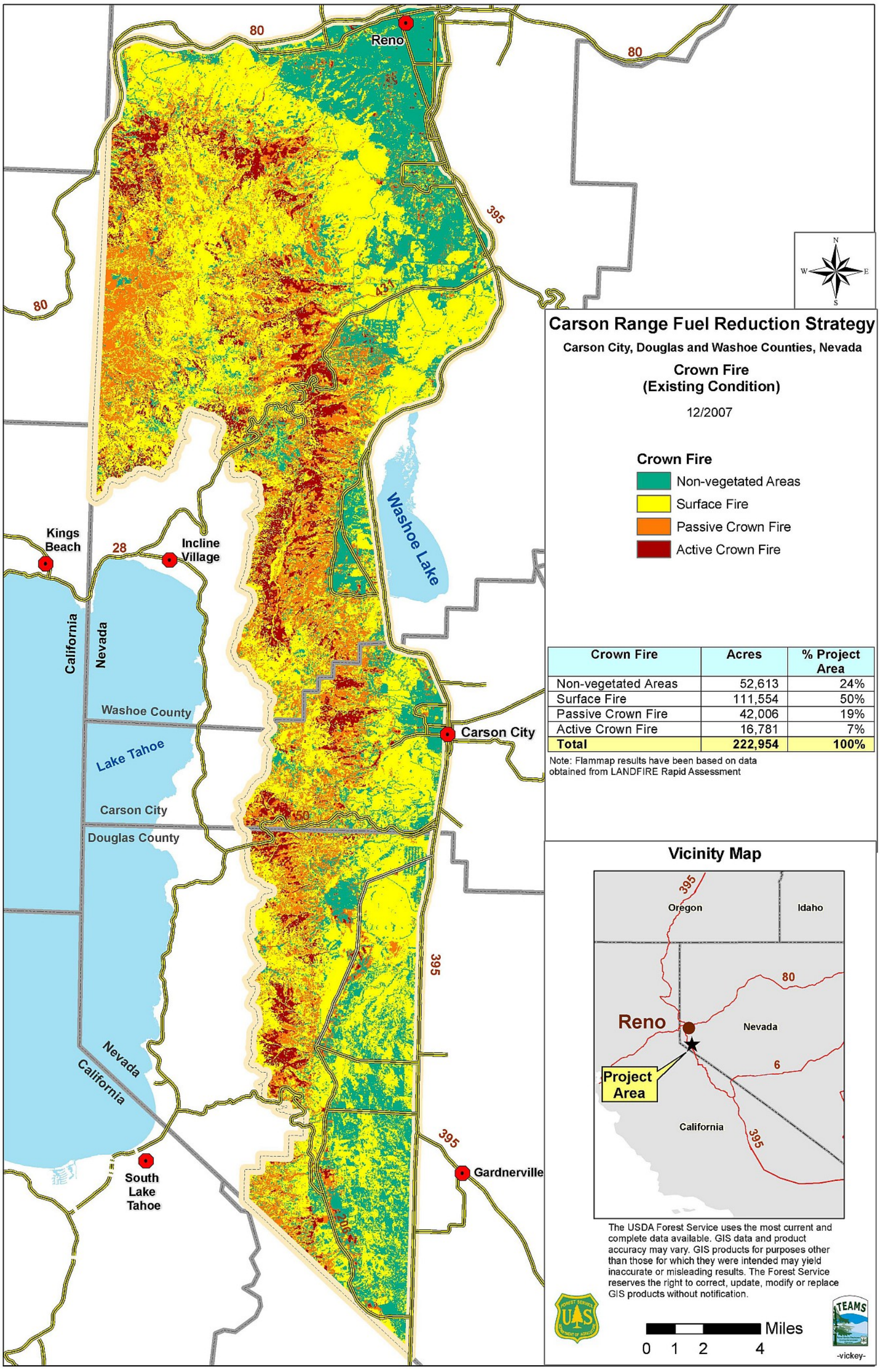


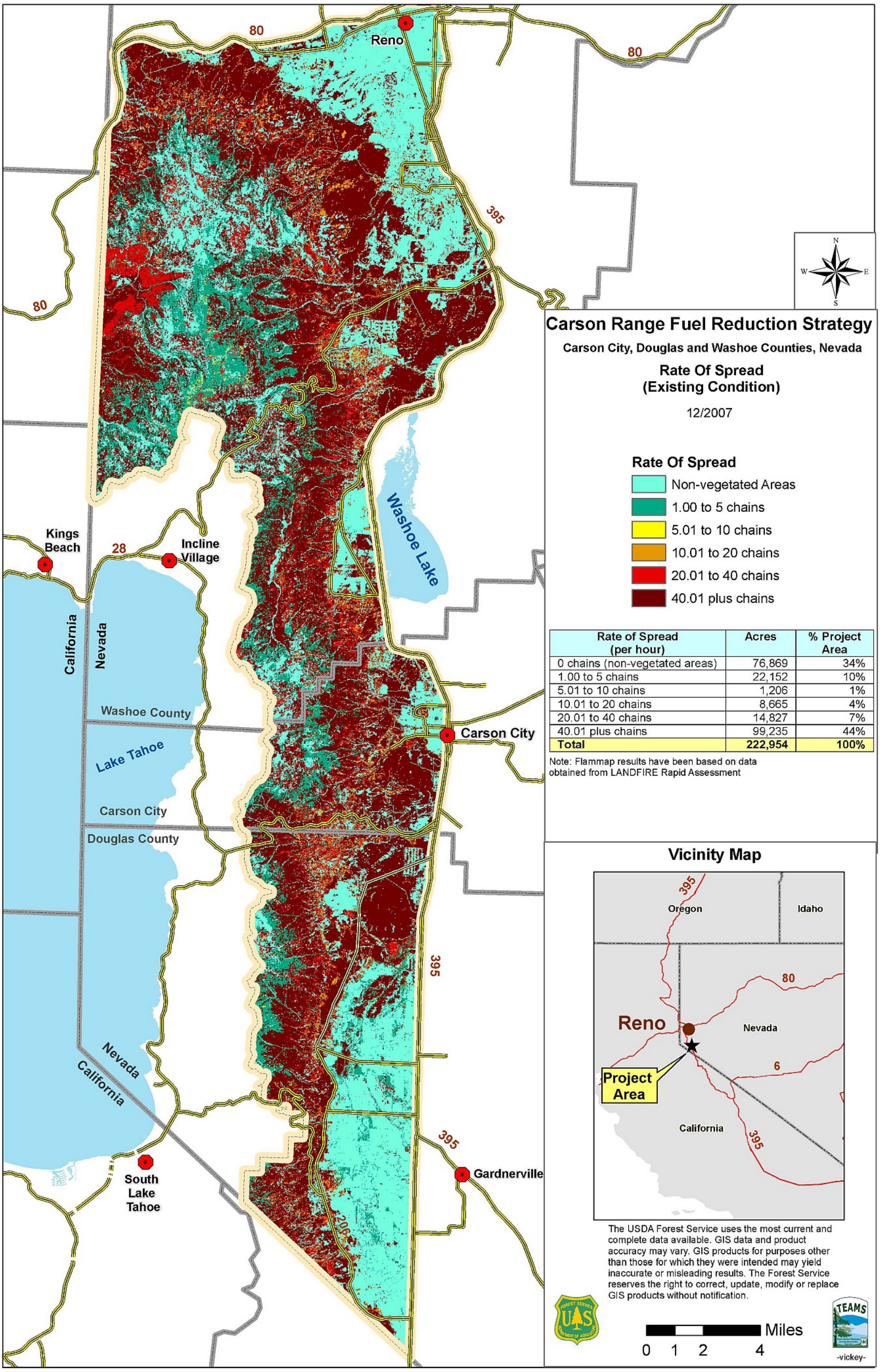
Figure 16. Potential flame lengths before treatments



Crown Fire	Acres	% Project Area
Non-vegetated Areas	52,613	24%
Surface Fire	111,554	50%
Passive Crown Fire	42,006	19%
Active Crown Fire	16,781	7%
Total	**222,954**	**100%**

Note: Flammap results have been based on data obtained from LANDFIRE Rapid Assessment

Figure 17. Existing potential for crown fire



Rate of Spread (per hour)	Acres	% Project Area
0 chains (non-vegetated areas)	76,869	34%
1.00 to 5 chains	22,152	10%
5.01 to 10 chains	1,206	1%
10.01 to 20 chains	8,665	4%
20.01 to 40 chains	14,827	7%
40.01 plus chains	99,235	44%
Total	**222,954**	**100%**

Note: Flammap results have been based on data obtained from LANDFIRE Rapid Assessment

Figure 18. Existing potential for rate of fire spread

Desired Conditions

The desired condition statements are goals that, when achieved, will trend current fire regime condition classes toward their historic norm and reduce fire behavior towards conditions where safe and effective fire suppression can be employed. Generally, this means reducing vegetation in proposed project areas toward historic levels (low [I] condition class) resulting in reduced fire behavior characteristics (Table 7).

Table 7. Desired wildland fuel conditions

	Current Trend	Desired Trend
Fire Regime Condition Class	Moderate (II) to High (III)	Moderate (II) to Low (I)
Fire Behavior	Passive to Active Crown Fires with Flame Lengths that exceed 4 feet	Surface Fires with Flame Lengths less than 4 feet

Desired conditions for the planning area are derived from the Sierra Nevada Framework (SNFPA SEIS 2004) and from CWPPs addressing communities within and adjacent to the analysis area. Fuel treatments on all federal lands will be consistent with the standards and guidelines identified in the Toiyabe National Forest Land and Resource Management Plan (1986) as amended by the Sierra Nevada Framework (SNFPA SEIS 2004). On all other land ownerships, fuel treatments will be consistent with the regulations, standards, and guidelines of the appropriate regulatory agencies. Desired vegetative conditions are described for the urban core, defense zone, and threat zone where management direction and treatment objectives are clearly different.

Desired fuel conditions include reduction of surface, ladder, and crown fuels to lower the potential for high-severity fires while providing for diversity within the stands. Generally, treated areas would have open understories with overstory trees (conifers and hardwoods), with scattered shrubs and small trees in the understory. Surface, ladder, and crown fuels would be treated and maintained to allow low-intensity surface fires (flame lengths of 4 feet or less). Vegetation would be modified (interrupted) improving community protection and enhancing public and firefighter safety.

Urban Core

The urban core includes developed and undeveloped lots. The desired condition in the urban cores is to reduce fire behavior characteristics to a surface fire regardless of fire regime. The desired condition for defensible space on developed lots will be consistent with “Living with Fire (Nevada Living With Fire; Nevada Division of Forestry, Wildfire Protection Guide 1997, Smith 2004). The desired condition of the undeveloped urban parcels managed by state and local agencies will be similar to the defense zone, described below.

Defense

The management objective in this zone is to protect communities. In conifer forest types, predicted flame lengths will be less than 4 feet and preferably less than 2 feet, under 90th-percentile weather conditions. Crown base heights (height from the forest floor to the bottom most branches of the live tree crown) will be managed to avoid all crown fires. Crown cover of forest stands will average 40 to 60 percent to allow for adequate spacing between crowns and to reduce surface wind speeds and drying of surface fuels. In shrub types, predicted rates of spread will be reduced 50 percent of pretreatment simulated estimates.

Threat Zone

The management objective in this zone is to establish and maintain a pattern of treatments that are effective in modifying fire behavior. In conifer forest types, predicted flame lengths will generally be less than 4 to 6 feet; however, they may be higher in some locations. Crown base heights will be managed to avoid crown fires. Crown cover will vary and in some areas be less than 40 percent. Grasses and patches of shrubs will be abundant in conifer stands where flame lengths are currently 6 feet or greater. In shrub types, predicted rates of spread will be reduced to 50 percent of pretreatment simulated estimates. Maintenance treatments will keep these areas within the desired conditions.

General Forest

The general forest includes all other lands beyond the wildland-urban interface and below the alpine zone. The management objective in this zone is to establish a mosaic of treatments that are effective in modifying fire behavior. No planned treatments will occur in designated wilderness areas. Many planned treatments will be adjacent to existing roads where crews and machines have ready access; therefore, changes in the current forest structure and fuel hazards will be in a mosaic, based primarily on access. Crown cover will vary and in some areas will be less than 40 percent. Grasses and patches of shrubs will be abundant in stands with less than 40 percent canopy cover. In conifer forest types, predicted flame lengths will be less than 4 to 6 feet immediately after treatment and crown base heights will be managed initially to avoid the threat of a passive crown fire. In shrub types, predicted rates of spread will be reduced to 50 percent of pretreatment simulated estimates. However, flame lengths will gradually increase in treated areas because little or no maintenance will occur in the general forest. Snags and coarse woody debris will continue to accumulate because of the lack of disturbance in most of this zone.

The desired conditions for pine and pine/fir mixed-conifer stands is for the stands to be composed of a mixture of tree species where appropriate, but to be dominated by the more fire-resistant ponderosa pine and Jeffrey pine species. The stands should have stocking levels sufficiently low to be considered “low” to only “moderate” risk to bark beetles, and bark beetle activity should be at an endemic level.

Predicted Outcomes

The existing fuel condition of the analysis area is in a state of high departure from historical and desired conditions. This condition dramatically increases the potential of a surface fire transitioning into a crown fire. Each of the community wildfire protection plans upon which this comprehensive plan is built identify key values that are at risk and the vegetative stands that do not meet the desired conditions that put those values at risk. Proposed projects included in this plan are or will be designed with prescriptions to meet the desired conditions.

General prescriptions are designed to reduce fire behavior to the extent defined in each of the zones defined in this plan. These prescriptions are based upon proven strategies, science, and principles such as those detailed in "Living with Fire" (Smith 2004). The design and priority of the treatments are focused on the wildland-urban interface and associated egress and transportation routes. Approximately 66 percent of the analysis area is proposed to be treated. Of this, approximately 9 percent of the defense zone and about 57 percent of the threat zone will be treated, creating adequate community defensible space.

Based on review by wildland fire managers, the projects contained in the plan are expected to move wildland fuel conditions toward their desired fire regime condition class and fire behavior goals. Site-specific modeling of some project areas has confirmed this determination. Fire growth and fire behavior were modeled utilizing FARSITE and FLAMMAP fire simulation programs for multi-jurisdictional projects in the analysis area. Results from various simulations ranged from a 30 to 60 percent decrease in acres burned. One example wildfire scenario, called the Hunter fire, was modeled west of Reno and demonstrated a reduction in flame length, rate of spread, and fire type (Figures 19-21). Under this scenario, the outcomes of these combined treatments would meet the desired condition of reducing fire behavior and trending the area towards a lower fire regime condition class. In addition, post-treatment FLAMMAP modeling indicates that the proposed treatments will decrease the extreme flame lengths by 28 percent, crown fire potential by 33 percent, and extreme rate of spread by 30 percent across the project area. More importantly, these treatments are focused in wildland-urban interface and defense areas (not in untreatable areas such as the wilderness); therefore, the reduction in fire behavior is targeted at stands that will have the most meaningful results to firefighters and communities.

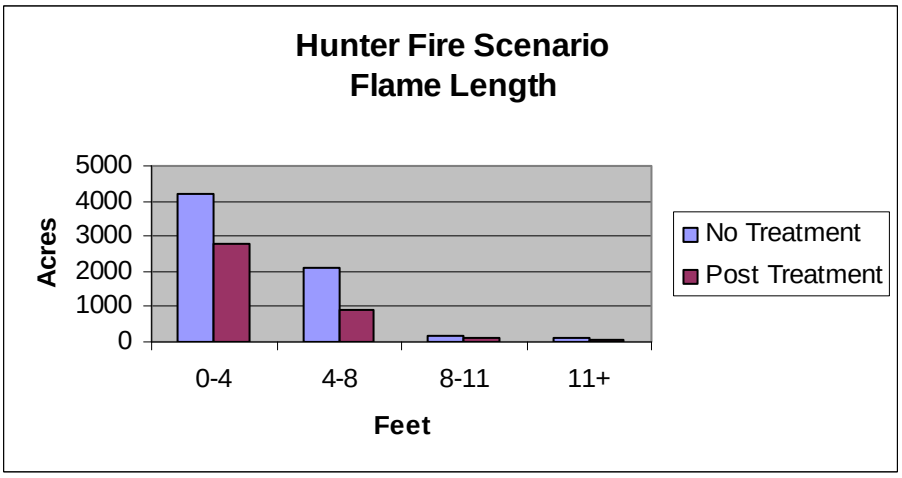


Figure 19. Modeling outcome for flame length in the Hunter Fire scenario

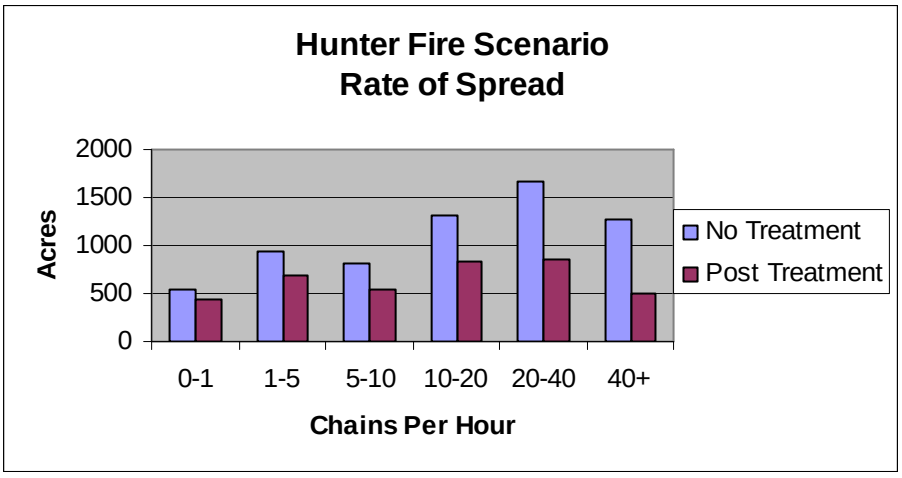


Figure 20. Modeling outcome for rate of spread in the Hunter Fire scenario

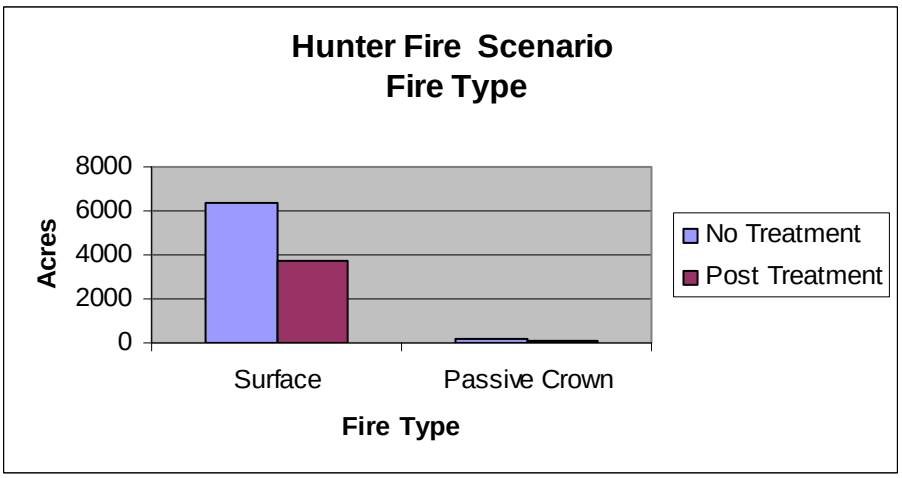


Figure 21. Modeling outcome for fire type in the Hunter Fire scenario

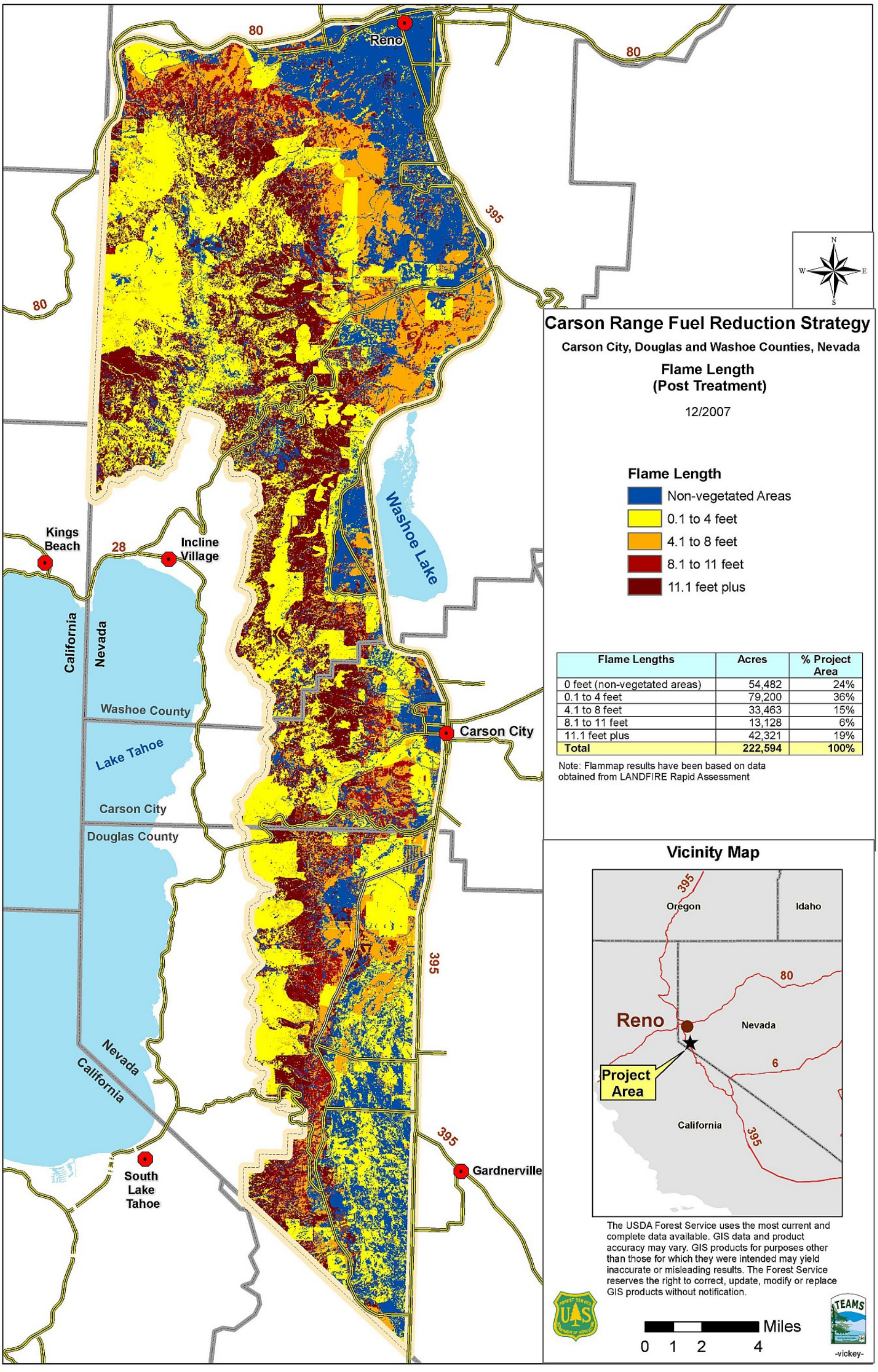
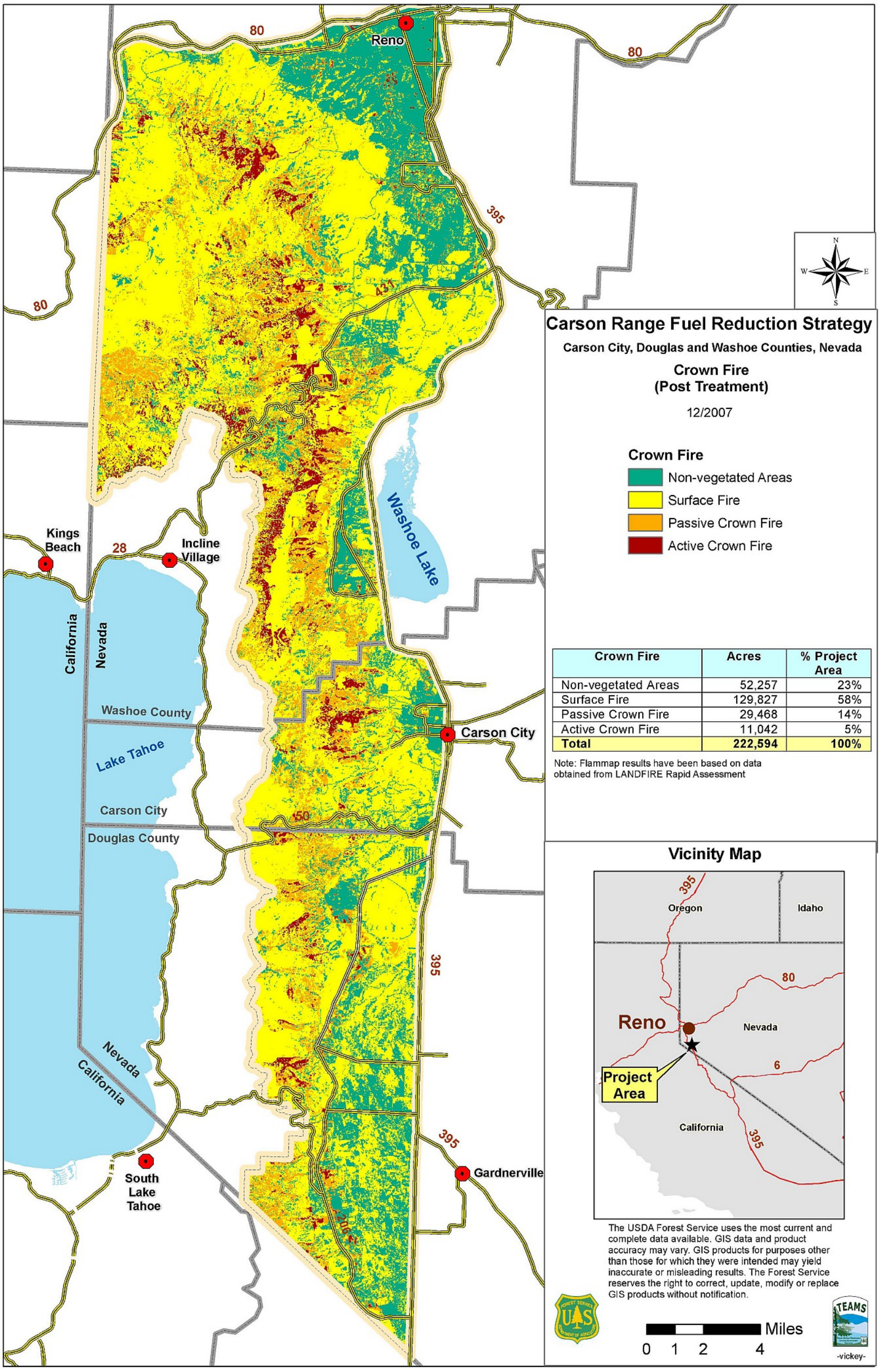


Figure 22. Predicted flame lengths following treatment



Crown Fire	Acres	% Project Area
Non-vegetated Areas	52,257	23%
Surface Fire	129,827	58%
Passive Crown Fire	29,468	14%
Active Crown Fire	11,042	5%
Total	**222,594**	**100%**

Note: Flammap results have been based on data obtained from LANDFIRE Rapid Assessment

Figure 23. Predicted crown fire following treatment

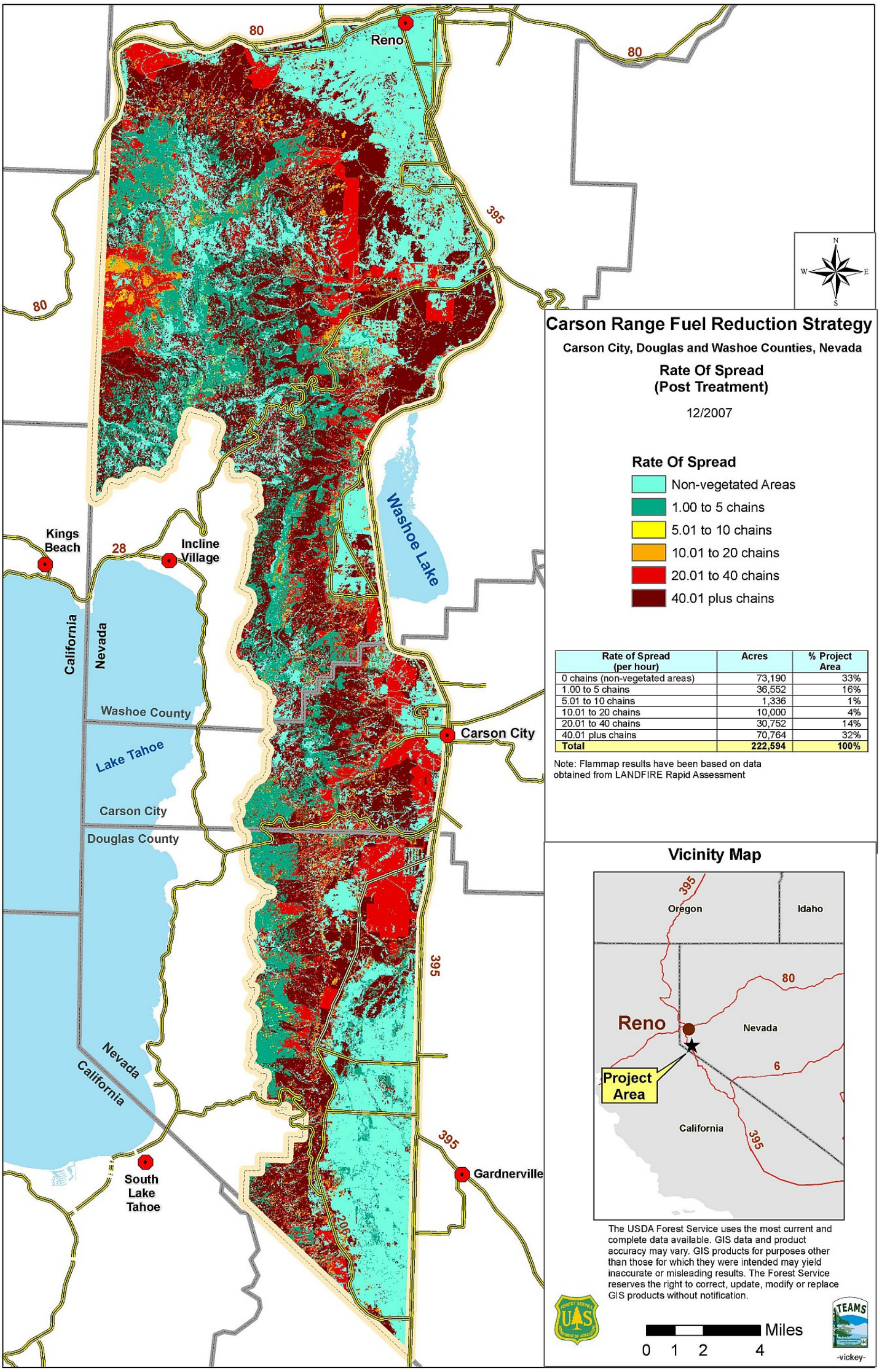


Figure 24. Predicted rate of spread following treatments

Section 8: Environmental Regulations and Compliance

All individual projects designed to reduce fuel hazards that are proposed by public agencies, funded by public agencies, or that require federal, state, local, or local discretionary approval will be subject to federal, state, or regional environmental regulations.

National Policies and Regulations

Several national policies and regulations guide wildland fire management. They include the National Fire Plan, 10-Year Comprehensive Strategy (USDI and USDA 2001); National Fire Plan 10-Year Comprehensive Strategy Implementation Plan (USDI and USDA 2002); Federal Wildland Fire Policy (USDI et al. 1995 [updated 2001]); Healthy Forests Restoration Act (2003); and Protecting People and Natural Resources: A Cohesive Fuels Treatment Strategy (USDI and USDA 2006). This plan is consistent with all of these policies and regulations, which are described below. In addition, all projects on National Forest System lands will need to be compliant with other federal laws and regulations such as the Endangered Species Act, the Clean Water Act, and the National Forest Management Act , Historic Preservation Act (NHPA), 1966, as amended (P.L. 89-665, 80 Stat.915); the National Environmental Protection Act (1969), the Archaeological Resources Protection Act of 1979 (ARPA), the Native American Grave Protection and Repatriation Act (1990: P.L. 101-601), and the American Indian Religious Freedom Act (1978: P.L. 95-341).

The National Fire Plan and 10-Year Comprehensive Strategy

The National Fire Plan was developed by the U.S. Department of the Interior and U.S. Department of Agriculture in 2000 to actively respond to severe wildland fires and their impacts to communities while ensuring sufficient firefighting capacity for the future. It provided direction for the identification of “communities at risk”, which are located in the vicinity of federal lands where wildland fires have the potential to threaten adjacent private lands. Identifying communities at risk has assisted planning for fuel reduction projects on federal lands and increased awareness of wildfire threats in those communities.

National Environmental Policy Act

All fuel reduction projects funded by the federal government that occur on federal land (such as National Forest land), or require a federal agency to issue a permit, must comply with the National Environmental Policy Act (NEPA). The Act requires agencies to prepare environmental impact statements (EISs), environmental assessments (EAs), or categorical exclusions (CEs) to evaluate potential impacts of proposed projects on the quality of the human environment.

The Healthy Forest Restoration Act (H.R. 1904, December 2003)

The Healthy Forest Restoration Act (HFRA) simplified the NEPA process by limiting the range of alternatives that are required to be considered in an environmental document that involves fuel reduction or forest health projects designed to protect communities, watersheds, or endangered or threatened species from wildfire. HFRA also changed the USDA Forest Service administrative appeal process for NEPA decisions to a simpler objection process.

HFRA allows communities to designate their wildland-urban interface; authorizes fuel reduction projects on federal lands in the wildland-urban interface; requires federal agencies to consider recommendations made by communities at risk that have developed community wildfire protection plans, and gives funding priority to communities that have adopted community wildfire protection plans. EAs and EISs documenting HFRA-authorized projects may consider only one action alternative if that alternative meets certain wildland-urban interface criteria and implements the general actions of an applicable community wildfire protection plan.

Regional Policies and Regulations

Toiyabe National Forest Land Management Plan

All management activities conducted by the Carson Ranger District are governed by the Toiyabe National Forest Land and Resource Management Plan (USDA Forest Service 1986, as amended by the Sierra Nevada Forests Plan Amendment (SNFPA SEIS 2004). The plan recognized the excessive buildup of fuel hazards in the Sierra Nevada Mountains and established that the highest priority for fuels treatments would be in the wildland-urban interface areas.

Nevada Division of Forestry NRS 528

NRS 528 regulates forest practices and reforestation on private and state lands in Nevada.

Nevada Revised Statutes 472.041 and Carson City Municipal Code, Title 14, Chapter 14.02

NRS 472.041 is the enforcement of certain provisions of Uniform Fire Code regarding clearance of vegetation around structures. The Carson City Municipal Code T14 C14.02 relates to the establishment of defensible space and fuels reduction programs. It should be noted that enforcement of these provisions can only be accomplished to the extent that funding and manpower of responsible agencies allow.

Agency Regulatory Responsibility

Several land management and regulatory agencies are responsible for complying with and enforcing regulations in the planning area. They include the USDA Forest Service Humboldt-

Toiyabe National Forest, Nevada Division of Forestry, local Fire Protection Districts, and the Tahoe Regional office of the Nevada Fire Safe Council.

Land Management Agencies

USDA Forest Service, Humboldt-Toiyabe National Forest, Carson Ranger District

The USDA Forest Service's Carson Ranger District is responsible for managing approximately 45 percent of the land base and its resources in the planning area. All management activities conducted by the district are governed by the Humboldt-Toiyabe Land and Resource Management Plan (USDA Forest Service 1986, as amended by the Sierra Nevada Forests Plan Amendment [SNFPA SEIS 2004]).

Washoe Tribe of Nevada and California

The Washoe Tribe of Nevada and California has 2,640 acres on the east slope of the Sierra Nevada Mountain Range. These lands include two perennial fresh water streams and the Carson River. The vegetation ranges from mixed-conifer forest types, shrublands, wetlands, riparian habitat and grass rangelands. The lands provide critical deer habitat, blue heron rookery, Western pond turtles, bald eagles, and golden eagles, along with other raptors that frequent these lands. The Carson Indian Colony is in the wildland-urban interface. The Washoe Tribe has regulatory and administrative responsibilities over all its lands. The Comprehensive Land Use Plan, Forest Management Plan, and the Title 17-Environmental Codes are used as management, guidance and compliance documents.

Nevada Division of Forestry

The Nevada Division of Forestry manages all forestry, nursery, endangered plant species, and watershed resource activities on certain public and private lands within the Range. The Division also provides fire protection of structural and natural resources through fire suppression and prevention programs and other emergency services. The Nevada Division of Forestry is responsible for enforcing Nevada Revised Statutes (NRS) 528.

The Nevada Tahoe Resource Team, an interagency team within the Department of Conservation and Natural Resources, is responsible for implementing forest health and fuel reduction projects on State of Nevada property in the Carson Range planning area.

Nevada Division of State Parks

The Nevada Division of State Parks administers and manages the Lake Tahoe Nevada State Park, which includes beaches, fishing, and camping, and over 13,000 acres of backcountry recreation. Approximately 7,000 acres of the park are located on the east slope of the Carson Range. State Parks, in conjunction with the Nevada Tahoe Resource Team and the Nevada Division of

Forestry, has prepared a plan to reduce fuel hazards and restore forest health in the Carson Range portion of the park.

Nevada Division of State Lands

Nevada Division of State Lands manages urban parcels in the Carson Range. These are managed by Nevada Tahoe Resource Team (see Nevada Division of Forestry above). The urban parcels are managed by the State Lands forester and a seasonal forester. These parcels are managed in accordance with Nevada Laws on Forestry and Fire, Nevada Revised Statues 472, 527 and 528, which pertain to establishing a healthy forest and watershed protection of trees and flora by recognizing implemented forest practices.

Regulatory Agencies

Nevada Department of Environmental Protection

Nevada Department of Environmental Protection plays a role in air and water quality in the Carson Range. Land management agencies are required to apply for a burn permit when burning in Douglas County. In addition, the Washoe County District Health Department is involved with the burn permit process in the Washoe County. MOUs with these agencies require Nevada land management agencies to follow their guidelines and regulations in smoke management.

Section 9: Public Education and Wildfire Prevention Plans

Fire Prevention Plans: To various extents, each cooperating agency has developed a wildfire prevention plan. For example, the USDA Forest Service has developed a comprehensive prevention plan that focuses on education, detection, engineering, and enforcement. This plan details patrolling, media outreach, public education, and annual public events that the Forest actively supports. The plan is currently implemented by a dedicated prevention staff that includes three fire prevention technicians and a fire management staff.

One-on-One Contacts: All of the local fire agencies and the Nevada Fire Safe Council provide staff that meets with individual residents during defensible space inspections and during subsequent clearing operations. While these contacts are time consuming and inefficient, they may be the most effective because they are focused and result in the desired effect. Additionally, these organizations also provide free literature to residents, with the most common being, “Living with Fire – A Guide for the Homeowner”. This handout was developed by the University of Nevada Cooperative Extension, with more than two million copies printed.

Community Events: All of the federal, state, and local agencies participate in demonstrations and community events, including several sponsored by the Nevada Fire Safe Council, which developed and nurtured Fire Safe Chapters in individual communities throughout the Carson Range. These chapters are instrumental in encouraging individuals in those

communities to actively participate in defensible space clearing and establishing fuelbreaks adjacent to communities. They have also sponsored free barbeques in 3 to 4 communities to encourage residents to learn how defensible space should be developed. The Nevada Fire Safe Council also developed and mailed over 7,000 flyers announcing three regional demonstrations. These demonstrations occur in selected neighborhoods, where hands-on demonstrations of defensible-space clearing are discussed and performed by staff. In addition, communities such as Carson City, own dumpsters and trailers available to residents that want to clear vegetative fuels from around their homes.

Websites and Public Service Announcements: The majority of the local fire agencies and Nevada Fire Safe Council host websites that offer extensive information on defensible space inspections, defensible space requirements, free chipping services to dispose of hazardous fuels, and links to other sources of information. The most common link is to http://www.livingwithfire.info, a multi-agency sponsored website that provides extensive information on what residents should do before, during, and after a wildland fire. All of the agencies also support and participate in public service announcements that focus on defensible space requirements and public safety.

Section 10: Conclusions

The key values of the Carson Range, including communities, watersheds, scenic and intrinsic values, and the forest ecosystem values are at risk to catastrophic wildfire due to dense and overstocked forests, shrublands, and grasslands. Implementation of this plan will help protect the people, property, and natural values of the Carson Range by changing potential fire behavior in prioritized stands into a less volatile state. Across many jurisdictions, this plan will treat approximately 49,000 acres over the next 10 years. These treatments were proposed by the participating agencies and were designed to meet the local needs of their particular jurisdictions. The treatments range from small urban parcels to large strategically placed general forest treatments (discussed previously as SPLATs). Collectively, treatments are predicted to reduce potential fire behavior and restore forest health. Implementation of this plan is predicted to cost $89,000,000 to $149,000, 000 with annual expenditures averaging $12,000,000.

While this plan proposes fuel reduction treatments in and around communities and the general forest throughout the Carson Range, one key to its success is the simultaneous development of defensible space around private residences, buildings, and the general infrastructure of the area. Participating agencies and organizations can facilitate this through an active education and enforcement campaign.

Finally, this plan will only be as successful as the continued commitment that each participating agency has to coordinate, communicate, and collaborate with each other and the people they serve. This continuing commitment will result in responsive and cost-effective wildfire prevention that ultimately will protect the people and values at risk in the Carson Range.

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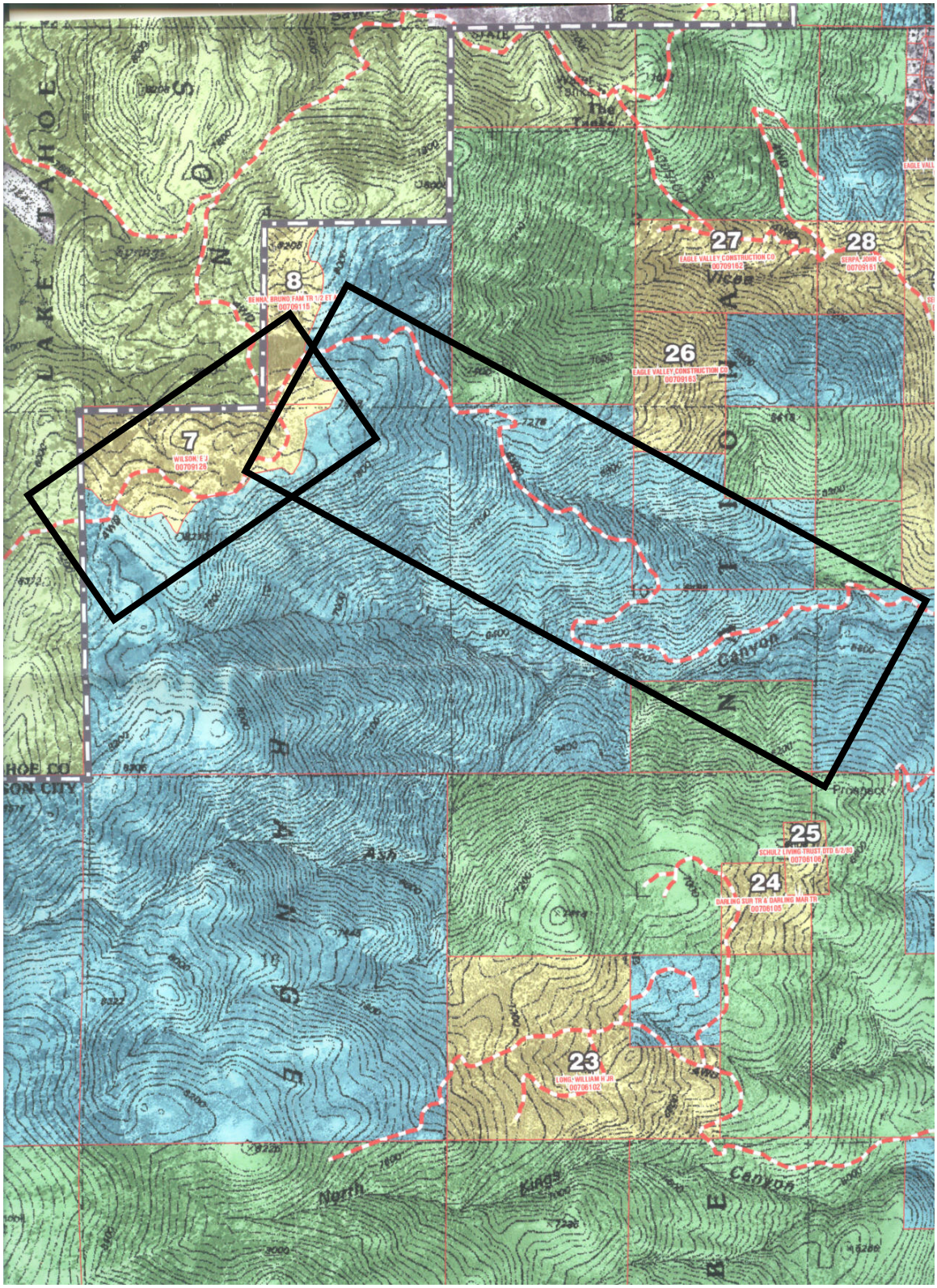
Addendum

The Carson Range Fuel Reduction and Fire Prevention Strategy is intended to be reviewed and updated as local conditions change, projects are implemented, and unforeseen events arise. As needed, the agencies represented in the Planning Cadre will update this plan. The Addendum details changes that have occurred between the release of the Agency Draft and the approval of the final Plan.

1. Document Wide Changes:
    a. References to "Agency Draft" have been removed.
    b. All references to Carson City Parks and Recreation, Open Space Division have been updated to refer to the Division consistently
2. Page Specific Changes:
    a. Cover Page. The cover has been revised with new multi-agency logo that includes the City of Reno Fire Department
    b. Page 1. The language of White Pine County Conservation, Recreation, and Development Act of 2006 was incorrect and has been modified in this version. Specifically, on Line 4 of that paragraph the words "Carson Range" have been replaced with "the Lake Tahoe Basin."
    c. Page 40. Definitions of surface fire, passive crown fire and active crown fire have been added.
    d. Page 53. The last sentence of the 2nd Paragraph has been revised to: "In addition, all projects on National Forest System lands will need to be compliant with other federal laws and regulations such as the Endangered Species Act, the Clean Water Act, and the National Forest Management Act , Historic Preservation Act (NHPA), 1966, as amended (P.L. 89-665, 80 Stat.915); the National Environmental Protection Act (1969), the Archaeological Resources Protection Act of 1979 (ARPA), the Native American Grave Protection and Repatriation Act (1990: P.L. 101-601), and the American Indian Religious Freedom Act (1978: P.L. 95-341). "
3. Letters of Support and Final Approval of the Plan
    a. Final approval of the Plan occurred on Jan 30, 2008 by the Intermountain Regional Forester, Harv Forsgren. This letter is presented before the table of contents.
    b. In Appendix B, a final signed letter of support from the Nevada Fire Safe Council is inserted.
    c. In Appendix B, a final signed letter of support from the Humboldt-Toiyabe National Forest Supervisor.

4. Additional Projects and Map Modifications
    a. Page 14, Figure 8, Wildland Urban Interface Map. The map has been modified to extend the Defense Zone into the lands administered by the Nevada Division of State parks.
    b. The Carson City Parks and Recreation, Open Space Division, have added a new project called Upper Ash Canyon Road project. This proposed project is still under development but includes tree thinning along the Ash Canyon Road which will expand upon projects proposed by the Nevada Division of State Parks. For the general location of the projects see Figure 26 below.

Figure 25. Upper Ash Canyon Road Project



Appendix A – Biomass Federal/State Policies

The following federal and state policies and resolutions have been developed to support the development of a biomass facility(s) in or near the Carson Range.

- The Healthy Forest Restoration Act of 2003 (H.R. 1904) encourages the accelerated adoption of technologies that use biomass and the establishment of small-scale business enterprises that make use of biomass (Title 3, Section 202).
- The Federal Energy Act of 2005 (P.L. 109-190) authorized the appropriation of federal subsidies for biomass development for a 10-year period (2006-2016). Specifically, it provides grants not to exceed $20 per green ton (GT) of biomass to current operators of biomass facilities and grants for developing or researching biomass opportunities.
- The Western Governor's Association adopted a resolution, the Clean and Diversified Energy Initiative, to develop 30,000 megawatts (MW) of clean and diverse energy by 2015 and accepted a set of recommendations to implement that recommendation in June 2006.
- California and Nevada passed renewable portfolio standards requiring energy producers and suppliers to include 20 percent and 15 percent, respectively, of renewable energy in the mix of available energy provided in those states.
- The Nevada Legislature's Task Force on Renewable Energy approved a resolution encouraging the beneficial use of biomass, which will be forwarded for adoption during the 2007 legislative session.
- In April 2006, Governor Schwarzenegger signed an Executive order reaffirming the 20 percent target for energy production and directed the Resources Agency and Energy Commission to coordinate efforts among state agencies to promote the use of biomass.
- In February 2007, Governor Gibbons signed an executive order supporting development of renewable energy and focusing on streamlining the permitting process.
- The USDA Forest Service recently drafted a woody biomass utilization strategy that focuses on providing sustainable supplies of materials, empowering entrepreneurial partnerships, using the best science and technology, and effective marketing (USDA Forest Service, January 9, 2007).

Appendix B – Cooperating Agency Letters of Support

The Nevada Fire Safe Council

Andrew List, Executive Director (775) 884-4455 nvfiresafe@charter.net
Terry Sumner, Executive Assistant (775)-884-4455 firesafeoffice@yahoo.com
Pat Murphy, Sierra Front (775) 267-2123 papamurph1110@charter.net
John Pickett, Tahoe Basin, California (775) 220-7675 firesafechapters@yahoo.com
Jason Arnold, Tahoe Basin, Nevada (775) 220-6000 nvfsctahoebasin@yahoo.com
Jessica Mahnken, Tahoe Basin, Lake Valley(775) 577-3739 tahoefiresafe@sbcglobal.net
Mike McCarty, Northeastern Nevada (775) 744-2526 mmnfsc@hotmail.com
Kim Otero, Southern Nevada (702) 496-4114 nvfscsouth@mvdsl.com

Post Office Box 2724 Carson City, Nevada 89702
*Phone (775) 884-4455 * fax (775) 884-4457 * www.nvfsc.org*

December 12, 2007

Dick Kempthorne, Secretary
U.S. Department of the Interior
1849 "C" Street NW
Washington DC 20240

Dear Secretary Kempthorne:

The Nevada Fire Safe Council, working with 30+ grass roots communities in the Carson Range, supports the Carson Range Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy 10-Year Plan. The Council believes that the actions contained in the plan and processes set forth in the strategy represent a multi-jurisdictional and unified approach to reducing the risk of catastrophic risk due to wildfires in the Carson Range.

As part of this strategy, the Nevada Fire Safe Council is dedicated to working with private landowners, fire protection districts and fire departments, and local, state and federal governmental entities to reduce fuels that increase the wildfire risk throughout the Carson Range. We are also dedicated to educating the general public about the importance of fire prevention and creating defensible space within and around communities in the wildland urban interface.

We look forward to the implementation phase of this plan and working with our partners in the Carson Range.

Sincerely,

Andrew List, Executive Director
The Nevada Fire Safe Council

Cc: Ed Monnig, Forest Supervisor, Humboldt Toiyabe National Forest

Washoe Tribe of Nevada and California

Dirk Kempthorne, Secretary
U.S. Department of the Interior

December 6, 2007

Letter of Support for the Carson Range Multi-jurisdictional Fuels Reduction and Wildfire Prevention Strategy, 10-year Plan

The Washoe Tribe of Nevada and California fully endorses the goals and objectives of the Carson Range Multi-jurisdictional Fuel Reduction and Wildfire Prevention Strategy. The Washoe Tribe is a member of the planning cadre that developed the Carson Range Multi-jurisdictional Fuel Reduction and Wildfire Prevention Strategy. The plan includes projects and strategies that were developed by our Washoe Environmental Protection Department in a comprehensive approach that considers actions throughout the Carson Mountain Range and the Lake Tahoe Basin Comprehensive Plan. When fully implemented, the plan will reduce the risk of wildfire damage to the homes, infrastructure, and resources of the Carson Range and will ensure firefighter safety should a wildfire occur.

We believe this plan serves as a comprehensive framework for all agencies involved with wildland hazardous fuels reduction or wildfire suppression in the Carson Range to coordinate their activities. The Washoe Tribe of Nevada and California will continue to support this framework as its projects are accomplished and we will provide the necessary collaboration to ensure its success.

Respectfully,

Waldo W. Walker, Tribal Chairman

Cc: Ed Moning, Forest Supervisor
Humboldt Toiyabe National Forest

919 Highway 395 South, Gardnerville, Nevada 89410
(775) 265-4191 (775) 883-1446 (530) 694-2339 Fax (775) 265-6240

WASHOE COUNTY COMMISSION

"Dedicated to Excellence in Public Service"

1001 E. 9th Street
P.O. Box 11130
Reno, Nevada 89520-0027
Phone (775) 328-2005
Fax (775) 328-2037
www.washoecounty.us

December 14, 2007

Mr. Dirk Kempthorne, Secretary
U.S. Department of the Interior
1849 "C" Street NW
Washington, D.C. 20240

Dear Secretary Kempthorne:

Washoe County, Nevada, participated as a member of the planning cadre that developed the Carson Range Multi-jurisdictional Fuel Reduction and Wildfire Prevention Strategy and we fully endorse the goals and objectives of this plan. The plan includes projects and strategies that were developed by our County in a comprehensive approach to fuels management. Washoe County recognizes actions taken or planned in our County have an impact throughout the Carson Mountain Range and the Lake Tahoe Basin and justifiably should be part of the Carson Range Comprehensive Plan. When fully implemented, the plan will reduce the risk of wildfire damage to the homes, infrastructure and resources not just within Washoe County but throughout the Carson Range and will ensure firefighter safety should a wildfire occur.

We believe this plan serves as a comprehensive framework for all agencies involved with wildland hazardous fuels reduction or wildfire suppression in the Carson Range and demonstrates the commitment we all have to coordinate our activities. Washoe County is committed to supporting this framework as its projects are accomplished and we will provide the necessary collaboration to ensure its success. Should you have any questions or desire additional information please do not hesitate to contact our Fire Services Coordinator, Kurt Latipow, at (775) 328-2716.

Sincerely,

Robert M. Larkin

Robert M. Larkin, Chairman
Washoe County Commission

RML/kl
cc: Washoe County Commission
Katy Singlaub, Washoe County Manager
Chris French, USDA Forest Service
Ed Monnig, US Forest Service

CARSON CITY, NEVADA

CONSOLIDATED MUNICIPALITY AND STATE CAPITAL

December 6, 2007

Mr. Dirk Kempthorne
Secretary of the Interior
1849 "C" Street NW
Washington, DC 20240

Dear Mr. Kempthorne,

Carson City, as part of the planning cadre that developed the Carson Range Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy, endorses the goals and objectives of this plan. The plan includes projects and strategies that were developed by the Carson City Fire Department and Carson City Parks and Recreation Department, Open Space Division in a comprehensive approach that considers actions throughout the Carson Mountain Range and the Lake Tahoe Basin Comprehensive Plan. When fully implemented, the plan will reduce the risk of wildfire damage to the homes, infrastructure, and resources of the Carson Range and will ensure firefighter safety should a wildfire occur. The plan is based on the Nevada Community Wildfire/Risk Assessment completed by Resource Concepts Inc. and existing community wildfire protection plans (CWPPs).

We believe this plan serves as a comprehensive framework for all agencies involved with wildland hazardous fuels reduction or wildfire suppression in the Carson Range to coordinate their activities. Carson City will continue to support this framework as its projects are accomplished and we will provide the necessary collaboration to ensure its success.

We understand that the plan is required to obtain grant funding for fuels reduction projects through the Southern Nevada Public Lands Management Act (SNPLMA), as authorized by the White Pine County Federal Lands Bill. On behalf of our residents and visitors, Carson City wants to express gratitude to the U.S. Forest Service and other partners for accomplishing this plan.

Sincerely,

Marv Teixeira

Marv Teixeira
Mayor

cc: Ed Manning, Forest Supervisor
1200 Franklin Way
Sparks, NV 89431

Marv Teixeira, *Mayor*
201 North Carson Street, Suite #2, Carson City, Nevada • 89701
(775) 887-2100 • **Fax:** (775) 887-2286
e-mail: mteixeira@ci.carson-city.nv.us

DOUGLAS COUNTY

BOARD OF COUNTY COMMISSIONERS

1594 Esmeralda Avenue, Room 307, Minden, Nevada 89423

Daniel C. Holler
COUNTY MANAGER
775-782-9821
FAX: 775-782-6255

COMMISSIONERS
Doug N. Johnson, CHAIRMAN
David J. Brady, VICE-CHAIRMAN
James L. Baushke
Kelly D. Kite
Nancy McDermid

December 6, 2007

Dirk Kempthorne
Secretary of the Interior
1849 C Street, N.W.
Washington DC 20240

Dear Secretary Kempthorne:

As part of the planning cadre that developed the Carson Range Multijurisdictional Fuel Reduction and Wildfire Prevention Strategy, Douglas County fully endorses the goals and objectives of this plan. The plan includes projects and strategies that were developed by our agency in a comprehensive approach that considers actions throughout the Carson Mountain Range and the Lake Tahoe Basin Comprehensive Plan. When fully implemented, the plan will reduce the risk of wildfire damage to the homes, infrastructure, and resources of the Carson Range and will ensure firefighter safety should a wildfire occur.

We believe this plan serves as a comprehensive framework for all agencies involved with wildland hazardous fuels reduction or wildfire suppression in the Carson Range to coordinate their activities. Douglas County will continue to support this framework as its projects are accomplished and we will provide the necessary collaboration to ensure its success.

Sincerely,

Doug N Johnson

Doug N. Johnson, Chairman
Douglas County Board of Commissioners

cc: Ed Monnig, Forest Supervisor, Humbolt –Toiyabe National Forest

J/Lisa/Letters/2007/Letter of Support Wildfire Plan 12-06-07

United States Department of Agriculture **Forest Service** **Humboldt-Toiyabe National Forest**
1200 Franklin Way
Sparks, NV 89431-6432
(775) 331-6444 Fax (775) 355-5399

File Code: 5150 **Date:** December 27, 2007
Route To:

Subject: Comprehensive Fuels Reduction Strategy

To: Regional Forester

Enclosed for your approval is the Carson Range Multi-jurisdictional Fuels Reduction and Wildfire Prevention Strategy 10 Year Plan (Strategy). The development of this Strategy was directed by the White Pine County Conservation, Recreation and Development Act of 2006 (P.L. 109-432) which amended the Southern Nevada Public Land Management Act of 1998. This Strategy is the final product of many months and long hours of collaboration and hard work by 15 federal, State, and local agencies in western Nevada. This Strategy forms the foundation for the next 10 years of fuels reduction work for all these partner agencies, including the Forest Service, along the Carson Front in Washoe, Carson City and Douglas Counties in Nevada.

I fully support this Strategy and recommend your approval. If approved, this Strategy can then be forwarded to Secretary of the Interior, Dirk Kempthorne, for final acceptance by the United States during his approval of the Southern Nevada Public Lands Management Act (SNPLMA) Round 8 Projects.

This strategy supports several projects proposed for Round 8 funding and must be accepted prior to their approval for funding.

/s/Kathy Nicholas for
EDWARD C. MONNIG
Forest Supervisor

Attachment

cc: Randy Sharp
Amanda Brinnand
Dave Marlow
Christie Kalkowski
Franklin A Pemberton

ALLEN BIAGGI
Director

State of Nevada
Department of Conservation and Natural Resources
Office of the Director
Richard H. Bryan Building
901 S. Stewart Street, Suite 5001
Carson City, Nevada 89701
Telephone (775) 684-2700
Facsimile (775) 684-2715
www.dcnr.nv.gov

JIM GIBBONS
Governor

KAY SCHERER
Deputy Director

Division of Conservation Districts
Division of Environmental Protection
Division of Forestry
Division of State Lands
Division of State Parks
Division of Water Resources
Natural Heritage Program
Wild Horse Program

STATE OF NEVADA
Department of Conservation and Natural Resources
OFFICE OF THE DIRECTOR

December 10, 2007

Mr. Dirk Kempthorne
Secretary, U.S. Department of the Interior
1849 C Street, N.W.
Washington, D.C. 20240

Dear Secretary Kempthorne:

As part of the planning cadre that developed the Carson Range Multijurisdictional Fuel Reduction and Wildfire Prevention Strategy, the Nevada Department of Conservation and Natural Resources fully endorses the goals and objectives of this plan. The plan includes projects and strategies that were developed by the Nevada Department of Conservation and Natural Resources in a comprehensive approach that considers actions throughout the Carson Mountain Range and the Lake Tahoe Basin Comprehensive Plan. When fully implemented, the plan will reduce the risk of wildfire damage to the homes, infrastructure, and resources of the Carson Range and will ensure firefighter safety should a wildfire occur.

We believe this plan serves as a comprehensive framework for all agencies involved with wildland hazardous fuels reduction or wildfire suppression in the Carson Range to coordinate their activities. The Nevada Department of Conservation and Natural Resources will continue to support this framework as its projects are accomplished and we will provide the necessary collaboration to ensure its success.

Sincerely,

Allen Biaggi
Director

cc: Mr. Ron Wenker, State Director, BLM Nevada

ALLEN BIAGGI
Director

Department of Conservation
and Natural Resources

PAMELA B. WILCOX
Administrator

JIM GIBBONS
Governor

State Land Office
State Land Use Planning Agency
Nevada Tahoe Resource Team
Conservation Bond Program -Q1

Address Reply to

Division of State Lands
901 S. Stewart St. Suite 5003
Carson City, Nevada 89701-5246
Phone (775) 684-2720
Fax (775) 684-2721
Web www.lands.nv.gov

STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

Division of State Lands

December 7, 2007

Dirk Kempthorne
Secretary, U.S. Department of the Interior
1849 C Street, N.W.
Washington DC 20240

Chuck Conner
Acting Secretary, U.S. Department of Agriculture
1400 Independence Ave., S.W.
Washington, DC 20250

Dear Secretary Kempthorne and Acting Secretary Conner:

The Division of State Lands holds title to state lands within the Carson Range and the Tahoe basin, and coordinates the Nevada Tahoe Resources Team, an interagency team charged with implementing environmental improvement projects affecting the Tahoe basin. A large part of our focus is on the enhancement of forest health and prevention of wildland fires. As part of the planning cadre that developed the Carson Range Multijurisdictional Fuel Reduction and Wildfire Prevention Strategy, the Division fully endorses the goals and objectives of this plan. The plan includes projects and strategies that were developed by state agencies in a comprehensive approach that considers actions throughout the Carson Range, in coordination with the Lake Tahoe Basin Comprehensive Plan. When fully implemented, the plan will reduce the risk of wildfire damage to the homes, infrastructure, and resources of the Carson Range, which will also reduce the risk of wildfire spreading into the sensitive Tahoe basin.

We believe this plan serves as a comprehensive framework for all agencies involved with wildland hazardous fuels reduction and/or wildfire suppression in the Carson Range to guide their expenditures and coordinate their activities. The Division of State Lands will continue to support this framework as its projects are accomplished and will provide the necessary collaboration to ensure its success.

Sincerely,

Pamela B. Wilcox
Administrator
State Land Registrar

Cc: Ed Monnig, Forest Supervisor, Humboldt-Toiyabe National Forest
Harv Forsgren, Regional Forester, Intermountain Region, USDA Forest Service
Randy Moore, Regional Forester, Pacific Southwest Region,USDA Forest Service
Ron Wenker, State Director, Nevada, USDOI Bureau of Land Management

ALLEN BIAGGI, *Director*
Department of Conservation
And Natural Resources

JIM GIBBONS
Governor

PETE ANDERSON
State Forester Firewarden

STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
NEVADA DIVISION OF FORESTRY
2478 Fairview Drive
Carson City, Nevada 89701
Phone (775) 684-2500 Fax (775) 684-2570

December 12, 2007

The Honorable Dirk Kempthorne
Secretary, U.S. Department of the Interior
1849 "C" Street NW
Washington DC 20240

Re: Support of the *Carson Range Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy 10-Year Plan*

Dear Secretary Kempthorne:

The Nevada Division of Forestry (Division) has actively participated in the cadre that developed the *Carson Range Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy 10-Year Plan* (the "Plan") and we fully endorse the goals, objectives, and collaborative framework of this plan. The "Plan" includes projects and strategies of not only the Division, but many other agencies that participated with the common goal of designing and implementing projects across agency and political boundaries throughout the Carson Range and the Lake Tahoe Basin. The implementation of the "Plan" should reduce the risk of damage from catastrophic wildfire to communities within and surrounding this geographical area, while improving the safety of our firefighters and the public during wildfire events.

The "Plan" serves as a comprehensive framework for all agencies and organizations involved with scientifically based hazardous fuels reduction planning and implementation to coordinate their activities, improve efficiencies and minimize project expenses. This approach lends to a larger landscape level treatment that, due to the support and effort from all involved agencies and communities, should remain effective over time. While the plan is a snap shot in time, future updates are anticipated as communities grow and develop in the wildland urban interface. The Division supports the collaborative effort that went into creating this plan and shall continue to actively participate in updating the plan,

collaborating with our partners to implement the plan, and strive to reduce the risk of catastrophic damage due to wildland fires.

Sincerely,

Pete Anderson
State Forester Firewarden

cc: Edward Monnig, Forest Supervisor Humboldt-Toiyabe National Forest, US Forest Service
Allen Biaggi, Director, Nevada Department of Conservation and Natural Resources
Bob Ashworth, Deputy State Forester, Nevada Division of Forestry
Dave Morrow, Division Administrator, Nevada Division of State Parks
Sierra Front Wildfire Cooperators
file

ALLEN BIAGGI
Director
Department of Conservation and Natural Resources

DAVID K. MORROW
Administrator

JIM GIBBONS
Governor

Address Reply to:
901 S. Stewart Street, Suite 5005
Carson City, Nevada 89701-5248

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Fax: (775) 684-2777
stparks@parks.nv.gov
http://parks.nv.gov

STATE OF NEVADA

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF STATE PARKS

December 10, 2007

Mr. Dirk Kemthorne
Secretary, U.S. Department of the Interior
1844 C Street, N.W.
Washington, DC 20240

Dear Secretary Kemthorne:

The Nevada Division of State Parks actively participated in developing the Carson Range Multijurisdictional Fuel Reduction and Wildfire Prevent Strategy and fully endorses the goals and objectives of the plan. The plan includes projects and strategies that were developed by our agency in a comprehensive approach that considers actions throughout the Carson Mountain Range and the Lake Tahoe Basin Comprehensive Plan. When fully implemented, the plan will reduce the risk of wildfire damage to the homes, infrastructure, and resources of the Carson Range and will ensure firefighter safety, should a wildfire occur.

We believe this plan serves as a comprehensive framework for all agencies involved with wildland hazardous fuels reduction or wildfire suppression in the Carson Range to coordinate their activities. The Nevada Division of State Parks continues to support this framework as its projects are accomplished and we will provide the necessary collaboration to ensure its success.

Sincerely,

David K. Morrow,
Administrator

Cc: Mr. Ron Wenker, State Director, BLM Nevada

DEPARTMENT OF BIOLOGY
COLLEGE OF SCIENCE

UNIVERSITY
OF NEVADA
•Reno

Mail Stop 314
Reno, Nevada 89557-0015
(775) 784-6188
FAX: (775) 784-1302

3 December 2007

Mr. Dirk Kempthorne
Secretary, U.S. Department of the Interior

Re: Letter of Support

Dear Mr. Kempthorne:

As part of the planning cadre that developed the Carson Range Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy 10-year Plan, the University of Nevada Reno fully endorses the goals and objectives of this plan. The plan includes projects and strategies that were developed by the Whittell Forest in a comprehensive approach that considers actions throughout the Carson Range and the Lake Tahoe Basin Comprehensive Plan. When fully implemented, the plan will reduce the risk of wildfire damage to the homes, infrastructure, and resources of the Whittell Forest and will ensure firefighter safety should a wildfire occur.

We believe this plan serves as a comprehensive framework for all agencies involved with wildland hazardous fuels reduction or wildfire suppression in the Carson Range to coordinate their activities. The University of Nevada Reno will continue to support this framework as its projects are accomplished, and we will provide the necessary collaboration to ensure its success.

Mark Brenner

Mark Brenner, Vice-President for Research

cc: Ed Monnig, Forest Supervisor, Humboldt-Toiyabe National Forest

EAST FORK FIRE AND PARAMEDIC DISTRICTS

P.O. Box 218
1594 Esmeralda
Minden, NV 89423
(775) 782-9040
(775) 782-9043 (fax)

Steve Eisele, Deputy Fire Chief/Fire Marshal
(775) 782-9041 SEisele@co.douglas.nv.us
Terry Taylor, Captain/Inspector
(775) 782-9861 TTaylor@co.douglas.nv.us
John Babcock, Fire Inspector
(775) 783-6427 JBabcock@co.douglas.nv.us
Toni Braga, Counter Technician
(775) 783-6415 Tbraga@co.douglas.nv.us

December 6, 2007

Dirk Kempthorne
Secretary of the Interior
1849 C Street, N.W.
Washington DC 20240

Dear Secretary Kempthorne:

As part of the planning cadre that developed the Carson Range Multijurisdictional Fuel Reduction and Wildfire Prevention Strategy, the East Fork Fire and Paramedic Districts fully endorse the goals and objectives of this plan. The plan includes projects and strategies that were developed by our agency in a comprehensive approach that considers actions throughout the Carson Mountain Range and the Lake Tahoe Basin Comprehensive Plan. When fully implemented, the plan will reduce the risk of wildfire damage to the homes, infrastructure, and resources of the Carson Range and will ensure firefighter safety should a wildfire occur.

We believe this plan serves as a comprehensive framework for all agencies involved with wildland hazardous fuels reduction or wildfire suppression in the Carson Range to coordinate their activities. The East Fork Fire and Paramedic Districts will continue to support this framework as its projects are accomplished and we will provide the necessary collaboration to ensure its success.

Sincerely,

Doug N. Johnson, Chairman
East Fork Fire and Paramedic Districts

cc: Ed Monnig, Forest Supervisor, Humbolt –Toiyabe National Forest

J/Lisa/Letters/2007/Letter of Support EFFPD Wildfire Plan 12-06-07