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.

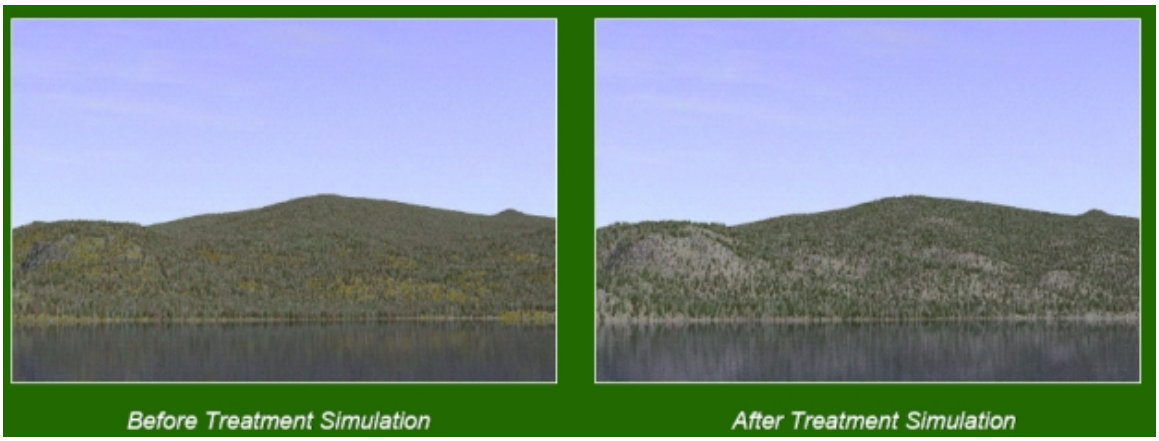

Figure 10. Computer simulation of a SPLAT treatment

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.