Final Environmental Assessment
North Tahoe Fire Hazardous Fuels Reduction and Defensible Space Project

North Lake Tahoe Fire Protection District

PJ19/FEMA#019

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Federal Emergency Management Agency
U.S. Department of Homeland Security
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This document was prepared by the California Tahoe Conservancy

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ACRONYMS AND ABBREVIATIONS

APE	Area of Potential Effects
BMP	Best Management Practices
CalFire	California Department of Forestry and Fire Protection
CARB	California Air Resources Board
CEQ	President's Council on Environmental Quality
CFR	Code of Federal Regulations
CNEL	Community Noise Equivalent Level
CTC	California Tahoe Conservancy
CWPP	Community Wildfire Protection Plans
EA	Environmental Assessment
EHP	The Environmental Planning and Historic Preservation
EIP	Environmental Improvement Program
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Endangered Species Act of 1973
FEMA	Federal Emergency Management Agency
FI	Forest Improvement
FONSI	Finding of No Significant Impact
FI	Forest Improvement
GHG	Greenhouse Gases
GWP	Global Warming Potential
HMGP	Hazard Mitigation Grant Program
MAC	Multi Agency Coordinating Group
MBTA	Migratory Bird Treaty Act
NAAQS	National Ambient Air Quality Standards

NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act
NTFPD	North Tahoe Fire Protection District
OPR	Office of Planning and Research
SEZ	Stream Environment Zone
SHPO	State Historic Preservation Officer
TFFT	Tahoe Fire and Fuels Team
TMDL	Lake Tahoe Total Maximum Daily Load
TRPA	Tahoe Regional Planning Agency
TYC	Tahoe Yellow Cress
U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service

FORESTRY DEFINITIONS

Basal Area: A common forest stocking indicator that give the average amount of an area occupied by tree trunks/stems. In this document, it is the total cross-sectional area of all tree stems in a stand measured at breast height, and expressed as square feet per acre.

Chipping: Mechanically cutting trees and brush materials into small chips with a chipper.

Defense Zone: The area that includes the at-risk community extending into the wildland for at least 0.25 mile beyond the community. All areas within the defense zone are a priority for fuels reduction; specifically fuels reduction in wildland areas and defensible space within the built areas.

Diameter at Breast Height (DBH): The standard measurement of a tree's diameter, taken at 4 ½ feet above the ground on the uphill side of the tree.

Down Logs: A fallen tree or limb. After trees fall, they go through recognizable stages of deterioration. One system for classifying the stages of log decay is a five-class scheme based on easily recognized physical characteristics. Depending on weather conditions and species of the log, decomposition occurs at different rates. With moisture and the various organisms that feed on the wood of the log during different stages of its decomposition, it converts back into minerals. Dead and down woody material in the form of stumps, root wads, bark, limbs, and logs, in various stages of decay, occurs in most forest ecosystems Not only is this material important in mineral cycling, nutrient mobilization, and natural forest regeneration, but it also creates a structure and diversity of habitats that are valuable to a great many wildlife species, terrestrial and aquatic. See also *Woody Debris*.

Hazard Tree: Tree hazards include dead or dying trees, dead parts of live trees, or unstable live trees (due to structural defects, disease, or other factors) that are within striking distance from people (e.g., roads or trails) or property, creating a likelihood of personal injury or property damage from its failure. Thus, "hazard" incorporates not just the condition of the tree, but also requires a potential target. It is common practice to refer to such trees that have the potential to cause injury or death or property damage should they fail as "hazard trees."

Slash: Coarse and fine woody debris generated during logging operations or through wind, snow or other natural forest disturbances.

Snag: Standing dead trees, sometimes described by their decomposition class.

Threat Zone: An extension of the defense zone with the distinction that not every area within the threat zone may be a priority for treatment. Area treatments within the threat zone are designed to reduce fuels in target areas where fires are known to start, where a fire start is likely to grow and threaten communities.

Values at Risk: An estimate of the worth of resources (e.g., watershed, wildlife habitat, etc.) or property exposed to a chance of loss or damage from a wildfire.

Wildland-Urban Interface (WUI): As defined in the Lake Tahoe Restoration Act, a WUI is an area within or adjacent to an at-risk community that is identified in recommendations to the Secretary of Agriculture in a Community Wildfire Protection Plan. Communities identified as "at-risk" (most of the Basin communities are identified) are identified in Federal Register 66(160): 43384-43435. The wildland-urban interface includes both the defense zone as well as the threat zone.

Woody Debris or Material: Woody debris can be defined as any dead, woody plant material, including logs, branches, standing dead trees, and root wads. Woody debris is an important part of forest and stream ecosystems because it has a role in carbon budgets and nutrient cycling, is a source of energy for aquatic ecosystems, provides habitat for terrestrial and aquatic organisms, and contributes to structure and roughness, thereby influencing water flows and sediment transport. See also *Down Log*.

EXECUTIVE SUMMARY

Final Environmental Assessment
North Tahoe Fire Hazardous Fuels Reduction and Defensible Space Project

Responsible Agency: U.S. Department of Homeland Security, Federal Emergency Management Agency (FEMA)

Proposed Action: Provide funding under the Pre-Disaster Mitigation Program to the North Tahoe Fire Protection District to implement a fuels reduction project on California Tahoe Conservancy parcels located within and adjacent to subdivisions on the north and west shores of Lake Tahoe in Placer County, California

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Report Designation: Final Environmental Assessment (EA)

Abstract: FEMA has prepared this EA to assess the potential environmental effects that would result from awarding Pre-Disaster Mitigation Program funding to the North Tahoe Fire Protection District to conduct a fuels reduction project on up to 1,013 California Tahoe Conservancy-owned "urban lot" parcels, totaling up to 238 acres, within and adjacent to subdivisions within their District boundary. Proposed fuels reduction measures would be implemented to reduce wildfire hazards for several communities on the north and west shores of Lake Tahoe in Placer County, California. The project would be accomplished using a "thin from below" method where smaller trees and brush are targeted for thinning and removal and larger trees are generally retained.

The fuels reduction treatments would involve reducing hazardous densities and patterns of vegetation in designated wildland-urban interface areas to mitigate the spread of wildfire toward homes and communities. Treatments would be implemented by hand crews supervised by the North Tahoe Fire Protection District and ongoing maintenance would be performed by the California Tahoe Conservancy, consistent with the Operations and Maintenance Plan for the North Tahoe Fire Hazardous Fuels Reduction and Defensible Space Project.

1.0 INTRODUCTION

The North Tahoe Fire Protection District (NTFPD) has applied to the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) for funding under the Pre-Disaster Mitigation (PDM) Program to implement defensible space and hazardous fuels reduction measures in the wildland-urban interface on up to 238 acres of State of California, California Tahoe Conservancy-owned (Conservancy-owned) public lands within its District boundaries. The project is proposed in order to protect neighborhoods by reducing hazardous vegetative fuel for wildfires and improving wildfire suppression capabilities by providing a treated zone from which firefighters can better protect structures. These proposed measures would be implemented to reduce wildfire hazards for several communities on the west and north shores of Lake Tahoe in Placer County and are collectively referred to as the Proposed Action for the purposes of this Environmental Assessment (EA).

Pursuant to the requirements of the National Environmental Policy Act of 1969 (NEPA), the President's Council on Environmental Quality (CEQ) regulations for implementing NEPA (Title 40 of the Code of Federal Regulations [CFR] Parts 1500-1508) and FEMA Instruction 108-1-1, FEMA is required to consider the potential impacts of a project before funding or approving an action. The purpose of this EA is to evaluate the potential impacts of the NTFPD's proposed project and to make that information available to the public as part of the Federal decision-making process. If no significant impacts associated with the proposed project are found in the environmental analysis, FEMA would issue a Finding of No Significant Impact (FONSI) and proceed with the project funding process. If the anticipated impacts from implementing the project are found to be significant based on criteria established in 40 CFR § 1508.27, a Notice of Intent would be published and an Environmental Impact Statement (EIS) would be prepared before any decision is made to fund implementation of the project.

1.1 Purpose and Need

Under the authority of Section 203 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Title 42 of United States Code Part 5133 as amended by Section 102 of the Disaster Mitigation Act of 2000 (Public Law 106-390, 114 Statutes 1552), FEMA provides PDM grants to assist states and communities with implementation of sustained, pre-disaster, natural-hazard mitigation programs with the objective of reduction to overall risk to the population and structures, while reducing reliance on funding from actual disaster declarations. The purpose of this action is to provide PDM funding to the NTFPD to reduce wildfire hazards and improve wildfire suppression capabilities in several unincorporated communities on State-owned parcels managed by the Conservancy on the north and west shores of the Lake Tahoe Basin in Placer County.

Wildfire risk represents an extreme hazard in the Lake Tahoe Basin, and the portion of Placer County within the lake's watershed that comprises the thirty-one square miles served by the NTFPD is no exception. There are fourteen recognized communities in the district's boundary, none of which are incorporated municipalities. Structural ignitability factors in all of these communities have been rated as "high" or "extreme" by the Community Wildfire Protection Plan (P251 of the California Portion of the Tahoe Basin).

The vegetative conditions in the Tahoe Basin have been modified from their historic forest structure and species composition due to fire suppression and from human activities, including logging and settlement that began with the Comstock era mining of the 1870s. Previously, frequent fires (burning every five to 20 years on average) shaped the Lake Tahoe Basin forest. Such fires consumed small trees, limbs, needles, cones, forest debris, and brush, and burned the lower limbs of live trees to 15-20 feet off the ground. These lower intensity fires helped create a complex mosaic pattern of towering old-growth conifers and diverse under story plants. This forest stand was resistant to a crown fire because it separated the ground fuels from the tree limbs.

Over the past 140 years, the shift in forest composition due to fire suppression and historic logging has created a forest no longer dominated by openly-spaced, large-diameter pines. Instead, smaller diameter pine and fir trees at higher densities characterize the landscape, and surface fuel loading has increased. The accumulation of surface and "ladder" fuels, especially the growth of dense, small-diameter suppressed trees, contributes to today's increased propensity for destructive crown fires. The increased amount and height of the vegetation on the ground and reduced space between the fuels and the tree limbs increases the potential for wildfire ignition.

Current wildland fuel conditions in the Lake Tahoe Basin could support high-intensity wildfires that are difficult to suppress. Most communities in the Basin, as part of the National Fire Plan (2001), were designated as high risk to damage from wildfire. In addition, values uniquely associated with the Basin are at risk. These include homes, commercial and public infrastructure, the clarity and beauty of Lake Tahoe and its scenic landscapes, its tourism-based economy, and the ecological values of its surrounding forests. These attributes that make the Tahoe Basin a special place are at an unacceptably high risk of loss from wildfires and common feedback at public forums is that something urgently needs to be done to reduce that risk.

The forests around Lake Tahoe's urban communities experience seven fire ignitions per 1,000 acres annually. During a typical fire season there are over fifty fire ignitions in the Tahoe Basin, primarily human-caused. The region's overall fuel conditions and the resultant fire behavior those conditions produce increase the risk of a severe wildfire event, such as a running crown fire or a stand-replacing fire. Wildfires under these conditions are a threat to human life and property, as well as Lake Tahoe's famed clarity, water quality, and environs. All of the modern fires in the Lake Tahoe Basin had the potential to cause serious property and resource damage. For example, the 2007 Angora Fire burned over 3,000 acres, spread four miles in three hours and burned more than 250 structures on 231 acres of private property. Most of the acres within the fire perimeter involved forest lands surrounding subdivisions; however, about 300 "urban lot" parcels administered by public agencies also burned.

Conservation objectives included in the updated Lake Tahoe Basin Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy (Fuels Strategy) identify fire threat mitigation as a high priority. In 2007, the Region's Fuels Strategy combined all existing fire plans that had been developed within the Tahoe Basin, including the 2004 Community Wildfire Protection Plan for the California Portion of the Lake Tahoe Basin. Sixteen local, state, and federal agencies collaboratively plan and implement fuels reduction treatments to protect Lake Tahoe's California and Nevada communities and environment. The Fuels Strategy was updated in August 2014. Continued action is needed to reduce the risk and severity of wildfires on the north and west shores of Lake Tahoe.

2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 Proposed Action/Preferred Alternative

The Proposed Action is for FEMA to provide funding to the NTFPD to conduct hand thinning and other fuels reduction activities within an analysis area of up to 881 Conservancy-owned "urban lot" parcels (see maps, Appendix A) within Placer County, California on the north and west shores of Lake Tahoe. The average parcel size is approximately 0.24 acres. These parcels are located within the wildland urban interface targeted for fuel reduction; in this case, within residential subdivisions and adjacent to private homes within the jurisdictional boundary of the NTFPD. All treatments would be located within one mile of developed structures. Up to 238 acres comprised predominately of conifer forest will be treated. (The number of parcels originally proposed for treatment was 1,013 parcels; it was reduced by 132 parcels which could not be treated with the methods described in this section.)

In response to the purpose and need, the Project proposes to conduct vegetation and fuels treatments to reduce forest and brush densities in order to improve forest health, reduce hazardous fuels to modify potential wildfire behavior, and enhance defensible space efforts initiated by nearby private landowners. Fuels reduction activities include tree salvage and thinning, brush treatment and removal, and removal of downed logs and other woody materials where the quantity creates a hazard. These activities would remove dead and dying trees, as well as smaller live trees which grow in the understory and sometimes larger trees as necessary to achieve tree spacing goals. In addition, remove diseased trees would be removed. Following Project implementation, the treated parcels would reflect historic forest conditions, with a stocking range that's typically between 50 and 150 square feet of basal area per acre (target density 135 square feet per acre). Today, typical basal areas on forested sites are approximately 175 square feet per acre. Following treatment, roughly half of the understory vegetation (brush) is removed as well.

The general treatment methodology for each parcel would remove dead and dying trees, as well as live smaller trees and brush that act as ladder fuels, as well as thin live trees to reduce forest canopy continuity. Creating these "breaks" in fuel continuity would slow the spread of a wildfire and reduce the risk of a more damaging, stand-replacing crown fire. This work would be accomplished using a "thin from below" approach where the smaller trees and brush are targeted first for removal and larger, healthy trees retained. Tree removal would be by hand crews, not mechanical equipment. Spacing between remaining trees would increase from pre-project conditions to better mimic historic conditions, balancing age and species diversity. Diseased trees and trees threatened or impacted by insects would also be removed, as well as "hazard trees" that pose an unacceptable safety hazard to structures or other targets (e.g., they are dead, dying, or mechanically defective). A healthy, well-spaced forest will remain.

All brush located within the drip line of retained trees and within three feet of standing dead trees or down logs that would remain would be cut and either chipped or removed. Other brush treatments would leave a live, mosaic brush pattern of irregular shapes and sizes on the landscape, in islands no larger than 1/8 acre in size. Within six feet of any property line bordering a private residence, one hundred percent of brush would be cleared. Proposed forest fuels reduction activities would have the added benefit of meeting neighborhood defensible space objectives in order to reduce potential wildfire intensity spread, as well as to enable firefighters to have a better opportunity to protect human life and property. On average, the project is expected to reduce fuels by 30 tons per acre, removing a total of 6,087 tons of biomass.

Hand crews with chainsaws would conduct all salvage and thinning of trees, brushwork, and treatment of down woody materials. Noise producing operations would be limited to the hours of 0800-1830 (8:00 a.m. to 6:30 p.m.). Stumps would be cut with typical height of no more than six inches measured from the uphill side of the stump, where practical. For example, it would be impractical to lower the stump height where an adjacent boulder would create a safety hazard to the chainsaw operator. Stumps created by cutting of live fir and pine trees ten inches in diameter or greater would be treated with an Environmental Protection Agency-registered borate compound within four hours after cutting to prevent the spread of annosus root disease. No herbicides or pesticides would be used. Fallers would use falling wedges and techniques to directionally fall trees away from sensitive targets, such as stream channels, Stream Environment Zones (SEZs), residences, and utility lines.

Per Lake Tahoe Basin regulations, the normal operating period for ground disturbing projects in the Lake Tahoe Basin is May 1 through October 15. Forestry operations by hand crews are not considered ground disturbing activities. Consequently, project operations can potentially occur at any time of the year as long as environmental conditions are suitable to prevent erosion, sediment delivery to water bodies, and soil compaction that would impact soil productivity or soil hydrologic function. Certain parcels would be the subject of Limited Operating Periods (LOPs) for wildlife reasons. Migratory bird species have the potential to nest throughout the project area. Pre-treatment nesting bird surveys would be conducted during the nesting season (May 1 to August 15) and treatments would be postponed in areas near active bird nests. Additionally, LOPs restrict vegetation clearing in SEZ parcels with riparian habitat between April 1 and August 1. Mapped “no disturbance zones” for northern goshawk and osprey would also prohibit fuels reduction work from February 15 to September 15 and March 1 to August 15, respectively.

Tree removal would be accomplished in a manner that does not damage the remaining trees. Because no mechanical logging systems would be employed, no log landings would be constructed and no skidding would occur. Existing neighborhood streets would provide access to the project area for the work crews and their vehicles and chipping equipment. Crews would park their vehicles on neighborhood streets and road shoulders and gain access to the treatment areas on foot. All properties that cannot be accessed by foot directly from paved neighborhood streets were eliminated from the project area. No temporary or permanent roads or stream crossings would be constructed. No water source development or drafting from any water sources is required or proposed.

The Project would remove most existing downed and post-treatment material from the site, retaining only that material necessary for soil stabilization and wildlife needs which does not create a fire hazard. Most of these post-treatment materials (logs) would be removed through public fuelwood collection, while the remaining limbs, cull, and other slash would be modified through chipping, or be “lopped and scattered” on site. Free public fuelwood collection is accomplished where hand crews cut logs into firewood sized pieces (rounds) that are typically brought to the road edge and then removed by hand by the public after crews have departed from the work site. The public would not cut wood, drive onto, or otherwise disturb the parcels. If after two years any large wood accumulations from the available public fuelwood remain on site, it would be hauled to the dump. Where chipping would be used for limbs, cull wood and other materials unsuitable as firewood, a dump truck/chipper combo would be parked on the road and crews would drag the felled materials to a chipper for processing and removal, or for redistribution back onto the parcel as mulch (less than four inches deep on average and no place deeper than six inches). Redistribution of chipped material onsite would only be done in upland areas (outside of SEZ) and not directly adjacent to a structure. Some slash would be lopped and scattered on site, where the residual fuel load would be acceptable, avoiding distribution onto existing roads and trails to preserve the public’s ability to continue accessing the forest. No burning of any type – such as pile burning, jackpot burning, or broadcast underburning – would occur, either for slash disposal or for maintenance

treatments (see Appendices B and C). All parcels where post-project fuels could not be treated with methods other than burning were eliminated from the project area.

A small percentage of the fuels reduction work would be done within SEZs, an environmentally sensitive land classification for areas that owe their biological and physical characteristics to the presence of surface or ground water. (The lands mapped as SEZ are identified through application of criteria set forth in TRPA's Water Quality Management Plan for the Lake Tahoe Region, Volume III, SEZ Protection and Restoration Program, dated November 1988.) . Approximately 15 percent of the project analysis area parcels, or 167 parcels, contain at some percentage of SEZ. The approximate area of SEZs within those parcels are 15 acres, or six percent of the total acreage of the project. Since all treatments for the Project are proposed to be conducted using hand crews, which is the most environmentally sensitive type of treatment possible, the treatment measures within the SEZs are similar to the techniques proposed throughout the Project. However, there are some differences:

- SEZ lands that contain riparian vegetation would be subjected to LOPs, as previously described.
- In SEZ, preference would be given to retention of riparian vegetation (willows, alders and aspens); tree and brush removal would focus on encroaching conifers and flammable chaparral. This treatment is normally considered riparian habitat restoration, but in this case it also has the added benefit of reducing forest fuels since riparian vegetation is less flammable.
- Within SEZs and 100 year floodplains, all existing downed trees would be left in place unless removal is necessary to achieve project fuel load reduction objectives.
- All stream bank trees would be retained unless necessary to meet project objectives or if they pose an unacceptable safety hazard to adjacent structures or other targets.

Because these urban open space parcels provide habitat for the area's wildlife, an average of two of the largest diameter, non-hazardous standing dead trees (also called "snags") per acre will remain following treatment. In evaluating snags for retention, all snags greater than 30" in diameter at breast height (DBH) and all those greater than 24" DBH in decay Class 6 or higher would be retained unless they become so numerous that the forestry or fire professionals marking the property determine that they pose an unacceptable fire hazard or evaluate them to be a hazard tree. In order to protect life and property, all hazard trees would be removed around homes, roads, and trails even when the above-described snag retention standard cannot otherwise be met on a parcel. In addition, at least three to five of the largest logs per acre in would be retained. All previously-treated properties that are not past the maintenance period of the previous project were eliminated from the project area.

All parcels treated by this project would receive maintenance activities, if necessary based upon site conditions, to ensure that they continue to provide defensible space for the neighborhood. Such maintenance activities would continue for eleven years after treatment, as described in the Project's Operations and Maintenance Plan (Appendix B). No prescribed burning of any type would be used as part of maintenance treatments during this time period.

Following Project implementation, the treated parcels would reflect historic forest conditions, with a stocking range that's typically between 50 and 150 square feet of basal area per acre. Forest stands treated within the "Defense Zones" defined by the Tahoe Region's Fire and Fuels Team would be characterized by a more open condition with increased distance between trees and dominated primarily by larger, fire tolerant tree species (Jeffrey pine, incense cedar, and sugar pine in lower to mid-elevation stands, with larger red fir, western white pine, and incense cedar at mid- to higher elevations). Surface and ladder fuel conditions would decrease the likelihood of crown fire ignition, and crown fuels would be more open and discontinuous (both horizontally and vertically), lessening the probability of a sustained crown fire. Overall surface fuel loads would be reduced,

resulting in forest conditions that allow wildfires to burn at lower intensities and slower rates of spread compared to untreated areas, thereby contributing to more effective fire suppression capabilities and fewer acres burned at high severity. Post-treatment conditions would improve the speed and ability that firefighters could construct fire lines in the event of a wildfire.

2.2 Justification for Proposed Action

The measures included in the Proposed Action were identified based upon the recommendations presented in the recently-updated (2014) Fuels Strategy for the Lake Tahoe Region. Since its inception and due in large part to the availability of Federal funding, responsible agencies increased wildfire hazard reduction/prevention projects. The Fuels Strategy comprehensively combined existing wildfire hazard reduction plans prepared by the agencies, including fire protection districts. It incorporated all of the Community Wildfire Protection Plans (CWPP) within the Lake Tahoe Basin, which outlined the prioritized schedule of fuel treatments near communities. It also provided a framework for participating agencies to identify priority areas and a strategy to work collaboratively on accomplishing those priorities, with Basin-wide oversight and implementation groups working together to guide fuels reduction planning efforts.

2.3 No Action Alternative

The No Action Alternative is defined as FEMA not funding implementation of the Proposed Action. It represents the existing and projected future condition against which the Proposed Action is compared. In this case, the status quo described in the Affected Environment sections of this document for each resource area is maintained, including the continuation of the existing wildfire hazard and its associated potential for health and safety hazards to people, and damage to property and natural resources. It provides a baseline for comparison of the impacts associated with the Proposed Action. In this case, the No Action Alternative assumes that the management activities described in the Proposed Action will not proceed if FEMA funding is not secured; however, this does not preclude acquisition of other sources of funding for ongoing activities in this or other areas, or similar management proposals for the area at some time in the future. No maps are presented for the No Action Alternative.

2.4 Alternatives Considered but Eliminated from Further Discussion

NTFPD and partners considered other ways to meet the Project's Purpose and Need. The following alternative was considered, but eliminated from detailed discussion due to its high cost and because it does not address the potential for increasingly intense, larger fires due to the forest conditions:

Increased Fire Suppression in Lieu of Forest Treatment.

This alternative would propose build-up of fire suppression resources needed to fight wildland fires. The current state of the suppression force is inadequate to fully extinguish all potential vegetation fires within a short period of time, given the existing fuel condition in the wildland urban interface and inter-urban lots. Response time is over ten minutes in some areas. To improve response times, multiple new fire stations would need to be constructed and staffing increased to meet the current demand. More fire equipment, including engines, would need to be purchased and there would be a commensurate increase in the support

mechanisms to maintain these apparatuses. Increased costs include approximately $10,000,000 per station, as well as a yearly cost of $1,000,000 to staff and outfit each one. Additionally, over $150,000,000 would be required to retrofit the existing sixteen established water systems in the NTFPD to meet fire code regulations of 1,000 gallons per minute, increase water storage capacity, and tie together all systems. This combined effort would help suppress any fires that start, but it would not address the legacy issue of the hazard of overly dense forest composition, due to years of fire suppression, and its potential for increasingly intense fires.

One additional alternative was considered, but similarly eliminated from detailed discussion. In this case, while the cost of project implementation was likely lower than the Proposed Action, treatment activities conducted using heavy equipment were determined inappropriate for these small parcels located within subdivisions.

Fuel Reduction Using Heavy Equipment.

This alternative would propose use of heavy mechanical equipment, such as masticators and feller bunchers, to accomplish the treatment needs of the Proposed Action. The Conservancy's Forest Improvement Guidelines clarify that mechanical treatments have the greatest utility within the wildland-urban interface and on larger parcels where the slopes do not exceed 30 percent and soil conditions permit. On small parcels within the urban area, such as this project area, and on steeper slopes, hand crews are more typically utilized. While the Conservancy recognizes that the cost per acre for hand treatment may be up to twice that of mechanical treatment, the agency prefers to act with the most conservative and highly sensitive forest treatment methods when working within urban subdivisions to reduce potential noise and other effects on adjacent residences.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

It is FEMA's Environmental Planning and Historic Preservation (EHP) Program's policy to act with care to ensure that its mitigation and preparedness responsibilities are carried out in a manner that is consistent with all Federal environmental and historic preservation policies and laws. FEMA uses all practical means and measures to protect, restore and enhance the quality of the environment, to avoid or minimize adverse impacts to the environment, and to attain the objectives of:

1. Making use of the environment without degradation or undesirable and unintended consequences;
2. Preserving historic, cultural and natural aspects of national heritage and maintaining, wherever possible, an environment that supports diversity and variety of individual choice;
3. Balancing resource use and development within the sustained carrying capacity of the ecosystem involved; and
4. Enhancing the quality of renewable resources and working toward the maximum attainable recycling of resources.

FEMA's EHP effort integrates the stewardship of environmental, historic, and cultural resources into FEMA's mission, programs and activities. It helps ensure that FEMA's activities and programs related to disaster response and recovery, hazard mitigation, and disaster preparedness comply with federal environmental and historic preservation laws and executive orders. It also provides environmental and historic preservation technical assistance to FEMA staff, local, State and Federal partners, and grantees and sub grantees.

The following sections describe the affected environment and potential consequences (long- and short-term environmental effects), best management practices, and mitigation measures of the Proposed Action and the No Action Alternative. It also describes the applicable regulations and project-specific measures that would be implemented to avoid or minimize potential impacts.

Relevant resource issues were determined according to Federal law and relative impacts to the natural environment or quality of human life. The information presented below was gathered from site visits, interviews, existing documentation, and correspondence and reports prepared by Federal, State, and local agencies.

3.1 Physical Resources

The project's analysis area is situated on the northwest side of the Lake Tahoe Basin, extending west from the California/Nevada state line on the north shore to the El Dorado County-Placer County line on the west shore in Tahoma. Elevations range between 6,225 and approximately 8,000 feet. The analysis area consists of approximately 238 acres of forested land located within and adjacent to developed subdivisions.

3.1.1 Geology, Soils, and Seismicity

Affected Environment: *Environmental Setting*

The Lake Tahoe Basin was formed over two million years ago by a combination of faulting and volcanism, resulting in a diversity of rock types: granitic, metamorphic, volcanic, and sedimentary. Glaciers moved through the region, further transforming the environment, in combination with erosion, deposition, and subsequent cementation of rock debris. The geology of the North Shore of Lake Tahoe is characterized by extinct volcanoes, as weathered volcanic rock has created its fine-grained soils. The project area is located primarily on Pleistocene (1.8 million years before present and younger) floodplain deposits, and some Holocene alluvium.

Two faults trending north to south traverse the Lake Tahoe Basin. The faults approximately parallel the west and east shores of Lake Tahoe, passing through the Tahoe City and Incline Village areas in the north, and converging at the southern end of the basin in the Upper Truckee River watershed.

Environmental Consequences:

PROPOSED ACTION. The proposed project would not alter the geology or earthquake potential in the Lake Tahoe Basin. Soil erosion would be controlled by keeping project vehicles on paved subdivision streets and utilizing hand crews rather than mechanized logging equipment. The foot traffic and slash dragging of the work crews would cause minimal soil disturbance. No road or trail building is proposed as part of this project. Rootballs of cut trees and brush would be left in place. Consequently, the minimal ground disturbance that could occur would be the result of foot traffic from hand crews dragging slash to the roadside for chipping. Chippers would be limited to the access roads; in this case, paved subdivision streets. Chipping – produces materials that are removed or rebroadcast on site, depending upon the physical qualities of the land being treated. Chips are removed from the site when existing fuel loads on the forest floor are too heavy to support additional materials. The chipper's chute can also rebroadcast chips on site where needed to maintain a layer of surface litter, duff and coarse woody debris in an adequate amount (typically 3-4" deep) to maintain organic matter reserves and recycle nutrients. Standards would be incorporated into contracting documents for the project requiring rebroadcast materials to be applied less than four inches deep on average and in no place deeper than six inches. Neither long- nor short-term environmental effects on soils are anticipated, avoiding potential for impact to the area's geology. The Proposed Action would not expose structures to additional hazards associated with the known earthquake faults, strong seismic ground shaking, or seismic-related ground failure (e.g., liquefaction). There would be no construction or modification of structures.

NO ACTION ALTERNATIVE. Under this alternative, vegetation clearing would not take place. There would be no direct effects to geologic or soil resources from Project implementation. However, there would also be no reduction in the fuel loads in the project area. Therefore, if an intense wildfire were to burn through, indirect effects could occur including soil damage such as loss of infiltration capacity, loss of topsoil and loss of soil productivity. The No Action Alternative would not expose structures to additional hazards associated with the known earthquake faults, strong seismic ground shaking, or seismic-related ground failure (e.g., liquefaction).

3.1.2 Air Quality

Affected Environment: *Environmental Setting*

The primary factors influencing the Lake Tahoe Air Basin's (LTAB's) air quality are motor vehicle emissions, wildfire, residential wood smoke, pollutants transported from outside of the area, and vehicle entrainment of road dust. Air quality conditions at Lake Tahoe can affect human health, visibility, forest health, and lake water quality. Lake water clarity is affected by air quality because atmospheric deposition contributes to pollutant loading in the region's lakes.

Federal, State, and regional standards apply to protect air quality within the LTAB. The air quality management agencies in the Lake Tahoe portion of Placer County include the U.S. Environmental Protection Agency (USEPA), California Air Resources Board (CARB), Placer County Air Pollution Control District (PCAPCD) and TRPA. The USEPA establishes National Ambient Air Quality Standards (NAAQS) for which the CARB and PCAPCD have primary implementation responsibility. Under authority granted by the CARB, the PCAPCD manages air quality within Placer County, ensuring that California Ambient Air Quality Standards (CAAQS) are met.

The LTAB is considered in non-attainment status for ozone and particulate matter less than or equal to 10 microns in diameter (PM10).

Three air quality monitoring stations are located in the Analysis Area vicinity, two in the Tahoe Basin (South Lake Tahoe Airport and in South Lake Tahoe at 3337 Sandy Way), and in the Mountain Counties Air Basin in Truckee (10046 Donner Pass Road). Monitoring results report occasional violations of the 8-hour ozone and particulate matter less than 2.5 microns in diameter (PM2.5) ambient air quality standards during a three-year period from 2006-2008, the most recent and available data representation of existing air quality conditions within the Lake Tahoe Air Basin. Ozone and NO2 (an ozone precursor) are considered regional pollutants because they affect air quality on a regional scale; oxides of nitrogen (NOX), including NO2, react photochemically with reactive organic gases (ROG) to form ozone some distance downwind of the source of pollutants. Pollutants such as CO, PM10, and PM2.5 are local pollutants because they tend to disperse rapidly with distance from the source. PM10, and PM2.5 are regional pollutants that travel and impact downwind areas.

Key Regulatory Requirements and Standards:

Clean Air Act of 1970: The Clean Air Act (CAA) of 1970 regulates air emissions from area, stationary, and mobile sources. *See* 42 U.S.C §§ 7401-7661. It authorizes the Environmental Protection Agency to establish NAAQS to protect public health and the environment. In response to the CAA, federal and state governments have established ambient air quality standards for certain "criteria pollutants": ozone, carbon monoxide (CO), nitrogen dioxide (NO2), sulfur dioxide (SO2), PM10, PM2.5, and lead (Pb). Air quality regulations focus on these criteria pollutants because these are the most prevalent air pollutants known to be deleterious to human health.

Federal Conformity Requirement: The Environmental Protection Agency's General Conformity Rule (GCR), ensures that federally funded or supported actions taken by federal agencies and departments, including FEMA, conform to national standards for air quality in federal nonattainment and maintenance areas. *See* 40 CFR § 51.853. Under the Federal Clean Air Act, any area that violates national ambient air quality standards for any of

the six criteria pollutants is designated as a "nonattainment area." A "maintenance area" is any formerly noncompliant area that has been re-designated to attainment status and may require special measures to maintain that status.

Activities that emit significant levels of criteria pollutants in a nonattainment or maintenance area are subject to the conformity rule. Thus, FEMA must demonstrate that their action will not impede the State Implementation Plans (SIP) to attain or maintain the ambient air quality standard. Fuels treatment projects likely to have a significant impact on air quality, including prescribed fire and harvest activities, may require a conformity review. However review is not required when the total direct and indirect emissions from the project/actions are below the *de minimis* levels specified by EPA and included below.

Pollutant	Area Type	Tons / Year
Ozone (VOC or NOx)	Serious nonattainment	50
	Severe nonattainment	25
	Extreme nonattainment	10
	Other areas outside an ozone transport region	100
Ozone (NOx)	Marginal and moderate nonattainment inside an ozone transport region	100
	Maintenance	100
Ozone (VOC)	Marginal and moderate nonattainment inside an ozone transport region	50
	Maintenance within an ozone transport region	50
	Maintenance outside an ozone transport region	100
Carbon monoxide, SO2 and NO2	All nonattainment & maintenance	100
PM-10	Serious nonattainment	70
	Moderate nonattainment and maintenance	100
PM2.5 Direct emissions, SO2, NOx (unless determined not to be a significant precursor), VOC or ammonia (if determined to be significant precursors)	All nonattainment & maintenance	100
Lead (Pb)	All nonattainment & maintenance	

Local and Regional Regulations: Placer County has issued a regulation that applies to the Project, County Ordinance, Chapter 18, District Rule 228, which establishes standards for assessment of air quality impacts of Fugitive Dust. Under this ordinance, fugitive dust generated by construction and grading activities and by other

land use practices including recreational uses must meet established standards that apply to vehicle use on unpaved areas (including minimization and clean up requirements of bulk materials and debris from paved public roadways); to soil stockpiles and untraveled disturbed soils/ground disturbance in order to prevent fugitive dust from traveling outside of the project area boundary, including shut down of activities if wind conditions could transport the dust; to transport of excavated soils; and actions needed for site stabilization to minimize wind-driven dust from inactive disturbed surface areas. Specific requirements apply to earth disturbing activities which do not apply to forestry activities, as they are not considered ground disturbing.

Locally, TRPA implements its own set of air quality standards and ordinances, found in TRPA Code Chapter 65, including eight air quality standards and indicators adopted to protect air quality in the Lake Tahoe Air Basin. Regulations establish air quality control requirements to aid in the implementation of TRPA air quality goals and policies for the purpose of attaining and maintaining applicable federal and state air quality standards and TRPA thresholds. Given the unique climatic conditions within the Lake Tahoe Air Basin, the TRPA has established a standard for 8-hour CO, which is more stringent than both state and national regulations.

Environmental Consequences:

PROPOSED ACTION. The Proposed Action eliminated all parcels where post-project fuels could not be treated with methods other than burning. Therefore, no prescribed fire activity is considered in either the action or no action alternative. The Proposed Action includes the following key Air Quality-related element as part of its Project description:

1. No prescribed fire activities, including pile burning, would be conducted on any parcel that receives treatment under this Project, including during the eleven-year, post-treatment Project maintenance period (Appendix C).

Pursuant to the requirements of the Chapter 65 of the TRPA Code and the conformity rule, and because the LTAB is a nonattainment area for PM10 and ozone, analysis for this fuels reduction project requires assessing whether project implementation would emit significant levels of criteria pollutants, which would contribute substantially to an existing air quality violation.

All mechanical equipment produces exhaust that contains greenhouse gases, including CO2, NO2 and PM. As the Proposed Action is a hand treatment project, there would be no large scale mechanical harvest equipment (e.g., masticator or feller buncher) used; thus, negligible equipment emissions would be produced. There would be no off-road vehicle travel, with all crew transportation occurring on paved subdivision streets and roads. The small amount of motorized equipment to be used (e.g., crew transport vehicles, chainsaws, chippers, and chip vans or other chip removal vehicle) would not result in short- or long-term emissions of PM10 above the de minimis threshold requirements for a Conformity Determination. For all other applicable regulated pollutants, substantially less than 100 tons per year per pollutant would be generated. Therefore, the project qualifies as a GCR exemption and has received a TRPA Permit (Appendix H) that contains no additional Air Quality-related requirements.

These conclusions were drawn without preparation of an emission study for the Proposed Action based upon an analysis of more complex fuels reduction projects conducted by Federal agencies in the Lake Tahoe Basin that conducted activities (prescribed burning) and use of mechanical equipment over substantially larger acreages without triggering the requirements of a Conformity Determination. Specifically, the US Forest Service, Lake Tahoe Basin Management Unit's South Shore Fuel Reduction and Healthy Forest Restoration project's Environmental Impact Statement (Record of Decision, January 2012) did not require a Conformity Determination. That more than 10,000-acre project anticipated an eight-year period for implementation of thinning activities by handcrews with chain saws, use of tracked and rubber-tired equipment, and substantial acreages of prescribed fire.

That environmental analysis for the South Shore project determined it to be in compliance with NAAQS and determined that generation of fugitive dust could result from the thinning operations due to log skidding, loading, hauling, and use of unpaved roads, none of which would occur under the Proposed Action. The amount of mechanical equipment used for road maintenance and reconstruction, water trucks for dust abatement and trucks that transport biomass in any form occur on the South Shore projects at levels that are much greater, and generate more emissions, than the Proposed Action. Finally, the South Shore project incorporates extensive prescribed fire elements.

Because the Project proposes no off-road vehicle travel, with all crew transportation occurring on paved subdivision streets and roads and because hand crew forestry projects are not considered ground disturbing activities, the majority of District Rule 228 is inapplicable to this project. However, because chippers are located on public streets, the minimization and clean up requirements of bulk materials and debris from paved public roadways of the rule are applicable to the Project. Standard operating procedures for chipping in neighborhoods entails such clean up, which satisfies the requirement found in District Rule 228.

The Project would have negligible short-term impacts on air quality and it would not exceed any air quality standards for criteria pollutants, nor would it violate local or regional Air Quality standards or requirements. Implementation of this project would not impede the SIP's ability to attain or maintain any ambient air quality standards.

NO ACTION ALTERNATIVE. Under this alternative, no mechanical equipment would be used and no equipment emissions would occur. There would be no short-term, project-related air quality effects. However, the wildfire hazard would remain unaddressed. The No Action Alternative has the potential for indirect, short- and long-term adverse effects to air quality if a wildfire occurs in the project area.

The No Action Alternative does not alter the fuels condition and would not reduce the potential for a catastrophic wildland fire and its detrimental effects, or modify fuels and fire behavior. Existing stand conditions would not be changed and they could still result in high wildland fire intensity conditions and large-scale crown fires. A wildfire would increase levels of most criteria pollutants, contribute relatively large amounts of greenhouse gasses, including CO2 and both PM10 and PM2.5 to the atmosphere, and increase other hazardous air pollutants far beyond the relatively minor deleterious effects of the treatment measures. Air quality

standards would not be met for the duration of a wildfire and exposure of soils after a wildfire event could also increase particulate emissions and wind-driven fugitive dust potential. In addition, associated smoke from intense, severe wildfires would create both a nuisance and health concerns for adjacent communities for days or weeks.

3.1.3 Climate Change/Greenhouse Gas Emissions

Affected Environment: *Environmental Setting*

Climate change refers to long-term fluctuations in temperature, precipitation, wind, and other elements of Earth's climate system. Natural processes such as solar-irradiance variations, variations in Earth's orbital parameters, and volcanic activity can produce variations in climate. The climate system can also be influenced by changes in the concentration of various gases in the atmosphere, such as greenhouse gases (GHG), which affect the earth's absorption of radiation. GHGs are chemical compounds which trap heat in the atmosphere, affecting the earth's temperature.

California law defines GHGs to include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (Health and Safety Code, Section 38505(g)). The most common GHG that results from human activity is carbon dioxide, followed by methane and nitrous oxide.

As described in the California Natural Resources Agency's (CNRA's) Final "*Safeguarding California and Reducing Climate Risk*" document, California's forests help absorb carbon dioxide and counteract the greenhouse gas emissions that cause climate change. In this report, the CNRA recommends that these forests receive protective actions to prepare them to withstand mounting climate threats such as increasing temperatures, drought, increasing risk of pest infestations, and increasing risk of severe wildfires. In describing these forested lands, the CNRA notes that they provide many other benefits, besides absorbing carbon dioxide, which will assist with climate problems. For instance, trees and forests help anchor soil and absorb rain and snowmelt, so flooding and landslides are less severe. Forests also help regulate the timing and magnitude of water runoff and water flows; and they have highly beneficial impacts on water quality, because they provide a filtering function that prevents impurities from entering streams, lakes, and groundwater. The report notes: "*Efforts to improve forest health not only make forests more capable of withstanding climate impacts (and avoids the negative impacts associated with forest losses), but those efforts will also increase the long-term carbon storage capacity of forests and aid in fighting climate change*."

Key Regulatory Requirements and Standards:

Global Warming Solutions Act of 2006 (AB 32). The Global Warming Solutions Act codifies California's goal of reducing statewide emissions of GHGs to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions.

Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions (Council on Environmental Quality, 2010). This document provides guidance to Federal agencies in considering climate change in their decision making processes. It advises that the agencies address the GHG effects of a proposed action, stating that "*if a proposed action would be reasonably anticipated to cause direct emissions of 25,000 metric tons or more of carbon dioxide-equivalent GHG emissions on an annual basis, the agency should consider it an indicator that a quantitative and qualitative assessment may be meaningful to decision makers and the public*" (CEQ, 2010).

Environmental Consequences:

PROPOSED ACTION. GHG emissions and carbon sequestration effects from the Proposed Action are negligible, both directly and indirectly. The carbon released from activities in the Proposed Action is much less than the amount of carbon sequestered regionally and nationally on forested lands.

The Proposed Action would be implemented through handwork, which is a manner that would result in the fewest potential environmental effects. Project implementation would directly generate minimal, temporary and one-time GHG emissions, mainly from the short-term use of equipment and vehicles (e.g., diesel-powered chippers and crew vehicles, and gasoline-powered chainsaws) during Project implementation and, to a lesser extent, during the maintenance period. GHG emitted during the combustion of these fuels would consist mainly of carbon dioxide, along with small amounts of methane and nitrous oxide. Emissions would be intermittent and short-term. GHG emissions as a result of the Proposed Project would be well below the 25,000 metric ton threshold described by the CEQ. Over the long-term, these temporary emissions would be offset by new, more vigorous vegetation growth made possible by removal of overly dense vegetation, as well as by the benefit of a healthy forest condition that would better influence wildfire behavior. As treatment areas cycle through regrowth and additional maintenance treatment, there is potential for future carbon sequestration rates in the project area to meet or exceed the current sequestration rate.

The Project would have minor short-term impacts to GHG emissions, with a negligible contribution to long-term global climate change.

NO ACTION ALTERNATIVE. The No Action Alternative would have no direct impact on climate change and GHG emissions because no direct project activities resulting in air emissions would occur. However, under this alternative, since no fuel reduction would occur, the hazard of wildfire would remain high. A wildfire would result in the release of carbon dioxide into the atmosphere from burning vegetative fuels. Even under this scenario, the No Action Alternative could only result in minor short- and long-term indirect effects on climate change and GHG emissions due to the relatively small total acreage involved.

3.2 Water Resources

Affected Environment: *Environmental Setting*

The project's analysis area is located within the Lake Tahoe watershed. The treatment activities being considered for implementation would occur in the lower to middle, urban portions of the watershed rather than the upper watershed that is generally comprised of roaded and unroaded National Forest System and State lands. A Total Maximum Daily Load (TMDL) was finalized for Lake Tahoe in 2010. TMDL is a regulatory term in the U.S. Clean Water Act, describing a value of the maximum amount of a pollutant that a body of water can receive while still meeting water quality standards. Alternatively, TMDL can also be considered an allocation of that water pollutant deemed acceptable to the subject receiving waters. Lake Tahoe's TMDL identifies various pollutant sources and their importance for the lake's clarity. Some of the sources identified include urban development, unpaved roads, particulates in the air from fires, road sanding in the winter, and stream bank erosion.

Because of the prized clarity of Lake Tahoe and the Region's other environmental resources, numerous water quality regulations have been implemented for the Lake Tahoe Basin. Discharge limitations apply to water discharges entering any surface water feature. In addition, the region's water quality regulations apply specific protections for SEZ, which are defined generally as an area that owes its biological and physical characteristics to the presence of surface or seasonal high ground water table. SEZs exhibit the ability to rapidly incorporate nutrients into the usually dense vegetation and moist to saturated soils. A SEZ is delineated by the presence of drainage ways and floodplains, including adjacent marshes, meadows, and riparian areas. Consequently, all wetlands and Waters of the United States fall within the definition of SEZ; some areas of floodplain do not, but most are included in the definition. The more detailed delineation criteria for identifying SEZs includes indicators of vegetation, hydrology, and/or soil type. TRPA maintains the Regional Plan elements that establish and map SEZ as a sensitive natural community protected by specific standards and regulations. Lahontan also maintains standards in its Basin Plan related to activities in SEZ.

SEZs are important because they make up a natural system of runoff conveyance, provide wildlife habitat, and can filter and treat (through soils and vegetative complexes) spring snowmelt, stormwater runoff, and other forms of surface runoff before discharge to Lake Tahoe.

Lake Tahoe has been listed as an impaired water body under Section 303(d) of the Clean Water Act for sediment and nutrients. Efforts to eliminate or minimize delivery of sediment to surface waters that flow into Lake Tahoe through floodplains and SEZs are critical to protect water quality.

The SEZs in this project area often contain riparian elements and include both coniferous and deciduous vegetation. Like the upland area, SEZs in the defense and threat zones have fuel loads that exceed the desired condition for fire protection. The two primary contributors to the high fuel loading are conifer species encroaching in meadows and riparian areas and the area's history of fire suppression.

This project falls within coverage of the "Lahontan 2014 Timber Waiver" as directed by the Lahontan Regional Water Quality Control Board. This project falls within Category 1 and 2 of this timber waiver which does not require notification, application, or monitoring.

Key Regulatory Requirements and Standards:

Floodplain Management Requirements (): Floodplains defined by Executive Order (EO) 11988 as "... the lowland and relatively flat areas adjoining inland and coastal waters include flood prone areas of offshore islands, including at a minimum, that area subject to a one percent [100-year recurrence] or greater chance of flooding in any one year." This EO requires federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. FEMA's regulations for complying with EO 11988 are contained in 44 CFR Part 9.

Protection of Wetlands (): Wetlands are defined by Executive Order (EO) 11990 as, "areas inundated by surface or ground water with a frequency sufficient to support and under normal circumstances does or will support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds." This executive order requires agencies to avoid the adverse impacts associated with the destruction or modification of wetlands. FEMA's regulations for complying with EO 11990 are also contained in 44 CFR Part 9.

Clean Water Act: The Clean Water Act (CWA) applies to "waters of the United States." Under the provisions of Section 404 of the CWA, the Army Corps of Engineers (Corps) has primary federal responsibility for reviewing projects that may have impacts on these waters, including wetlands. Corps regulations require that a permit be obtained if a project proposes placing structures within, over, or under navigable waters and/or discharging dredged or fill material into waters of the U.S. below the ordinary high-water mark in non-tidal waters, or into a jurisdictional feature. Permits may be issued on a case-by-case basis (individual permit) or at a program level (general permit), such as a Nationwide Permit, which covers specific activities that generally have minimal environmental effects. The USACE. Permanent discharges that exceed 0.1 acre require review under the provisions of the applicable Nationwide Permit. Discharges over 0.5 acres require consideration under the provisions of an Individual Permit.

Environmental Consequences:

PROPOSED ACTION. The Proposed Action includes the following Water Quality-related elements as part of the Project description in order to best protect aquatic resources:

1. Fallers would use falling wedges/techniques to directionally fall trees away from stream channels and SEZ.
2. In SEZ, preference would be given to retention of riparian vegetation (e.g., willows, alders and aspens); tree and brush removal would focus on encroaching conifers and flammable chaparral.
3. Within SEZs and 100 year floodplains, the bole of all existing down trees would be left in place, with limbs removed.
4. All stream bank trees greater than 14" DBH would be retained unless determined to be a safety hazard to adjacent structures or other targets.

The table below shows the number of parcels proposed for treatment under the Proposed Action that at least partially overlaps the 100 year floodplains and/or SEZs that have been mapped by TRPA. No additional wetland delineation activities were performed to further determine whether the small portions of SEZs in the project area met the criteria for designation, as no structures or discharges are proposed as part of any project activities in the action alternative. In many cases, only small portions of these parcels fall within SEZs or 100 year floodplains.

Phase	Total Parcels	Parcels with 100 year floodplains	% of parcels with 100 year floodplains	Parcels with SEZ	% of parcels with SEZ
Phase 1	306	14	4.6%	21	6.9%
Phase 2	185	60	32.4%	59	31.9%
Phase 3	390	4	1%	7	1.8%
Total:	881	78	8.9%	87	9.9%

Of the 881 parcels included for treatment, 87 (10%) include areas mapped as SEZs. These 87 parcels account for a total of 10 acres of the selected treatment area, and only a small portion of that 10 acres is located within mapped SEZs.

There would be no occupancy or modification of floodplains nor direct or indirect development of floodplains associated with implementation of the Proposed Action and no destruction or adverse modification of SEZs (including wetlands), as the only modification proposed is riparian enhancement. For this project, travel by wheeled mechanized equipment (crew trucks and chippers) would be limited to paved subdivision streets, eliminating any potential for sedimentation caused by vehicle travel. All off-pavement work would be completed by hand crews, the most environmentally benign removal method for the targeted forest management work within SEZ, which includes riparian vegetation and floodplains, to accomplish the necessary for fuels hazard reduction. The forest practices with the greatest potential for causing erosion and sedimentation are road construction and intensive site preparation, neither of which were considered for this project. As described in Chapter 2, there are no practicable alternatives to the Proposed Action. As described above in this section, the Proposed Action was developed to minimize adverse impacts to SEZs and hence floodplains and wetlands. Finally, FEMA and the North Tahoe Fire Protection District would notify the public of their intent to take action which impacts floodplains and wetlands. Thus, the project would comply with EO 11988, EO 11990, and 44 CFR Part 9.

The hand crew treatments being considered would best protect existing groundcover and would not displace or compact soil, which would best protect water resources while also accomplishing riparian habitat restoration, as preference would be given to retention of riparian vegetation (e.g., willows, alders and aspens). Riparian habitat restoration enhances the ability of SEZs to rapidly incorporate nutrients into the usually dense vegetation and moist-to-saturated soils, so important to the protection of water quality. Additionally, riparian vegetation is less flammable than non-riparian vegetation, enabling the treatment best protect water quality in the long-term by best protecting the special riparian resource. Tree removal in SEZs would focus on encroaching conifers and brush removal would focus on flammable vegetation such as chaparral.

The vegetation management prescriptions within SEZs would improve stand conditions in the short-term and promote the long-term health of riparian vegetation, or mixed conifer type vegetation depending on the location, thus benefiting water quality over the long-term. The proposed treatments would reduce fuel loading within SEZs, effectively reducing the likelihood of a high intensity wildfire. SEZs, floodplains, and stream channel corridors would meet the fuels treatment objectives of the project, and the condition of these riparian areas would be improved following Project completion, as hazardous fuels and live conifers encroaching into SEZs would be removed. In addition, removing conifer vegetation along riparian area floodplains and meadows would help restore a more natural timing, variability, and duration of floodplain inundation and increase water table elevations due to the associated decrease in water uptake and transpiration. This would improve the growing conditions in these areas for these important riparian species over the long-term.

NO ACTION ALTERNATIVE. The No Action Alternative would have no immediate impact on water quality, floodplains, and stream environment zones. However, under this alternative, no fuel reduction would occur, and the hazard of wildfire would remain high. A wildfire would result in a loss of ground cover (vegetation, duff and mulch) that protects against soil erosion. Accelerated soil erosion would adversely impact water quality, floodplains, and SEZs. Fire profoundly affects plant communities and soils when plants and litter are burned, increasing susceptibility to nutrient loss through erosion, increased sedimentation, and the effects of direct loss of canopy cover.

3.3 Biological Resources

3.3.1 Threatened and Endangered Plant Species and Critical Habitat

Affected Environment: *Environmental Setting*

The Preliminary Biological Resources Review (January 2012) completed by AECOM for this Project identified Tahoe yellow-cress *(Rorippa subumbellata* Roll., TYC) as the only federal special-status plant species that is known to occur within the analysis area. Tahoe yellow cress is a flowering perennial plant in the mustard family that grows on Lake Tahoe's sandy shorelines in California and Nevada and nowhere else in the world. The species is listed as endangered by the State of California and as critically endangered in Nevada. The U.S. Fish and Wildlife Service identified Tahoe yellow cress as a candidate species for listing in 1999 under the Endangered Species Act of 1973, as amended; however, in October 2015, the agency announced its decision to remove the plant from the Endangered Species Act candidate list. The decision followed an extensive review that found previously identified habitat threats no longer pose significant risk to the health and persistence of the species. Collaborative conservation efforts are successfully protecting Tahoe yellow cress and have allowed the U.S. Fish and Wildlife Service to determine that the plant does not require additional protections under the federal Endangered Species Act. The Tahoe Regional Planning Agency also protects this species under its Code of Ordinances and Goals and Policies.

Although no critical habitat is designated for TYC, its habitat is very limited: lake margins, sandy substrates, silty soils among boulders, near stream mouths, in organically enriched dune slacks, and in back-beach depressions in naturally dynamic environments. One parcel in Phase 3 of the Analysis Area (near Idylwild) is located near a TYC population that is located on an adjacent, non-Conservancy parcel. Suitable habitat occurs near, but not

adjacent to, several other parcels considered in the Analysis Area near to Lake Tahoe's northern shore. Because of the concern regarding the long-term survival of Tahoe yellow cress in the Lake Tahoe shore zone, conservation efforts have been undertaken to recover the species and ensure that it is protected. A strategy was originally completed in 2003 (and updated in 2013) that identifies goals and objectives to meet the conservation and management needs of the species. The strategy includes an experimental program, monitoring component, and an adaptive management process, which assists land and resource managers in making informed, practical decisions by filling in data gaps and providing an ever-increasing knowledge base.

Regulatory Requirements and Standards:

Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. §§ 1531–1544). The ESA protects threatened or endangered species and the ecosystems they need to survive. Endangered species are in danger of extinction throughout all or a significant portion of their range. Threatened species are those which are likely to become endangered within the foreseeable future.

Environmental Consequences:

PROPOSED ACTION. The U.S. Fish and Wildlife Service (USFWS) has concurred with FEMA's determination that the Project may affect, but is unlikely to adversely affect, TYC (see Appendix D). No habitat is located on the parcels being considered for treatment and no fuels reduction treatment would occur on the sandy beaches that are habitat, as recognized by the USFWS concurrence.

NO ACTION ALTERNATIVE. The No Action Alternative would have no impact on threatened and endangered plant species or critical habitat.

3.3.2 Wildlife and Fish

Affected Environment: *Environmental Setting*

The Sierran mixed conifer habitat in the project's Analysis Area is dominated by Jeffrey pine, sugar pine, incense cedar, white fir, red fir, and lodgepole pine. Canopy cover varies from nearly 100% to more open stands on the typically quarter-acre urban lots being considered for fuels treatment. Montane riparian habitat type, such as aspen stands, are scattered in the Analysis Area and not usually associated with a stream channel. An herbaceous understory is typically evident and the habitat varies in structure and species composition. This habitat occurs to a lesser extent within the analysis area, in isolated patches. Conifers are encroaching upon aspen stands which can reduce its wildlife habitat suitability.

Dead wood, both standing and down, serves as important wildlife habitat. Standing dead and dying trees, called "snags" or "wildlife trees," and downed woody material are recognized for their value to vertebrate wildlife, insects, and fungi and for their role in the cycling of nutrients and organic matter in the forest. Birds, small mammals, and other wildlife use snags for nests, nurseries, storage areas, foraging, roosting, and perching. All snag sizes provide value, but large cavity trees (greater than 16 inches) are required by certain species, such as barred owl, and typically last longer than small snags. The value of downed woody material also increases with size.

Birds, such as woodpeckers, forage on insects living in snags and then excavate cavities in the trees for nesting. Later, these cavities are used by other birds and mammals for nesting and shelter. Raptors, such as hawks, may also use snags as perches, from which they can prey on voles or other mammals.

A snag habitat begins to form when a large tree dies and forms a "Hard Snag." As this hard snag decays it gradually becomes a "Soft Snag." A partially or recently dead tree is a hard snag. Hard snags tend to have their bark intact while the heartwood (the non-living inner core) and sapwood (the younger, softer, growing wood between the bark and heartwood) are still firm. These kinds of snags are good for cavity excavating birds. A soft snag has considerable decay in its heart and sapwood. Fungi infiltrate the heartwood and the tree becomes soft or hollow in the center. A soft snag rarely has limbs, and its top may be missing. Over the years, a soft snag gets shorter as weather and animal activity weakens it. Eventually it falls over and continues to provide important food and shelter on the ground, as fallen trees become infested with fungi and insects. As the down logs decompose, nutrients are recycled into the soil and a microhabitat favorable for the growth of new tree seedlings is often created. Further, insects, snakes, rodents seek refuge in rotting logs, providing easy food sources for larger mammals and birds.

The analysis area – small parcels located within and immediately adjacent to residential neighborhoods – contains habitat of low suitability for many wildlife species due to high existing human presence and use. Nevertheless, a variety of common species utilize the urban habitat, such as Stellar's jay (Cyanocitta stelleri), mountain chickadee (Poecile gambeli), northern flicker (Colaptes auratus), Douglas squirrel (Tamiasciurus douglasii), coyote (Canis latrans), black bear (Ursus americanus), and western fence lizard (Sceloporus occidentalis).

A preliminary biological resources review (January 2012) was prepared by AECOM for this Project. Lahontan cutthroat trout (Oncorhynchus clarkii henshawi, LCT) is the only federally listed special-status species (listed as Threatened) with the potential to occur within the Project area, although no critical habitat is designated in this area. LCT are the only trout native to the Lake Tahoe Basin and Lake Tahoe, itself, once provided an extensive recreational and commercial fishery; however, this Lake Tahoe population was extirpated in the 1930s. LCT evolved in the absence of other trout species and, because they do not compete well for food or habitat, the introduction of additional fish to the waters of Lake Tahoe and other water bodies in the region led to the species' demise. LCT is still found in a variety of cold-water habitats including large terminal alkaline lakes (e.g., Pyramid and Walker lakes); alpine lakes (e.g., Independence Lake); slow meandering rivers (e.g., Humboldt River); mountain rivers (e.g., Carson, Truckee, Walker, and Marys Rivers); and small headwater tributary streams (e.g., Donner and Prosser Creeks). Female sexual maturity is reached between the ages of three and four, while males mature at two to three years of age. Consecutive repeat spawning is rare. LCT is a stream spawner, spawning between February and July. Spawning depends upon stream flow, elevation, and water temperature. Generally, Lahontan cutthroat trout occur in cool flowing water with available cover of well-vegetated and stable stream banks, in areas where there are stream velocity breaks, and in relatively silt free, rocky riffle-run areas.

Early (1980s) Forest Service reintroduction efforts in the headwaters of the Upper Truckee River and more recent efforts, including the work of the Lake Tahoe Recovery Implementation Team (2007) and Plan (2010),

combined with years of research, stocking, and adaptive management, have resulted in the successful reintroduction of LCT in portions of the Tahoe Basin, including Lake Tahoe.

There are no threatened, endangered or proposed terrestrial wildlife species listed for this portion of the Tahoe Basin. No critical habitat for federally-listed endangered, threatened, proposed, or candidate species has been designated. Habitats designated for wildlife and fisheries threshold standards as designated by the Tahoe Regional Planning Agency (TRPA) were also considered.

In addition to this federally-listed species, two other non-federal special status species, northern goshawk (Accipiter gentilis) and osprey (Pandion haliaetus), have habitat/protection zones in the Analysis Area.

Northern goshawk, a California Species of Special Concern, occupies habitat within and in the vicinity of coniferous forests. This large bird reuses its old nests and maintains alternate sites. It often nests on north slopes, near water, in mature trees. While no goshawk nests are located in the project area, the TRPA Code (Section 62.4) requires mapping of a 0.5-mile radius “no disturbance” zone around any nest site. This limits fuel reduction activities to only marking during the period between February 15 and September 15 annually. Certain parcels being considered for treatment under the Project are located within mapped, protected no disturbance zones as delineated on the Project maps (Appendix A):

Phase 1 – Agate Bay: 1 parcel
Phase 2 – Cedar Flat: 4 parcels
Phase 3 – Timberland: 13 parcels
Phase 3 – Tahoe Pines: 22 parcels

Osprey, a California Species of Special Concern and a TRPA Sensitive Species, inhabits areas associated with rivers, lakes, and coastlines. Osprey build their nests adjacent to water bodies. While no osprey nests are located in the project area, the TRPA Code (Section 62.4) requires mapping of a 0.25-mile radius “no disturbance” zone around any nest site. This limits fuel reduction activities to only marking during the period between March 1 and August 15 annually. Certain parcels being considered for treatment under the Project are located within mapped, protected disturbance zones as delineated on the Project maps (Appendix A):

Phase 1 – Tahoe Vista: 1 parcel
Phase 2 – Lake Forest: 5 parcels

Regulatory Requirements and Standards:

Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. §§ 1531–1544). Federally listed species are managed under the authority of the ESA. The ESA requires federal agencies to ensure that all actions are not likely to jeopardize the continued existence of any federally listed species.

Migratory Bird Treaty Act (MBTA, 16 U.S.C. § 701-12). MBTA was first enacted in 1918 to implement four international treaties aimed at protecting migratory birds. The Act makes it unlawful "by any means or in any manner" to "take" or attempt to "take" any of approximately 800 species of migratory birds, including most common birds other than pigeons and starlings. Regulations promulgated under the Act further define the term

"take" as to "pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such birds. Almost all bird species in the U.S. are addressed by the MBTA.

Environmental Consequences:

PROPOSED ACTION. The Proposed Action incorporates the following wildlife protection elements as part of the Project description:

1. An average of two of the largest diameter, non-hazardous standing dead trees (also called “snags”) per acre will remain following treatment. In evaluating snags for retention, all snags greater than 30” DBH and all those greater than 24” DBH in decay Class 6 or higher would be retained unless they become so numerous that the forestry or fire professionals marking the property determine that they pose an unacceptable fire hazard or evaluate them to be a hazard tree. In order to protect life and property, all hazard trees would be removed around homes, roads, and trails even when the above-described snag retention standard cannot otherwise be met on a parcel.
2. At least three to five of the largest logs per acre would remain.
3. Certain parcels would be subjected to Limited Operating Periods (LOPs) for wildlife reasons. Specifically, no fuels reduction activities that cause vegetation disturbance would occur in SEZ parcels with riparian habitat between May 1 and August 15. Mapped “no disturbance zones” for northern goshawk and osprey would also prohibit vegetation removal from February 15 to September 15 and March 1 to August 15, respectively.
4. Since migratory bird species have the potential to nest throughout the project area, pre-treatment nesting bird surveys would be conducted during the nesting season (May 1 to August 15) and treatments would be postponed in areas near active bird nests.

Since no in-water work is proposed and standard practices for water quality and erosion control are included in the Project, FEMA has determined that the project may affect, but is not likely to adversely affect the threatened LCT. USFWS has concurred with FEMA’s determination (see Appendix D).

Even small-scale fuels reduction projects have the potential to affect components of wildlife habitat. After project implementation, the same habitat types would continue to exist at their current locations in the project area although the density of vegetation in forest and shrub habitats would be reduced. Conifer encroachments in riparian habitat would also be reduced, enhancing riparian hardwood communities.

With the incorporation of survey requirements and requirements for postponement of treatments if active nesting is discovered as part of the Proposed Action, the Project would comply with the MBTA.

Coarse woody debris and snags are beneficial for soil replenishment and for numerous animals and plants that live in Lake Tahoe forests. Once a tree dies and decomposes in the form of a snag or downed woody debris, it creates a unique opportunity for feeding, nesting and other functions that create the diverse food chain cycle necessary for wildlife to thrive. Within the wildland-urban interface this natural cycle can create a fire and/or safety hazard to adjacent residential and commercial structures. To reduce these hazards to an acceptable level, a balanced approach is necessary in which excess fuels and hazard trees are removed for fire prevention and

safety, while coarse woody debris and snags are retained where structures aren't threatened No short- or long-term adverse wildlife impacts are anticipated related to Project implementation.

NO ACTION ALTERNATIVE. Under the No Action Alternative, there would be no fuel reduction and no direct effects to wildlife and fish would occur. However, a wildfire in the project area could result in an indirect impact to these and other biological resources. A wildfire could destroy terrestrial habitat and individual animals could be affected. Adverse impacts could also affect aquatic resources, because fire residue and eroded soil could be washed into streams. If stream courses are directly burned, stream temperature could be affected due to loss of stream shading. These effects could continue until vegetation is reestablished, which would take time under an intense wildfire scenario. Short and long-term adverse, indirect effects could occur to wildlife and fish if a wildfire occurs in the project area.

3.3.3 Vegetation Resource

Affected Environment: *Environmental Setting*

Conifer tree species in the analysis area are typically described as Sierra Nevada mixed conifer, with Jeffrey pine, lodgepole pine, and white fir as the predominant overstory tree species. The forest also includes a smaller component of Sierra juniper, red fir, sugar pine, western white pine, and incense cedar. Canopy cover varies from nearly 100% to more open stands. Shrubs such as greenleaf manzanita and huckleberry oak, mountain whitethorn, Mahala mat, tobacco brush, chinquapin, current, gooseberry, serviceberry, twinberry, and bitterbrush are common understory associates. Montane riparian habitat type, such as aspen stands with an herbaceous understory, are scattered geographically and not usually associated with a stream channel. This habitat occurs to a lesser extent within the analysis area, in isolated patches. Conifers often encroach upon these aspen stands.

Beginning in the 1870s, nearly 70% of the Lake Tahoe watershed was logged to provide fuel and timber for Comstock silver mining. During this same time period, large numbers of livestock removed herbaceous vegetation and fires deliberately set at the end of the summer grazing season probably killed tree seedlings that were regenerating in some of the clear-cut areas. Additionally, fire intensities were low and there was little mortality of mature trees. Current vegetation conditions have been modified from their historic forest structure and species composition due to fire suppression, which has prevented the lower-intensity fires that used to regularly burn small trees, surface and ladder fuels, and brush.

Tahoe's forests today differ from pre-European settlement forests in tree species composition and density: they have four times the density, the relative frequency of white fir and incense cedar are two to three times higher, and the occurrence of Jeffrey pine is 50% less. The forests within Tahoe's urban areas have developed into denser stands where fire suppression ability near "values at risk" – primarily homes -- is now impeded and may in fact be impossible during extreme fire weather. High rates of tree mortality, particularly white fir, have increased the fuel load of standing dead trees and downed logs. Combined with the lack of frequent, low intensity fires, these accumulations of fuels and increased size, density, and continuity of understory shrubs have increased fire severity and the rate of fire spread.

Today, high stand densities are characteristic of the Project area. This unnaturally high density makes the forest susceptible to most of the natural agents of disturbance (e.g. bark beetles, disease, and fire) found in the Lake Tahoe Basin. These degraded ecosystems -- like all ecosystems -- also face a growing threat from invasive species, which can replace native species, alter natural balances, and reduce habitat for other plant species, as invasive species are more competitive than native species.

Key Regulatory Requirements and Standards:

The Executive Order on Invasive Species (EO) 13112 (February 3, 1999), aims to "prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause". To that end, federal agencies are ordered, "to the extent practicable and permitted by law," not to authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species unless the benefits of such actions outweigh the potential harm.

Environmental Consequences:

PROPOSED ACTION. Fuels reduction would remove trees to achieve tree spacing goals and remove diseased trees in order to allow larger, healthier trees room to grow. Following Project implementation, the treated parcels would reflect historic forest conditions, with a stocking range that's typically between 50 and 150 square feet of basal area per acre. This is the primary long- and short-term benefit of the project, as thoroughly described in the Project's Purpose and Need (Section 1.1 of this document).

Without the use of vehicles off pavement, straw bales, or other foreign materials being brought to the project site, there is little potential for the Proposed Project to contribute to the spread of invasive species. Only chip generated from the project area will be reapplied to the site. Therefore, Project implementation would comply with EO 13112.

NO ACTION ALTERNATIVE. Under this alternative, no vegetation treatments would take place. There would be no direct effects to vegetation or establishment (or treatment of) invasive species from Project implementation. However, there would also be no reduction in the fuel loads in the project area. The possibility of a crown-carried wildfire would not be reduced. Conditions are ripe for a stand-destroying wildfire spreading through the tree crowns, threatening forest stands and ecosystems.

3.4 Cultural Resources

3.4.1 Archaeological and Historic Resources

Affected Environment: *Environmental Setting*

Historic properties are defined as any prehistoric or historic district, site, building, structure, or object included in or eligible for listing for inclusion in the National Register of Historic Places. FEMA, in coordination with the State Historic Preservation Officer (SHPO)/ Tribal Historic Preservation Officer (THPO) and other consulting parties, must identify historic properties that may be affected by any proposed project and assess adverse effects of the actions. To further this requirement, AECOM completed a Final Historic Properties Inventory and Evaluation Report for the Project in 2013 and SHPO consultation (see Appendix E). The report documents the investigation that identified historic properties in the Project's Analysis Area and the Area of Potential Effects (APE) and includes the methods and results of such investigation, which consisted of consultation, a records and literature research, archival research, and an intensive pedestrian surveys by an archaeological field crew.

In December of 2012, FEMA sent consultation letters (Appendix F) to Indian Tribes for whom the properties might be religiously or culturally significant. Letters were sent to the Washoe Tribe of Nevada and California, the Shingle Springs Band of Miwok Indians, and the United Auburn Indian Community of the Auburn Rancheria of California. One response was received from the Shingle Springs Rancheria (included in Appendix F), which stated that the Shingle Springs Band of Miwok Indians were not aware of any known cultural resources on the site. The Tribe requested continued consultation through project updates from FEMA in order to foster a greater communication between the Tribe and the agency. The Tribe made a similar request when commenting on the Draft EA (see Appendix L). FEMA provided the requested consultation by notifying the Tribe of the Draft and Final EA availability, affording the Tribe an opportunity to review FEMA's cultural resources report, and agreeing to re-consult with the Tribe in the event of an unanticipated discovery. No tribal cultural resources (sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe) have been identified through the records searches, site surveys, or tribal inquires conducted for this project.

Key Regulatory Requirements and Standards:

National Historic Preservation Act of 1966 (NHPA; 16 U.S.C. 470F, as amended) and its implementing regulations found at 36 CFR Part 800 and the 2005 First Amended Programmatic Agreement between FEMA and the State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation. NHPA and its implementing regulations, as well as the Programmatic Agreement, require that FEMA take into account the effects of any federally funded or assisted project on historic properties.

Additionally, Section 101(d)(6)(B) of NHPA recognizes the Federal government's trust responsibilities to Tribes under a government-to-government relationship, and its obligation to ensure that the Tribes' reserved rights are protected. Consultation with tribes helps insure that these trust responsibilities are met.

Environmental Consequences:

PROPOSED ACTION. All parcels in the Project's Analysis Area that contained potential historic resources were removed from the Proposed Action Project area. Consequently, no historic properties are located within the APE and no parcels with identified, unevaluated historic resources are proposed for treatment under this Proposed Action. One resource (P-31-001889) was previously determined ineligible for listing in the National Register of Historic Places in 1994. FEMA made a finding of no historic properties affected pursuant to the Programmatic Agreement (see Appendix E).

With a full site survey and the elimination from the Project area of all parcels that contained unevaluated historic resources, the risk of damage to known historic resources is eliminated. However, there is the potential to encounter previously undiscovered resources during Project implementation. FEMA will condition the grant to NLTFPD so that if any buried archaeological resources are discovered, all ground disturbing activities would cease at that location until a qualified archaeologist completes a determination of eligibility. The Final Historic Properties Inventory and Evaluation Report describes the following process in the event of such a discovery:

> If a discovery of an artifact and/or human remains is made during the implementation of the Proposed Project, the operator will cease all activity within 100 feet (30 meters) and notify the Conservancy and CalEMA immediately. CalEMA will notify FEMA and ensure that all reasonable measures are taken to avoid or minimize harm to the resource until FEMA completes additional consultation with the SHPO and the appropriate tribes. If human remains are found, including disarticulated or cremated remains, the Conservancy will also contact the Placer County Coroner/Medical Examiner and the local law enforcement office. Pursuant to the California Health and Safety Code, if the Coroner/Medical Examiner determines that the human remains are or may be of Native American origin, the discovery will be treated in accordance with Section 5097.98 (a-d) of the California Health and Safety Code. At that point, the Conservancy would obtain a qualified archaeologist, with Native American burial experience if possible, to conduct an investigation of the human remains. All mitigation regarding the human remains would be implemented prior to the resumption of ground-disturbing activities within 100 feet of the discovery site.

The SHPO has no objection to FEMA's finding of No Historic Properties Affected for this undertaking as described (see Appendix E). The project described in the Final Historic Properties Inventory and Evaluation Report considered the potential for mechanical treatment (mastication), as well as hand treatment for vegetation removal. As the project evolved, mechanical treatment was removed from consideration in the Proposed Action, leaving only hand treatments, which is within the scope of the project described to the SHPO.

NO ACTION ALTERNATIVE. Under the No Action Alternative, no direct impacts to historic properties would occur because no forest treatment would occur. The No Action Alternative could result in indirect effects to historic properties in the event of a wildfire that damaged historic properties in or adjacent to the project area.

3.5 Socioeconomic Resources

3.5.1 Land Use

Affected Environment: *Environmental Setting*

The project area contains scattered Conservancy-owned urban lots within the unincorporated Placer County portion of the Lake Tahoe Region within the zoning found in the Tahoe Regional Planning Agency's (TRPA's) Plan Area Statements and Community Plan areas. Nearby land uses include single family and some multifamily homes, undeveloped public and private areas, recreational areas and schools, and some retail/commercial areas.

The TRPA Regional Plan guides land use decision making. Twenty-five Plan Area Statements (PAS) and Community Plans govern the geographic area encompassed by this project. Each Plan Area Statement or Community Plan provides a description of the land use for a planning area (mapped in Appendix G), identifies area-specific planning issues, and establishes specific direction for planning to meet the policy direction of the Regional Plan Goals and Policies document. These plan area statements, and any adopted community plans or area plans that superseded the plan area statements where applicable, provide detailed planning and land use policies for the specific geographic areas over which they provide zoning. Placer County has also adopted the PAS and Community Plans in lieu of traditional zoning. All projects and activities must be consistent with the provisions of their applicable plan area statement.

Land use regulatory authority for a fuels reduction project in this area rests with the TRPA. The forestry-related Permissible Uses in the various PAS and Community Plans provide TRPA the authority to authorize fuel reduction activities. TRPA and the Tahoe Conservancy have an existing Memorandum of Understanding (MOU, 1999) that allows for vegetation management activities.

Environmental Consequences:

PROPOSED ACTION. TRPA has issued a Tree Removal Permit (Appendix H) for the 881 properties being considered for treatment under the Proposed Action that clarifies the Conservancy's ability to move forward with the project under the authority of the 1988 MOU. No zoning or other Regional Plan changes were required or requested in order to authorize this permit, which authorizes Project activities consistent with the Resource Management Permissible Uses found in the applicable PAS/Community Plans. The project is consistent with all applicable permissible land uses, land use plans, policies and regulations for agencies with jurisdiction over the activities.

NO ACTION ALTERNATIVE. Under this alternative, no vegetation removal would occur and no land use permits would be required.

3.5.2 Noise

Affected Environment: *Environmental Setting*

The Project is located on parcels within, next to and near residential areas. In addition to single- and multi-family homes, additional potentially "sensitive receptors" – land uses where there is a reasonable degree of sensitivity to noise, such as hospitals, schools, churches, rest homes, cemeteries, and libraries per the Placer County Noise Ordinance (Ordinance #5280-B) -- exist within the Project area. These noise sensitive land uses (mapped in Appendix I) are particularly adversely affected by noisy activities.

The main source of noise is from vehicular traffic along roadways, with secondary sources being aircraft overflight, transitory recreationist, and more typical neighborhood sounds (e.g., lawn mowers, home construction sounds, music, children, chainsaws, log splitters, and barking dogs). With the current emphasis on creation of defensible space on private land, the sound of chainsaws and chippers more commonplace.

The TRPA has established an environmental standard for noise called the Community Noise Equivalent level (CNEL). The TRPA CNEL for high density residential and urban outdoor recreation areas is 55 dBA and low density residential areas is 50 dBA. The CNEL value is an average sound level for a specific time interval with a weight factor incorporated to penalize sounds which occur during evening or nighttime hours. This is done to reflect the intrusive effects noise sources have during nighttime hours. Noise levels occurring between 7:00 am and 7:00 pm are not normally weighted.

Environmental Consequences:

PROPOSED ACTION. Noise producing, mechanized equipment that would be used to implement the Proposed Action would be limited to chainsaws, chippers, and crew vehicles, all of which are commonly used in neighborhood settings by tree service companies doing work for private landowners. Short-term noise effects are anticipated during Project activities, and occasional maintenance activities, resulting in a temporary increase in the ambient noise levels. Because the project treats small urban lots, the effect of project noise on area residents would be transitory; louder, when work is done on nearby parcels, quieter as the work progresses down the street and elsewhere in the neighborhood. This is because sound attenuates based upon distance from the source. However, since the duration of impact at any one parcel would be very brief (typically less than one day) and since the impact would occur during less sensitive daytime hours, the impact from construction-related ground borne noise would not be substantial. Project implementation may result in a temporary and periodic exposure to noise levels in excess of the established standards, as is allowable under local and Regional ordinances. Long-term, there are no new noise sources or changes to ambient noise levels resulting from the project.

Because 69% of the homes in the Placer County portion of the Tahoe Basin are second homes, it is likely that the occupants of many the houses in the Project vicinity will vary over the duration of project implementation. No specific neighbor notifications are proposed.

The exemption to noise limitations, Section 23.8 of the TRPA Code, would apply to fuel reduction operations associated with the Project. This section permits approved projects to exceed the noise limitations between the

hours of 8:00 am and 6:30 pm. Similarly, Placer County's noise ordinance provides an exemption to its noise ordinance (Article 9.36.030 of the Placer County Code) for activities that take place between 6:00 a.m. and 8:00 p.m. Monday through Friday, and 8:00 a.m. and 8:00 p.m. Saturday and Sunday. The Project would comply with the most restrictive of these limitations.

NO ACTION ALTERNATIVE. Under this alternative, no vegetation clearing would take place. There would be no noise effects due to Project implementation.

3.5.3 Transportation/Traffic

Affected Environment: *Environmental Setting*

The project area includes scattered urban parcels throughout the North and West shore areas. The transportation system serving these parcels is characterized by a street network of neighborhood roads accessed by arterial streets and connected by State Routes 89 and 28. This system experiences low traffic volumes along neighborhood streets that is well within acceptable design capacity. Near the developed commercial centers along the state highways, traffic volumes during peak tourist visitation periods often produce congestion.

Environmental Consequences:

PROPOSED ACTION. Project activities would generate very low parking needs and low trip generation. The project would require access on neighborhood streets for crew vehicles and a mechanical chipper to be parked near the urban parcels receiving treatment. Site access would be on foot with no temporary roads constructed as part of this project and no unpaved forest roads used. Felled trees would be cut into firewood length pieces (rounds) by the crews and left for hand removal by the public for firewood. In limited cases crews may move rounds to the edge of the street to prevent soil erosion. The street system easily accommodates the limited parking needs for project in additional to normal neighborhood use. Locations for staging of rounds for public fuelwood collection would be carefully selected to avoid causing or increasing traffic congestion or hazardous traffic conditions. In addition, because the urban parcels are scattered over a large area, additional trips to/from any one part of the project site are likely to be negligible.

NO ACTION ALTERNATIVE. No change to the transportation system or traffic volume or patterns would occur with the No Action Alternative.

3.5.4 Hazardous Materials

Affected Environment: *Environmental Setting*

The term "hazardous substance" refers to both hazardous materials and hazardous wastes, including explosives. A material is defined as hazardous if it appears on a list of hazardous materials prepared by a federal, state or local regulatory agency or if it has characteristics defined as hazardous by such an agency. The California Environmental Protection Agency's (CalEPA's) Department of Toxic Substances Control (DTSC) defines hazardous waste as a substance whose "quantity, concentration, or physical, chemical, or infections characteristics: (1) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or

incapacitating reversible illness; (2) pose a substantial present or potential hazard to human health or the environment, due to factors including, but not limited to, carcinogenicity, acute toxicity, chronic toxicity, bioaccumulative properties, or persistence in the environment, when improperly treated, stored, transported, or disposed of, or otherwise managed." *See* California Health and Safety Code §25141(b). The CalEPA and the State Board establish rules governing the use of hazardous materials and the management of hazardous waste. If a release of a hazardous substance is detected in the project area, the NTFPD responds to evaluate conditions and determine if additional emergency services will be required.

Given that the project area is largely undeveloped land located away from industrial or heavy commercial sites, it has a low risk for hazardous materials contamination. Known leaking and non-leaking underground storage tanks in this portion of Placer County are largely concentrated in the commercial areas along the highways, outside of the urban lots considered for treatment by this project. Project construction or operation affected or otherwise disturb these sites.

Naturally occurring asbestos (NOA) is known to be present in Placer County. To help identify areas in the county that may contain NOA, the California Department of Conservation, California Geological Survey (CGS), has prepared a 1:100,000-scale map of relative likelihood for the presence of naturally occurring asbestos in Placer County. The project area is not located near any of the areas identified as containing Ultramafic Rocks and is mapped as an Area Least Likely to Contain NOA.

Environmental Consequences:

PROPOSED ACTION. Gasoline and diesel fuels, oils, and the like are hazardous materials that would be used to power the mechanized equipment needed to complete the project (e.g., chainsaws and chippers). These are hazardous materials that could impact natural resources such as water, soils, plants and animals if unintentionally released into the environment. Standard best management practices would be routinely incorporated into Conservancy forestry operations, including the Proposed Action, to protect the environment from the risk of Hazardous Materials spills resulting from land management activities. Such best management practices include the following:

1. Vehicles and chippers would only be fueled at an offsite, permitted fuel station and vehicle maintenance, including washing, would also occur off site at an existing, commercial facility.
2. Small, mobile equipment (e.g., chain saws) would be fueled and lubricated during operations, typically within the paved or vegetation-free portions of a county road. However, chainsaw service and fuel storage (in approved UL or DOT containers) would occasionally occur within more remote portions of the project area, but only in areas that are free of flammable materials for a radius of at least fifteen feet. Remote refueling and lubricating of small equipment would be restricted to upland areas at least 100 feet away from the edge of any streams, wetlands, ditches, and other waterbodies and 150 feet from water supply wells. Dispensing of fuel would only occur at least 10 feet away from any sources of ignition; smoking is prohibited during fueling. Chainsaws would not be started or operated within ten feet of a refueling point or otherwise near stored fuel.
3. Crews would be supplied with absorbent and barrier materials to contain and recover accidental spills of fuels and lubricants (spill kit). The liquid recovery capacity of the spill kit would be equal to or greater

than the maximum total volume of fuel plus lubricant for the equipment being used. The spill kit would be available in close proximity to areas where chemicals are stored or refueling would occur to enable prompt response and clean-up of spills or other discharges of hazardous substances. Employees would be briefed at weekly "tailgate sessions" with the location and contents of all spill kits and the procedures to be followed in the event of a leak or spill.

4. Any leaks, drips, and other spills would be cleaned up immediately to avoid soil or groundwater contamination. Cleanup of a spill on soil would include the removal of contaminated soil. Any contaminated soil and disposable gear used to clean up a hazardous materials spill would be properly disposed of following State and Federal hazardous material disposal regulations. Spills would be immediately reported to the Conservancy.
5. Major maintenance activities and repairs to equipment would occur off site at an approved facility.

With implementation of these standard operating procedures, the risk of Project implementation resulting in an unintended hazardous material release is reduced to a level of nonsignificance.

NO ACTION ALTERNATIVE. The no action alternative would not use any gasoline, diesel fuels, or oils in the project area, eliminating any potential for contamination.

3.5.5 Public Health and Safety

Affected Environment: *Environmental Setting*

The general public utilizes the project area for community open space, neighborhood pedestrian "cut throughs," and recreation access points to larger public lands. Because these lands are proximate to residences, the possibility of a wildfire igniting on the public property is the primary public health and safety concern.

Environmental Consequences:

PROPOSED ACTION. Standard best management practices that would be routinely incorporated into Conservancy forestry operations, including the Proposed Action, protect Public Health and Safety from the possibility of a fire ignition resulting from land management activities. These best management practices include:

- All chainsaws and chippers would be equipped with spark arrestors.
- For emergency use in the event of a fire, vehicles would be typically equipped with one shovel, one ax or Pulaski, and a fully charged fire extinguisher. Additionally, a "fire tool box" would be located within each active operating area typically containing a five gallon backpack pump filled with water, two axes or Pulaski, two McLeods, one chainsaw (3.5 horsepower or greater) with a twenty inch or longer cutting blade, and one shovel for each employee at the operation.
- Employee smoking would not be permitted during the fire season, except on the paved streets.

With these standard operating procedures, the risk of the project resulting in an unintended wildfire ignition is reduced to a level of nonsignificance.

NO ACTION ALTERNATIVE. Under this alternative, vegetation treatment would not take place. There would be no direct risks to public health and safety from Project implementation. There would also be no reduction in the fuel loads in the project area. Therefore, the possibility of a wildfire ignition would not be reduced, challenging the ability to suppress a fire due to forest conditions in the area.

3.5.6 Socioeconomics and Environmental Justice

Affected Environment: *Environmental Setting*

The project's analysis area is situated on the northwest side of the Lake Tahoe Basin, extending west from the California/Nevada state line on the north shore to the El Dorado County-Placer County line on the west shore in Tahoma. The analysis area consists of approximately 238 acres of forested land located within and adjacent to larger developed subdivisions and unincorporated communities located within the NTFPD (e.g., Carnelian Bay, Cedar Flat, Dollar Point, Highlands, Lake Forest, Homewood, McKinney, Tahoma, Kings Beach, Tahoe City, Tahoe Park, Talmont, Tahoe Vista, and Agate Bay). The NTFPD serves the various communities within its approximately 34-square mile boundary. The area served has a permanent population of an estimated 10,000 residents, with a seasonal fluctuation visitors that dramatically increases population, especially on holiday weekends. The economy is primarily tourist-based with governmental agencies and ski resorts as the major employers.

Population Trends in the Project Area

Community	2000 Population	2010 Population	Percent Change
Dollar Point	1,539	1,215	-21.1%
Kings Beach	4,037	3,796	-6.0%
Sunnyside	1,761	1,557	-11.6%
Tahoe Vista	1,668	1,433	-14.1%
Carnelian Bay	n/a	524	n/a
Tahoma	n/a	1,101	n/a
Other	3,153	n/a	n/a
Total	**12,158**	**9,716**	**-20.1%**

Source: Placer County Socio-Economic Plan for Tahoe Basin Community Update (2000/2010 U.S. Census)

The table above uses U.S. Census data to demonstrate that the permanent population in the Project Area dropped by more than 20 percent between 2000 and 2010. Loss of employment opportunities coupled with quickly escalating housing prices drove some residents to relocate, often do to lack of housing affordability or, in other cases, to capitalize on the sale of their homes for high prices. Many of the residences sold to second homeowners who reside outside the Tahoe Basin and use their homes for vacations and recreation, and sometimes as vacation rentals. Others serve as long-term rentals; however, today's higher selling prices often lead to increased rent being charged. TRPA's parcel data base (2010) reports that 39.7% of Placer County's homes are primary residences, while 69.2% are second homes.

Relative to most other regions in the United States, all four counties in the Lake Tahoe Basin have a high percentage of housing that is vacant except during the summer. The 2010 Census reports total housing units for the Tahoe Basin portion of Placer County as 12,106. Estimates prepared for the TRPA indicate that Placer County has the greatest percentage (over 69%) of second-home ownership in the Basin. Most second home occupancy occurs between the 4th of July and Labor Day, which corresponds with the area's peak fire season.

Housing Occupancy in the Project Area

Community	Total Units	Vacant (Typically)	Percent Vacant	Vacant Used for Seasonal Use	Percent Vacant used for Seasonal Use
Carnelian Bay	947	691	73.0%	654	94.6%
Dollar Point	1,822	1,251	68.7%	1,178	94.2%
Kings Beach	2,372	1,010	42.6%	807	79.9%
Sunnyside/Tahoe City	2,119	1,375	64.9%	1,239	90.1%
Tahoe Vista	1,446	818	56.6%	735	89.9%
Tahoma	2,058	1,505	73.1%	1428	94.9%

Source: Placer County Socio-Economic Plan for Tahoe Basin Community Update (2000/2010 U.S. Census)

According to the 2010 Census data most of the full time residents in the Project Area are White (69%). One Placer County community in the project area, Kings Beach, has a higher percentage of Hispanic or Latino residents (56%). Many of these residents earn less than the statewide average. In 2010, the annual median household income for Kings Beach was $37,348, while statewide it was $61,094. Accordingly, Kings Beach is classified as a disadvantaged community by the California Department of Water Resources. A disadvantaged community is a community with a median household income less than 80 percent of the statewide average. None of the other communities within the Project Area are classified as disadvantaged communities.

2010 Census Data, Placer County Race and Ethnicity Generally at Lake Tahoe

	White (Non Hispanic /Latino)	**African American**	**American Indian**	**Asian/ Pacific Islander**	**Hispanic or Latino**	**Other or Multi-Racial**	**Total**
Total of Placer County	246,267	4,751	3,011	21,213	44,710	28,480	48,432
Lake Tahoe portion of Placer County	6,705	48	51	117	2,720	807	10, 448

Source: U.S. Census Bureau, 2010 Census (Hispanic or Latino and Race)

Race and Ethnicity in the Project Communities

Community	**White**	**Hispanic or Latino**	**American Indian**	**Asian**	**Black or African American**	**Other**
Dollar Point	1,090	83	6	19	4	13
Kings Beach	1,620	2,115	13	14	3	31
Sunnyside/Tahoe City	1,431	84	2	15	3	22
Tahoe Vista	1,025	352	5	21	3	27
Carnelian Bay	482	13	4	14	1	10
Tahoma	1,090	51	10	14	6	20
Total	6,738	2,698	40	97	20	123
Average %	**69.3%**	**27.8%**	**.4%**	**1.0%**	**.2%**	**1.3%**

Source: Placer County Socio-Economic Plan for Tahoe Basin Community Update (2010 U.S. Census)

Housing density in the Tahoe Basin is low when compared with other Placer County communities. The Forest Service and the State both have had environmentally sensitive land acquisition programs that have purchased undeveloped urban lot parcels within developed subdivisions, such as the parcels being considered for treatment with this Project. When combined with regional growth control ordinances, these public land acquisitions contribute to the low densities in these rural communities. In the Project Area, the Carnelian Bay community has the lowest housing density and Kings Beach has the highest.

Housing Density in the Project Area:

Community	**Total Units**	**Acres by Corresponding Census Tract**	**Units Per Acre**
Carnelian Bay	947	7,037	0.13
Dollar Point	1,822	5,812	0.31
Kings Beach	2,372	1,850	1.28
Sunnyside/Tahoe City	2,119	5,954	0.36
Tahoe Vista	1,446	5,563	0.26
Tahoma	2,058	7,027	0.29

Source: Placer County Socio-Economic Plan for Tahoe Basin Community Update (2000/2010 U.S. Census)

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. It would be achieved when everyone enjoys the same degree of protection from environmental and health hazards, equal access to the decision-making process, and the opportunity to have a healthy environment in which to live, learn, and work.

Regulatory Requirements and Standards:

Environmental Justice in Minority Populations and Low-Income Populations, EO 12898: This Presidential Executive Order directs federal agencies to ensure that their programs, policies, and activities do not have a disproportionately high and adverse human health and environmental effect on minority or low-income populations. It requires that all federal actions consider potentially disproportionate effects on minority and low-income communities, especially if adverse effects to environmental or human health conditions are identified. It also tasks federal agencies with ensuring that public notifications regarding environmental issues are concise, understandable, and readily accessible.

Environmental Consequences:

PROPOSED ACTION. Factors considered in determining whether the Proposed Action would affect environmental justice included the extent or degree to which its implementation would change any social, economic, physical, environmental, or health conditions so as to disproportionately and adversely affect any particular low-income or minority group.

Conditions created by the Proposed Action would not affect any minority or low-income neighborhood disproportionately. The activities found in the Proposed Action were based solely on the existing and desired condition of the vegetation, sensitivity of the environment, and practical treatment access in response to the identified Project Purpose and Need. In no case was the treatment prescription design based on the demographic makeup, occupancy, property value, income level, or any other criteria reflecting the status of adjacent non-federal land. The prescription to be applied to the forest treatment activities are consistent between the communities. The Conservancy's State owned lands proposed for treatment are distributed throughout the project area and are intermixed with non-State lands. The project would not affect land in any way that would impact minority or low-income neighborhoods disproportionately. There is no evidence that any individual, group, or portion of the community would benefit unequally from this decision.

NO ACTION ALTERNATIVE. Under the No Action Alternative, there are no socioeconomic or environmental justice impacts. This Alternative would not create conditions that could have potentially disproportionate effects on minority and low-income communities, including those related to environmental or human health conditions.

3.5.7 Recreation Resources

Affected Environment: *Environmental Setting*

As urban lots in developed subdivisions, the parcels within the Project Area are not part of the Tahoe Region's system of destination developed recreation sites (Appendix I, Recreation Infrastructure and Improvements maps). However, some parcels within the project area contain user-created trails which provide access for dispersed, non-motorized recreational opportunities such as walking, mountain biking and cross-country skiing. These trails often provide through access to other desired destinations, including larger public land parcels. Motorized vehicles are generally not allowed on Conservancy properties.

Environmental Consequences:

PROPOSED ACTION. Public recreation use could be impacted by debris from project activities. Treatment activities could pose a threat to public safety during tree felling, from crews working with noise-generating equipment, and from flying debris. In addition to creating a public safety hazard, noise from equipment could also affect recreational users in the vicinity by adversely impacting the recreational experience.

To protect public safety and Consistent with the Conservancy's adopted Forestry Guidelines (Appendix B), prior to implementation of forestry projects greater than three acres in size, the Conservancy notifies adjacent property owners by mail. In addition, notices regarding individual or groups of Conservancy properties may be posted by the operator to redirect public use while fuels reduction activities are actively taking place. At no time would all California Tahoe Conservancy-owned parcels proposed for treatment be posted to redirect use at the same time. Because of the small size of the parcels being treated, implementation activities minimize the time that each parcel or group of parcels is inaccessible and use is redirected around work sites. User created trails impacted by the project would be returned to a condition that is as similar as possible to their pre-project condition to restore existing public access patterns. Public access would be restored as quickly as possible following the completion of work in any given area within the Project.

NO ACTION ALTERNATIVE. The No Action Alternative would not have any immediate consequences for recreational resources within the project area. However, long-term adverse effects are likely from increasing fuel loads. Hazard trees could fall and impede passage through the project area, presenting a safety hazard for recreationists. Overgrown brush may also compromise access to and through the project area.

3.5.8 Visual Resources

Affected Environment: *Environmental Setting*

Scenic quality in the Lake Tahoe Region is recognized as a primary resource of national significance. The combination of a stunning lake in a forested mountain setting creates this iconic landscape. Within the Region, the undeveloped forests of the North Shore create the backdrop for a high diversity of lake and landscape views.

Scattered urban parcels included in the project area contribute to that backdrop and also provide a local forested setting for residential and dispersed recreation development.

The lands within the project area are well-vegetated with cone-bearing trees such as pines and firs, deciduous species such as aspens, alders and willows, shrubs such as manzanita, gooseberry and bitterbrush, and a variety of forbs and grasses. Many parcels contain downed woody material. The visual character of the parcels in the project area is dense vegetation with a diversity of colors and textures, limited light penetration, and areas of substantial clutter from downed woody material. The vegetation complex is considerably denser than historic conditions when the forest character included a more open, visually penetrable, and mature-tree dominated landscape.

In some cases, the project area lands are visible from TRPA-designated scenic corridors where they combine with other undeveloped land to form the forested backdrop critical to attaining and maintaining visual standards. The TRPA adopted scenic threshold standards in 1984 that establish minimum visual and scenic quality ratings for eight roadway, eight shoreline, and nine recreation area and bike trail scenic corridors in the project vicinity.

Environmental Consequences:

PROPOSED ACTION. Project activities would alter both the view of the subject parcels themselves and the extent to which the vegetation on the parcels screens views of existing development. On individual parcels, fuel reduction activities that have visual implications include removal of existing downed woody material, and tree and brush thinning. These actions create a more sparsely vegetated site dominated by mature trees, a condition that is more consistent with historical conditions. Visual effects include increased sunlight, decreased clutter from existing downed material, and greater sight distances. Retention of smaller tree and shrub islands (where fuel reduction objectives can still be met), would serve to limit potential adverse effects of these changes, as would requiring stumps to be cut less than six inches in height (where possible). Increasing sunlight allows diverse flower and shrub species to become established.

Project activities would alter the visual environment for viewers close to the project lands. Tree and shrub removal would create an “open feel” and a less dense forest and increase sight distance through each parcel. In some locations, this would increase view of surrounding development typical in residential communities, including houses, roads, and trails. Retaining areas of shrub and small diameter trees, consistent with fuel reduction goals, would retain some screening value for surrounding land uses. These smaller trees to be retained and shrub “islands” of irregular shapes and sizes would provide a more natural-appearing mosaic in the landscape as viewed from homes, roads, and trails. As viewed from farther away and along scenic corridors, project activities would reduce the density of forest cover, potentially increasing the view of existing development within the forest backdrop. While this is true, the thinning prescription would retain substantial numbers of mature trees on each parcel. As viewed from a distance, these mature trees would retain substantial screening value and would maintain the visual continuity of the forested backdrop. This would limit the effect on TRPA designated scenic corridors and avoid threatening threshold attainment.

Project activities would produce a landscape with more historically accurate visual features. The short-term effects of the project activities would create visual change on subject parcels, yet project elements focused on creating a healthy forest and mosaic of shrubs would limit the adverse effects of that change. Long-term effects would be primarily beneficial because of the park-like setting that will remain.

NO ACTION ALTERNATIVE.

The no action alternative would not have immediate consequences for the visual resources of the project area. Over time, vegetation density would increase and further diminish sight distance through the forested parcels. Overstocked forests also have a higher likelihood of being impacted by diseases or pests which may increase tree mortality. Dead trees would degrade the visual character of the landscape, as standing snags or fallen logs. Increased risk of wildfire inherent in the no action alternative would also increases the risk of significant visual degradation resulting from fire.

4.0 CUMULATIVE IMPACTS

NEPA defines a cumulative impact as an "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR § 1508.7). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

PROPOSED ACTION: The cumulative effect of the Proposed Action in combination with other existing and proposed vegetation and fuel treatments by other agencies and the private sector would increase the overall effectiveness of fuel reduction and improve forest health on the landscape scale. The fuel treatments under the Proposed Action would combine with existing treatments by other entities to create a relatively open forest structure where fuel amounts and arrangements have been altered to change potential fire behavior in the event of a wildfire, keeping the burn low to the ground and out of the tree crowns.

5.0 SUMMARY OF IMPACTS AND MITIGATION

Mitigation measures are actions that have been identified to avoid or minimize environmental impacts of project implementation on social, cultural, and natural environmental resources. The environmental consequences analysis for this Project has not identified any significant impacts requiring mitigation due largely in part to the specific elements of the Proposed Action that protect specific natural and cultural resources through avoidance and minimization of potential impact. These measures for minimizing impacts are summarized here:

Air Quality

1. No prescribed fire activities, including pile burning, would be conducted on any parcel that receives treatment under this Project, including during the eleven-year, post-treatment Project maintenance period (Appendix C).

Water Quality

1. Fallers would use falling wedges/techniques to directionally fall trees away from stream channels and SEZ.
2. In SEZ, preference would be given to retention of riparian vegetation (e.g., willows, alders and aspens); tree and brush removal would focus on encroaching conifers and flammable chaparral.
3. Within SEZs and 100 year floodplains, the bole of all existing down trees would be left in place, with limbs removed.
4. All stream bank trees greater than 14" DBH would be retained unless determined to be a safety hazard to adjacent structures or other targets.

Wildlife

1. An average of two of the largest diameter, non-hazardous standing dead trees (also called "snags") per acre will remain following treatment. In evaluating snags for retention, all snags greater than 30" DBH and all those greater than 24" DBH in decay Class 6 or higher would be retained unless they become so numerous that the forestry or fire professionals marking the property determine that they pose an unacceptable fire hazard or evaluate them to be a hazard tree. In order to protect life and property, all hazard trees would be removed around homes, roads, and trails even when the above-described snag retention standard cannot otherwise be met on a parcel.
2. At least three to five of the largest logs per acre would remain.
3. Certain parcels would be subjected to Limited Operating Periods (LOPs) for wildlife reasons. Specifically, no fuels reduction activities that cause vegetation disturbance would occur in SEZ parcels with riparian habitat between May 1 and August 15. Mapped "no disturbance zones" for northern goshawk and osprey would also prohibit vegetation removal from February 15 to September 15 and March 1 to August 15, respectively.

4. Since migratory bird species have the potential to nest throughout the project area, pre-treatment nesting bird surveys would be conducted during the nesting season (May 1 to August 15) and treatments would be postponed in areas near active bird nests.

Cultural Resources

1. If a discovery of an artifact and/or human remains is made during the implementation of the Proposed Project, the operator will cease all activity within 100 feet (30 meters) and notify the Conservancy and CalEMA immediately. CalEMA will notify FEMA and ensure that all reasonable measures are taken to avoid or minimize harm to the resource until FEMA completes additional consultation with the SHPO and the appropriate tribes. If human remains are found, including disarticulated or cremated remains, the Conservancy will also contact the Placer County Coroner/Medical Examiner and the local law enforcement office. Pursuant to the California Health and Safety Code, if the Coroner/Medical Examiner determines that the human remains are or may be of Native American origin, the discovery will be treated in accordance with Section 5097.98 (a-d) of the California Health and Safety Code. At that point, the Conservancy would obtain a qualified archaeologist, with Native American burial experience if possible, to conduct an investigation of the human remains. All mitigation regarding the human remains would be implemented prior to the resumption of ground-disturbing activities within 100 feet of the discovery site.

Noise

1. The exemption to noise limitations, Section 23.8 of the TRPA Code, would apply to fuel reduction operations associated with the Project. This section permits approved projects to exceed the noise limitations between the hours of 8:00 am and 6:30 pm. Similarly, Placer County's noise ordinance provides an exemption to its noise ordinance (Article 9.36.030 of the Placer County Code) for activities that take place between 6:00 a.m. and 8:00 p.m. Monday through Friday, and 8:00 a.m. and 8:00 p.m. Saturday and Sunday. The Project would comply with the most restrictive of these limitations.

Hazardous Materials

1. Vehicles and chippers would only be fueled at an offsite, permitted fuel station and vehicle maintenance, including washing, would also occur off site at an existing, commercial facility.
2. Small, mobile equipment (e.g., chain saws) would be fueled and lubricated during operations, typically within the paved or vegetation-free portions of a county road. However, chainsaw service and fuel storage (in approved UL or DOT containers) within more remote portions of the project area would occasionally occur and would be free of flammable materials for a radius of at least fifteen feet. Remote refueling and lubricating of small equipment would be restricted to upland areas at least 100 feet away from the edge of any streams, wetlands, ditches, and other waterbodies and 150 feet from water supply wells. Dispensing of fuel would only occur at least 10 feet away from any sources of ignition; smoking is prohibited during fueling. Chainsaws would not be started or operated within ten feet of a refueling point or otherwise near stored fuel.

3. Crews would be supplied with absorbent and barrier materials to contain and recover accidental spills of fuels and lubricants (spill kit). The liquid recovery capacity of the spill kit would be equal to or greater than the maximum total volume of fuel plus lubricant for the equipment being used. The spill kit would be available in close proximity to areas where chemicals are stored or refueling would occur to enable prompt response and clean-up of spills or other discharges of hazardous substances. Employees would be briefed at "tailgate sessions" with the location and contents of all spill kits and the procedures to be followed in the event of a leak or spill.
4. Any leaks, drips, and other spills would be cleaned up immediately to avoid soil or groundwater contamination. Cleanup of a spill on soil would include the removal of contaminated soil. Any contaminated soil and disposable gear used to clean up a hazardous materials spill would be properly disposed of following State and Federal hazardous material disposal regulations. Spills would be immediately reported to the Conservancy.
5. Major maintenance activities and repairs to equipment would occur off site at an approved facility.

Public Health and Safety

1. All chainsaws and chippers would be equipped with spark arrestors.
2. For emergency use in the event of a fire, vehicles would be typically equipped with one shovel, one ax or Pulaski, and a fully charged fire extinguisher. Additionally, a "fire tool box" would be located within each active operating area typically containing a five gallon backpack pump filled with water, two axes or Pulaski, two McLeods, one chainsaw (3.5 horsepower or greater) with a twenty inch or longer cutting blade, and one shovel for each employee at the operation.
3. Employee smoking would not be permitted during the fire season, except on the paved streets.

Recreation

1. Notices regarding individual or groups of Conservancy properties may be posted by the operator to redirect public use while fuels reduction activities are actively taking place.
2. At no time would all California Tahoe Conservancy-owned parcels proposed for treatment be posted to redirect use at the same time.
3. User created trails impacted by the project would be returned to a condition that is as similar as possible to their pre-project condition to restore existing public access patterns.

Visual Resources

1. Where possible, require stumps to be cut less than six inches in height.

6.0 PUBLIC PARTICIPATION AND AGENCY COORDINATION

Following the Angora Fire of 2007, the governors of Nevada and California created the California-Nevada Tahoe Basin Fire Commission (Commission) to examine regulatory and social environments that influence fuels reduction in the Lake Tahoe Basin. In their final report (May 2008), the Commission recognized the necessity of multi-jurisdictional collaboration to accomplish fuels reduction projects, obtain and manage funding, and to plan and implement projects consistent with the Fuels Strategy or identified in geographically based community wildfire protection plans. The Tahoe Fire and Fuels Team (TFFT) implements the Fuels Strategy for the Lake Tahoe Basin. The original Strategy was updated and endorsed by the executives of TFFT member agencies in August 2014.

The TFFT allows partner agencies to collaborate, plan, and implement fuels reduction and other wildfire threat reduction programs consistent with the Fuels Strategy and Community Wildfire Protection Plans throughout the Tahoe Basin. Final project locations are planned by the foresters for the fire district or state agency. Members include: CAL FIRE, California State Parks, the Conservancy, Fire Protection Districts/Departments in the Lake Tahoe Basin, Nevada Division of Forestry, Nevada Division of State Lands, Tahoe Regional Planning Agency, and the U.S. Forest Service. Supporting agencies include: California Water Boards – Lahontan Region, Tahoe Resource Conservation District, University of Nevada Cooperative Extension, and the University of California Cooperative Extension.

An oversight body for the Fuels Strategy, composed of the chief executive officers of the federal and state land management agencies and the local fire agencies, is called the Multi-Agency Coordinating Group (MAC). It is the principal group that monitors the Fuels Strategy's implementation. MAC members are charged with strategic management of fuels reduction at Lake Tahoe. They concur that the Proposed Action is a priority project under the Fuels Strategy.

The Conservancy's Forest Improvement Program is responsible for managing the agency's forest resources consistent with the Lake Tahoe Basin's Environmental Improvement Program, the Fuels Strategy and Community Wildfire Protection Plan (CWPP), and California Government Code Section 66907.10, which states, "The Conservancy may improve or develop lands for the purpose of protecting the natural environment or otherwise meeting the objectives of this title." This Proposed Action was designed to treat priority areas based on the Fuels Strategy and CWPP. The Conservancy and the NTFPD have collaborated to refine the proposed treatment areas for fuel reduction activities based upon these priorities.

FEMA is the federal agency responsible for conducting the NEPA compliance process for the proposed project. It is FEMA's responsibility to expedite the preparation and review of NEPA documents in a way that is responsive to the needs of the public while meeting the spirit and intent of NEPA and complying with all NEPA provisions.

The proposed project is based on the work conducted in support of the NTFPD's plan, which involved a variety of community organizations, federal agencies, state agencies, regional and local agencies, and educational institutions in the process of identifying measures to reduce wildfire risk, as described above.

FEMA and NTFPD circulated the Draft EA for a 30-day public review and comment period beginning July 22, 2016. The document was made available at FEMA's website (www.fema.gov/media-library/assets/documents/117686), the California Tahoe Conservancy's website (tahoe.ca.gov), the NTFPD website (www.ntfire.net), and in hardcopies at local libraries (Tahoe City and Kings Beach). Notification of the Draft EA's availability was made via direct mailing to known interested parties (Appendix K), FEMA's website, and one-time publication in the local newspapers (*Sierra Sun* and *North Lake Tahoe Bonanza*). During the public comment period, FEMA accepted written comments on the Draft EA addressed to:

FEMA Region IX
Environmental and Historic Preservation Office
Attn: Draft EA for PDMC-2010 CA-019
1111 Broadway, Suite 1200
Oakland, California 94607
Email: fema-rix-ehp-documents@dhs.gov

FEMA received three comment letters during the public review and comment period for the Draft EA. These letters are included in Appendix L. At the end of the public review and comment period, FEMA reviewed all public comments and prepared this Final EA specifically to address those comments as part of the decision-making process. This Final EA will be made available to all parties notified of the Draft EA (as listed in Appendix K) and the individual who submitted the comment letters; its availability will also be advertised in the *Sierra Sun* and *North Lake Tahoe Bonanza.*

7.0 LIST OF PREPARERS

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8.0 REFERENCES

- Community Wildfire Protection Plan (P251 of the California Portion of the Tahoe Basin), 10-year Plan, C. G. Celio & Sons Co., Steve Holl Consulting, Wildland Rx, November 20, 2004
    - http://www.trpa.org/wp-content/uploads/CWPP_CA_Basin.pdf

- Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions, The White House, Council on Environmental Quality, February 18, 2010
    - http://www.whitehouse.gov/administration/eop/ceq/initiatives/nepa/ghg-guidance

- National Fire Plan, Department of the Interior, U.S. Fish and Wildlife Service, Number 15,674, Catalog of Federal Domestic Assistance
    - https://www.cfda.gov/index?s=program&mode=form&tab=core&id=702d1ff743fd0d5f7b3860cbf07ddeec

- Lake Tahoe Basin Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy, U.S. Forest Service, Dave Fournier, August 2014
    - http://www.fs.usda.gov/detail/ltbmu/home/?cid=stelprdb5309771

- National Cohesive Wildland Fire Management Strategy
    - http://www.forestsandrangelands.gov/strategy/

- Lake Tahoe Total Maximum Daily Load, November 2010
    - http://www.waterboards.ca.gov/lahontan/water_issues/programs/tmdl/lake_tahoe/

- Safeguarding California: Reducing Climate Risk, Natural Resources Agency, July 2014
    - http://resources.ca.gov/docs/climate/Final_Safeguarding_CA_Plan_July_31_2014.pdf

- Climate Change Guidelines for Forest Managers, Food and Agriculture Organization of the United Nations, Rome 2013
    - http://www.fao.org/docrep/018/i3383e/i3383e.pdf

- Lahontan Basin Plan, Lahontan Regional Water Quality Control Board, December 2005
    - http://www.waterboards.ca.gov/rwqcb6/water_issues/programs/basin_plan/index.shtml

- TRPA Code of Ordinances, December 12, 2012, effective February 9, 2013
    - http://www.trpa.org/regional-plan/code-of-ordinances/