

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.

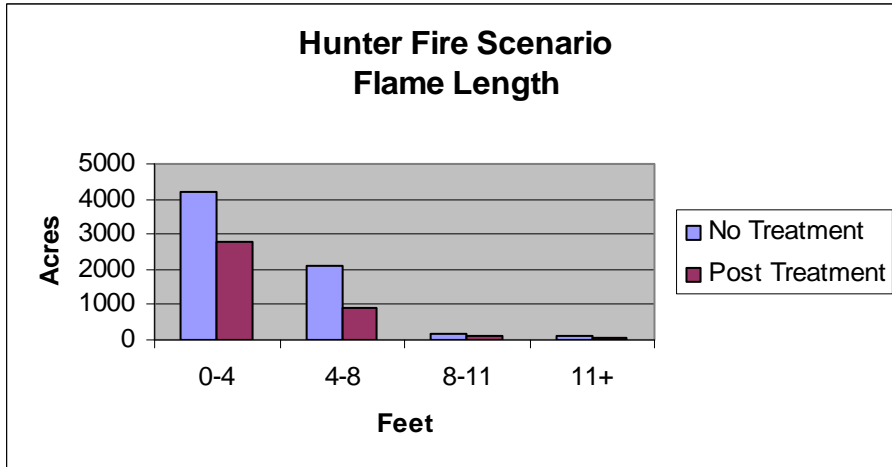


Figure 19. Modeling outcome for flame length in the Hunter Fire scenario

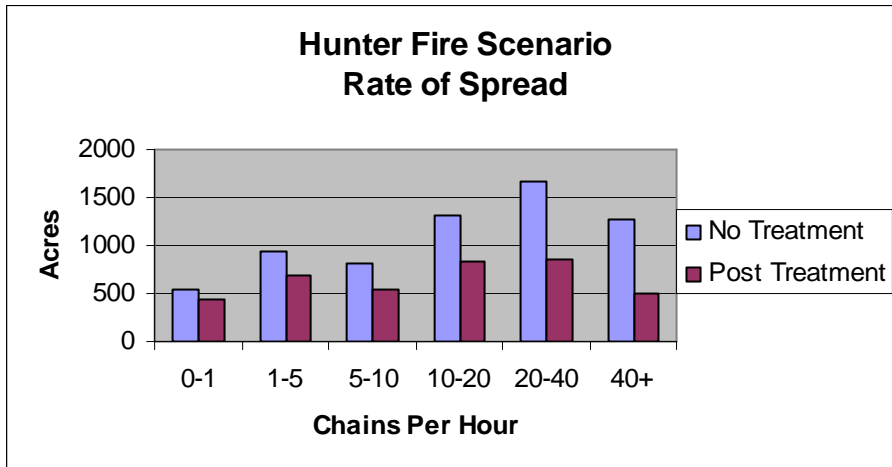


Figure 20. Modeling outcome for rate of spread in the Hunter Fire scenario

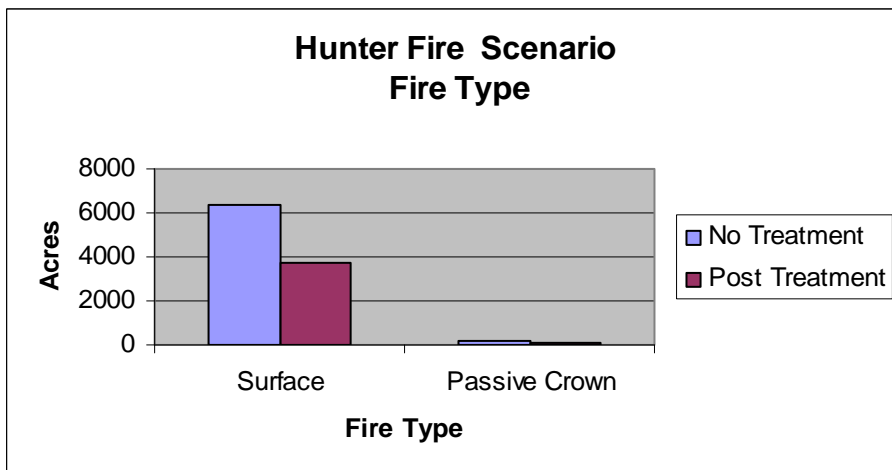


Figure 21. Modeling outcome for fire type in the Hunter Fire scenario