Draft Environmental Assessment

Urban Fuel Load Reduction in Portland OR

City of Portland
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U.S. Department of Homeland Security
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Bothell, WA 98021-9796

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LIST OF TERMS AND ACRONYMS

List of Terms and Acronyms Used in This Document

Crown Fire – fire that involves the tops of the canopy trees in the forest; can spread rapidly.

Fire Line – a break in fuel made by cutting, scraping, or digging to stop the progress of fire; needs to be wide enough to prevent smoldering, burning, or spotting across the line.

Fire Management Plan – a strategic plan that defines a program to manage wildland and prescribed fires and provide for fuels reduction as needed.

Fire Regime – the frequency of occurrence, size, and intensity of fires that occur within a given area. Includes non-lethal (one fire every 5-25 years), mixed severity (one fire every 5-67 years), and stand replacement (one fire every 70-120+ years) regimes.

Fuels (Ground/Ladder) – wood, foliage or grass that can burn. Ground fuels are grasses, duff, herbaceous cover; ladder fuels are understory branches or shrubs that can allow a fire to ascend into the canopy.

Fuels Reduction – removal of excess fuels through thinning, limbing, slash pile burning, or other methods to reduce the potential for severe wildfires.

Jackpot Burning – controlled burning of slash (trees, brush, branches) removed during thinning; burning of concentrated fuels

Limbing – removal of large tree limbs to reduce fuel load and the potential for crown fires.

Pile Burning – controlled burning of slash (trees, brush, branches) removed during thinning through the use of hand piling and burning.

Prescribed Fire – any fire ignited by management actions to meet specific objectives. A written approved prescribed fire plan must be completed and appropriate NEPA requirements followed prior to ignition. This term replaces the term "management ignited prescribed fire."

Prescribed Natural Fire – a term previously used; has been replaced by "Wildland Fire Use."

Spot Burning – a modified form of broadcast burning in which only the larger accumulations of slash are ignited and the fire is confined to these spots; may be used to burn small populations of plants; can be used in wet conditions to kill unwanted vegetation.

Start – any new fire.

Suppression – a response to wildland fire that results in curtailment of fire spread and elimination of all identified threats from the fire.

Thinning – removal of trees, branches, or shrubs to reduce fuel loads.

Wildfire – an unwanted wildland fire.

LIST OF TERMS AND ACRONYMS

Wildland Fire – any non-structure fire, other than prescribed fire, that occurs in the wildland. This term encompasses fires previously referred to as both wildfires and prescribed natural fires.

Wildland Urban Interface – line, area, or zone where structures and other human development meet or intermingle with vegetative fuels in wildlands**.**

LIST OF TERMS AND ACRONYMS

Acronyms

BMP	Best Management Practice
CFR	Code of Federal Regulations
CO	Carbon Monoxide
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EO	Executive Order
ESU	Evolutionary Significant Units
FEMA	Federal Emergency Management Agency
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NAAQS	National Ambient Air Quality Standard
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO_2	Nitrogen Dioxide
NWI	National Wetland Inventory
O_3	Ozone
ODFW	Oregon Department of Fish and Wildlife
ORNHIC	Oregon Natural Heritage Information Center
PM_{10}	particulate matter less than 10 micrometers in diameter
PAQMD	Portland Air Quality Management District
PPR	Portland Parks and Recreation
RCRA	Resource Conservation and Recovery Act
SHPO	State Historic Preservation Officer
SO_2	Sulfur Dioxide
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VOC	Volatile Organic Compound

The City of Portland has applied to the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) for assistance with an urban fuel load reduction project in Portland, Oregon. The project will utilize and build upon an existing volunteer program to include fuels reduction education and vegetation management for wildfire risk reduction.

The National Environmental Policy Act of 1969 (NEPA) and the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations [CFRs] Part 1500 through 1508) direct FEMA and other federal agencies to fully understand and take into consideration environmental consequences of proposed federally funded projects. Under NEPA, Congress authorizes and directs federal agencies to carry out their regulations, policies, and programs as fully as possible in accordance with the statute's policies on environmental protection. NEPA requires federal agencies to make a series of evaluations and decisions that anticipate adverse effects on the environmental resources. This requirement must be fulfilled whenever a federal agency proposes an action, grants a permit, or agrees to fund or otherwise authorize any other entity to undertake an action that could possibly affect the human environment. In compliance with NEPA and its implementing regulations, FEMA prepared this draft environmental assessment (EA) to analyze potential environmental impacts of alternatives.

Large areas of Portland (City) are comprised of natural areas, stream corridors, and open spaces. While this is a community asset, it is also a fire hazard at the wildland-urban interface. Large areas of highly flammable, non-native vegetation are present on steep slopes near homes and businesses. Stands of dead trees and vertical ladder fuels are expanding in areas with limited fire. For these reasons, the risk for a catastrophic wildfire is increasing.

The purpose of the FEMA Pre-Disaster Mitigation Program is to encourage communities to implement disaster preparation programs and increase the capability of state and local governments to provide comprehensive disaster preparedness plans and programs. Through such programs, FEMA provides financial assistance to states, local governments, tribal governments, and U.S. territories by providing fire suppression assistance grants.

Fuel loads in three natural areas (project areas) in Portland currently present a real danger to property and people who live, work, and play in these areas. They include Forest Park, 17,331 acres of natural area that includes a 5,151-acre maintained open space park on the west side of Portland; Powell Butte Nature Park, a 738-acre natural area on the east side of Portland; and Willamette Bluffs Escarpment, a linear open space, approximately 370 acres in total, to the east of the Willamette River on the river's east bank (Appendix A, Vicinity Map). Highly volatile, non-native vegetation and steep slopes combine to increase fire risk in these areas. When fire is introduced by human and/or natural causes and the flammable vegetation ignites, there is the potential for risk to human lives, immediate damage to property from the fire, and subsequent damage due to landslides on slopes where fire has removed soil-holding vegetation.

Property values at the wildland-urban interface for the proposed project exceed $2.5 billion. Over 20,000 Portland residents and hundreds of thousands of park visitors would feel the devastation resulting from a catastrophic fire. The need for this action is to reduce or eliminate the risk to improved property from wild fires in the city of Portland natural areas.

The following sections discuss the two alternatives considered: (1) the No Action and (2) The Proposed Action to which FEMA funding would contribute.

3.1 ALTERNATIVE 1 – NO ACTION

Under the No Action Alternative, FEMA would not provide funding to reduce urban fuel load in target areas of Portland's wildland-urban interface. Existing conditions at these sites would continue to deteriorate. People and nearby structures would continue to be at risk from catastrophic fire events. Current and ongoing activities to protect the open spaces and urban interface will continue including noxious weed abatement, re-vegetation with native plant species, and general vegetation maintenance, but not to the degree needed and/or anticipated if funding is appropriated. This alternative would not meet the project nor the City's goals and objectives.

3.2 ALTERNATIVE 2 – PROPOSED ACTION

Under the Proposed Action, three natural areas would be targeted for reduction and management of fuel loads: Forest Park, Powell Butte Nature Park, and two segments of Willamette Bluffs Escarpment (Appendix B). The following lists the total acreage of Wildfire Hazard Target Areas within each of the natural areas:

- 17,331 acres in Forest Park
- 738 acres in Powell Butte
- 140 acres in South Bluff
- 230 acres in North Bluff

3.2.1 Alternative Features

The FEMA funding for the project would provide for activities that will span three years and would include fire break and vegetation management modeling; herbicide, mechanical and manual reduction in non-native vegetation mass; education and prescribed fire training; and coordination efforts. The modeling, education, and training for fire management will be conducted throughout the three year period. Herbicide, mechanical, and manual reduction of vegetation would occur during those times (spring, summer, fall) that target species would be most susceptible. All activities would be confined to existing roads and fire lanes in all locations. No new roads would be built, refueling of vehicles/equipment would occur in existing roads away from concentrations of fuels to be burned, and away from waterways.

3.2.2 Years One, Two and Three

- Fire break and vegetation management options (herbicide, mechanical, and/or manual reduction of non-natives) for highly combustible vegetation would be modeled for Forest Park and Powell Butte.

- Reduction of vegetation would occur in the three project areas and projected activities would include the on-going and additional herbicide application and other mechanical and manual methods to remove targeted fuel loads as well as spot and jackpot burning. Spot burning involves igniting accumulations of slash in small areas and may also include burning small populations of plants. It can be used in wet conditions to kill unwanted vegetation. A jackpot burn will involve hand piling excessive fuels and deliberately burning them under environmental conditions that allow the fire to be confined to the perimeter of the hand pile area. Jackpot burns produce the intensity required to attain planned fuel reduction objectives. By avoiding the use of machinery, hand piling has a minimal and temporary impact on vegetation and soils in the area of activity. Hand constructed fire lines, which are lines of flammable material (vegetation) removed from surrounding burn piles, will be restored to pre-project conditions. Best management practices for erosion control, such as the placement of straw bales or bio-filter bags will be employed. Burning would be timed after the first seasonal rains when the larger of the piled fuels combust but surrounding areas have the lowest probability of burning.
- Minimal ground disturbance would be required. Crews would use existing roads and fire lanes within the park for access and staging of vehicles and equipment.
- Refueling of vehicles/equipment would occur on existing roads away from concentrations of fuels to be burned and away from waterways.
- Erosion control grass seeding would occur in all disturbed areas.
- The effectiveness of vegetation reduction and public education activities would be monitored.
- Contract labor and volunteers would be utilized to remove vegetation.
- Education of students at the K5-K12 level would occur in Portland public schools.

3.2.3 Year Two

- Curriculum of fire safety and fuel load management would be developed and delivered.
- Education and volunteer stewardship would continue in the field and in the classrooms.

3.2.4 Years Two and Three

- Areas where prescribed burns would occur will be established through the fire risk modeling.
- Public involved burn plans would be developed for those areas described as high risk for fire. These plans will include all the logistics necessary to complete prescribed burns safely and within the confines of designated areas. Burn plans would also include any mitigation required for protection of natural and cultural resources
- Initial training and preparation of firefighters and the public for urban fire training and implementation of burn plans would begin.

3.2.5 Year Three

- Evaluate the work performed thus far, make any corrections in methods and/or techniques, and plan the implementation of future work in wildfire mitigation in the greater Portland area.

3.3 OTHER ALTERNATIVES CONSIDERED

A variation of the proposed action was evaluated and dropped from further study based on issues of safety and fire preparedness. This alternative would have aggressively used fire and other vegetation abatement without the assessment of fire modeling and risk assessment. Areas for implementing prescribed fire would have been designated solely on their extreme fuel loading and juxtaposition to the urban areas. This alternative was dropped from further study and no other alternatives were evaluated.

The following sections discuss the existing conditions by resources and the potential effects of the two alternatives mentioned earlier on the resources.

For each topic or resource category, the impact analysis follows the same general approach. First, the existing conditions are established for the affected areas. Then, the regulations and policies that guide impact assessment are identified, and finally, the specific impact thresholds for intensity of impacts are developed (see below). The study area, or area of analysis, was specific to the three natural areas (Forest Park, Powell Butte, and Willamette Bluffs Escarpment). Distinct durations were defined (short-term, long-term). Impacts were assessed based on extent or intensity of the departure from the existing conditions. Establishing thresholds and degrees of impact intensity were based on a review of relevant scientific literature, previously prepared environmental documents, and the best professional judgment of the EA team resource specialists.

Impact Intensity Threshold Criteria (Soils used as an example)

Negligible	Effects to soil productivity, fertility, stability, or infiltration capacity resource would be below or at the lower levels of detection. Any effects to soil productivity or fertility would be slight and no long-term effects to soils would occur.
Minor	The effects to soil productivity, fertility, stability, or infiltration capacity would be detectable, but the area is generally of limited and localized. Effects to soil productivity or fertility would be small.
Moderate	The effects on soil productivity, fertility, stability, or infiltration capacity would be readily apparent and result in a change to the soil character over a relatively wide area.
Major	The effect on soil productivity, fertility, stability, or infiltration capacity would have a substantial and possibly permanent consequence. Effects on productivity or fertility would be readily apparent, long-term, and substantially change the character of the soils over a large area.

Impact Duration Definitions:

Short-term	Recovers in less than three years from fire or other action.
Long-term	Takes more than three years to recover from fire or other action.

Impacts are described in general terms and are qualified as short-term and long-term, adverse or beneficial, as appropriate. Impacts may also be described as direct or indirect. Direct impacts are caused by an action and occur at the same time and place as the action. Indirect impacts are caused by an action and occur later in time or farther removed from the area, but are reasonably foreseeable. Cumulative impacts are also discussed, per NEPA requirements.

4.1 AIR QUALITY

In 1970, the U.S. Environmental Protection Agency (USEPA) established national ambient air quality standards for six "criteria pollutants": nitrogen dioxide (NO_2), ozone (O_3), carbon monoxide (CO), sulfur dioxide (SO_2), lead, and particulate matter less than 10 micrometers in diameter (PM_{10}). Areas where the monitored concentration of a pollutant exceeds the federal standard are classified as "nonattainment" for that pollutant. If the monitored concentration is below the standard, the area is classified as "in attainment." Maintenance areas are those geographic areas that had a history of nonattainment, but are now consistently meeting the National Ambient Air Quality Standard (NAAQS).

The study area for the proposed project is within the jurisdiction of Portland Air Quality Management District (PAQMD) and is classified as being in attainment of all federal standards except for O_3 and CO (Oregon Department of Environmental Quality 2005).

4.1.1 Environmental Consequences:

Alternative 1: No Action

Under the No Action Alternative, no pollutant emissions would directly impact air quality. However, in the event of a wildfire, the resulting smoke would cause temporary adverse impacts to air quality. Smoke from a fire consists of carbon dioxide (CO_2), water vapor, particulates (some of which contain volatile organic compounds [VOCs]), and CO. In addition, exhaust from support vehicles used in fighting the wildfire would cause a slight, temporary increase in PM_{10}, CO, NO_2, SO_2, and O_3 precursors. Soils exposed by a wildfire would increase PM_{10} levels through wind erosion.

Alternative 2: Proposed Action

Under the Proposed Action Alternative, spot and jackpot pile burning would emit CO_2, water vapor, particulates (some with VOCs), CO, PM_{10}, NO_2, SO_2, and O_3 precursors. These are the only types of burning that would occur under this alternative. Impacts to air quality from spot and jackpot pile burning would be negligible, as these activities would be conducted in a controlled manner and would be timed to coincide with optimum meteorological conditions conducive to concentrated air-column dispersal of fire-induced smoke. In performing the spot and jackpot pile burning associated with the proposed project, the City would comply with requirements regarding permitting and public notification prior to initiating burns.

No impacts to air quality are expected from herbicide use due to the small-scale, localized, hand-applied methods and the nonvolatile nature of the herbicide. Also, the particle size of the herbicide spray would cause it to sink, so it would not affect air quality.

No impacts to air quality are expected from the use of chainsaws, weed cutters and other small power tools due to the small-scale, localized nature of their proposed use.

Changes in air quality and air quality-related values would be at or below a negligible level of detection. If detected, effects would be considered slight with no anticipated consequences to health or visibility. These impacts are considered short-term and would not add incrementally to the long-term cumulative effect on air quality.

4.2 CLIMATE, GEOLOGY AND SOILS

4.2.1 Climate

The climate of western Oregon and the City of Portland metropolitan area specifically is greatly influenced by winds from the Pacific Ocean. The maximum average annual temperature for the Portland area is 62 degrees and the average minimum annual temperature is 44 degrees, with 80 degrees the average maximum for July and August and 34 degrees the average low for January (National Weather Service, 2004). The average total annual precipitation for the Portland area is 37 inches, most of it occurring as rainfall between the months of October and May. While rainfall occurs in any month of the year, the region generally endures a summer drought season, generally in the months of June through September. Hot, dry winds from Eastern Oregon frequently blow west through the Columbia River Gorge and through the Portland area. The dry winds significantly reduce fuel moisture levels and can fan sparks into a wildland fire.

4.2.2 Geology and Soils

Forest Park

Forest Park is located on Tualatin Mountain, a ridge running along the southwest edge of the Willamette River. The portion of the ridge comprising Forest Park ranges in elevation from approximately 50 feet to 1,150 feet above sea level. The ridge was formed by uplift. Quartzite pebbles and granite rocks at the 600-foot elevation were deposited during flooding events associated with ice age thawing periods. Small volcanic vents found along the ridge top and western slopes of Forest Park area helped deposit flows of platey basalt. Finally, wind and water influences led to the deposition of clay-like silt over the Tualatin Mountains. Silt deposits up to 45-feet thick occur in the highest portions of Forest Park. The silt overlaying basalt is an unstable formation when wet. Landslides frequently occur throughout slopes covered by the silt when altered by excavation or construction.

As mapped by the Multnomah County Soils Survey (NRCS 1983), the soils in the Forest Park area are dominated by silt loams, including the Cascade silt loam and the Goble silt loam soil series and the Wauld loam series. The Cascade and Goble silt loams are poorly drained soils formed in silts with a fragipan (brittle subsurface soil horizon) at about 60 inches below ground surface. Runoff from the Cascade silt loams ranges from slow to medium speed, and the erosion hazard ranges from slight to high. Runoff from the Goble silt loams ranges from medium to rapid speed, and the erosion hazard ranges from moderate to high. The Wauld loam series is characterized as well-drained soils formed from weathered basalt. Runoff from the Wauld loam series ranges from aslow to medium speed, and the erosion hazard ranges from slight to high. The Cascade and Goble silt loams and the Wauld loam series are generally suited for growing Douglas fir.

Powell Butte Nature Park

Powell Butte was formed by basaltic flows and pyroclastic rocks of local origin known as Boring lava. Boring lava is composed primarily of basaltic flow rocks but locally contains cindery pyroclastic rocks. Powell Butte itself is a mound-shaped area with moderately steep, forested

sides in its lower half, slightly sloped sides in its upper half, and a nearly level, grass-covered top. The park ranges in elevation from approximately 250 feet to 612 feet above sea level.

The soils in the Powell Butte Nature Park area are primarily loams and silt loams including the Multnomah silt loam, the Quatama loam, and Latourell loam soil series. The Multnomah silt loams are well-drained soils formed in stratified gravelly or cobbly alluvium. Runoff from the Multnomah silt loams ranges from slow to rapid speed, and the erosion hazard ranges from slight to high.

The Quatama loams are characterized as moderately well-drained soils formed on short escarpment fronts of low terraces. Runoff from the Quatama silt loams ranges from slow to medium speed and the erosion hazard ranges from slight to high. The Latourell loams are characterized as well-drained soils formed on broad terraces found in alluvium. Runoff from the Latourell silt loams ranges from slow to medium speed and the erosion hazard ranges from slight to high.

Willamette Bluffs Escarpment

The Willamette Bluffs Escarpment is located on the east side of the Willamette River and is defined by two separate segments, the South Bluff and North Bluff areas. An escarpment is defined as a long cliff or steep slope separating two comparatively level surfaces of differing heights resulting from erosion or faulting. The Willamette Bluffs are escarpments formed when the Troutdale and Missoula flood deposits were incised by the river channel during the last glacial period. As sea levels dropped during glaciation, the river cut downward from its previous elevation, which corresponded with the top of the bluffs. The bluffs are steep, exceeding 35 percent slopes and range in elevation from 50 to 100 feet in the south segment and 20 to 150 feet in the north segment. The area targeted for fuels reduction in the south and the north segments includes the vegetated escarpment as well as the adjacent plateau on its high side. The South Bluff Wildfire Hazard Target Area does not include the adjacent Oaks Bottom Wildlife Refuge, a Portland city park comprised of floodplain, wetlands, and open water.

The soils in the Willamette Bluffs Escarpment formation are dominated by the Haploxerolls-steep soil series. The Haploxerolls-steep soils range from moderate to well drained and are formed on long, narrow escarpments including those at the junction of terraces with bottomlands and flood plains along major streams and rivers. Runoff from the Haploxerolls-steep soils ranges from medium to rapid speed, and the erosion hazard ranges from moderate to high. These soils are subject to slumping and sustain drought-tolerant plants.

Other soils within the South Bluff Wildfire Hazard Target Area include the Urban Land-Latourell complex, 0 to 3 percent slopes. This soil series is found at the top and to the east of the escarpment. This is a well-drained soil with slight erosion hazard and is often disturbed and covered by concrete and asphalt.

Soils adjacent to the North Bluff project area are heavily urbanized. The Urban Land-Latourell complex, 0 to 3 percent slopes is found at the top and to the east of the North Bluff. This is a well-drained soil with slight erosion hazard and is often disturbed and covered by concrete and asphalt.

4.2.3 Environmental Consequences:

Alternative 1 – No Action

Under the No Action Alternative, FEMA would not provide funding to reduce urban fuel loads in target areas of Portland's wildland-urban interface. No impacts to soil resources within the three project areas would be expected, except for impacts associated with a catastrophic fire. These impacts may include devegetation caused by uncontrolled fire and subsequent soil erosion.

Alternative 2 – Proposed Action

Fires of varying intensities may alter the physical, chemical, and biological properties of the soil as a result of vegetation removal, organic consumption, and increased temperatures. In addition, the lack of fire may alter the soil properties as a result of limited nutrient cycling in fire maintained habitat areas.

No environmental consequences to soils are expected from fuels reduction activities in the three natural areas because the activities would not require leveling of the soil. Mechanical removal activities would be limited to the use of chainsaws, weed cutters, and polaskis and would not include heavy equipment. By avoiding vegetation removal of overly large areas at a given time and employing best management practices for erosion control, vegetation removal activities would not result in increased turbidity in streams and increased erosion of stream banks. Occasional jackpot and spot burns would not occur on steep slopes and would not be expected to have consequences to soils over the long term. No soils would be removed.

Direct, indirect, and cumulative effects to soil productivity, fertility, stability, or infiltration capacity would be at or below the lower levels of detection. Any effects to soil productivity or fertility would be slight, and no long-term effects to soils would occur.

4.3 FLOODPLAINS

Forest Park and the Willamette Bluffs Escarpment are adjacent to the Willamette River floodplains and Powell Butte is adjacent to the Johnson Creek floodplain. A large portion of the South Bluff is comprised of the 141-acre Oaks Bottom National Wildlife Refuge and is located within the Willamette River floodplain. However, the Wildfire Hazard Target Areas for each of these project areas does not include the adjacent floodplains. The Oaks Bottom area is also not included, as part of the South Bluff Wildfire Hazard Target Area because no project related activities would take place in these areas. See Appendix C for the Floodplain Management Checklist for each project area.

4.3.1 Environmental Consequences:

Alternative 1 – No Action

Under the No Action Alternative, FEMA would not provide funding to reduce urban fuel loads in target areas of Portland's wildland-urban interface. No impacts to floodplains adjacent to the three natural areas would be expected with the No Action Alternative.

Alternative 2 – Proposed Action

No environmental consequences related to floodplains are expected from fuels reduction activities in the three natural areas because the activities do not require soil-leveling or large-scale removal of vegetation that would result in changes to the adjacent floodplain contours or elevations. No direct, indirect, or cumulative impacts to floodplains are anticipated.

4.4 WETLANDS AND WATER RESOURCES

Forest Park

The National Wetland Inventory (NWI) shows mapped streams but no wetlands for Forest Park (NWI 2004). This is likely due to the steep slope of the Forest Park landscape and the well-drained characteristics of many of its soils. The mapped streams are generally intermittent except for a few perennial streams, including Balch Creek. Although Forest Park streams drain to the Willamette River, existing culverts prohibit fish passage.

Powell Butte Nature Park

Although a forested wetland area is mapped by the NWI to the east of Powell Butte, no wetlands or other waters are mapped on Powell Butte itself. There are few perennial streams, likely a result of the sloped landscape and the well-drained soils on-site. An intermittent stream flanks the southwest side of Powell Butte, draining to the ground at the base of the butte. No hydrological connection exists between Powell Butte and Johnson Creek, which is situated in the lowlands to the southeast and south of the butte.

Willamette Bluffs Escarpment

The escarpment portion of the Willamette Bluffs project area for both the north and south segments is too steep and well drained to form wetlands and streams. A seasonally flooded, scrub-shrub wetland is mapped by the NWI to the southwest of Mocks Crest in the North Bluff segment; however, this area is not within the Wildfire Hazard Target Area. The Oaks Bottom Wildlife Refuge to the east of the escarpment in the southernmost portion of the South Bluff includes wetlands and a deepwater pond; however, the Oaks Bottom area including the wetlands and pond are outside of the Wildfire Hazard Target Area.

4.4.1 Environmental Consequences:

Alternative 1 – No Action

Under the No Action Alternative, FEMA would not provide funding to reduce urban fuel load in target areas of Portland's wildland-urban interface. No impacts to water resources within the Willamette Bluffs Escarpment would be expected, except those impacts associated with a catastrophic fire. These impacts may include a loss of vegetation due to uncontrolled fire and subsequent soil erosion, both of which would impact the water quality of streams in Forest Park and the wetlands and pond within the Oaks Bottom Wildlife Refuge adjacent to the South Bluff area.

Alternative 2 – Proposed Action

No environmental consequences are expected to occur in the wetlands and waterways within and contiguous with the three natural areas. Manual, mechanical, and chemical vegetation removal would be avoided in wetlands and would be conducted to avoid increased turbidity in streams. In steep areas requiring vegetation management, soil disturbance would not be expected from vegetation control activities; however, best management practices (BMPs) for erosion control would be used if necessary. These BMPs would include the use of straw bales and silt fences to prevent sediment transport and the seeding of disturbed areas with native erosion control seed mixes until native plants can be installed. Environmental consequences from occasional jackpot burns would not be expected because they would occur away from wetlands and drainages. Changes in water quality would be either non-detectable or, if detected, would be considered slight and localized. Therefore, impacts should be considered negligible for water quality and quantity.

4.5 VEGETATION

4.5.1 Forest Park

Forest Park is comprised of a varied and evolving forest ecosystem. In the mid-1800s, vegetation in Forest Park consisted of mixed-conifer forest (Darling 2005) with approximately 48% of the forest burned and containing scattered trees that survived the various fires. Dominant tree species included Douglas fir, western hemlock, western red cedar, grand fir, big leaf maple, Pacific yew, dogwood, Oregon white oak, and red alder. Forest Park had an understory dominated by deciduous species including hazel and vine maple, young conifers, and herbaceous species such as bracken fern. Currently, the same overstory species can be found in the park but in different distributions. Generally, conifer forest dominates the northern segment, and deciduous forest is more common in the southern portion. A mixed conifer-hardwood forest dominates the central portion. Many areas have understory vegetation that includes natives species such as sword fern, salmonberry, and Oregon grape, but invasive species such as English ivy and English holly currently dominate the understory, especially the south portion of the park. Other areas, particularly those cleared around power lines are dominated by Himalayan blackberry. Many of the most common invasive species in Forest Park are highly flammable and include such species as the Himalayan blackberry, Scotch broom, and English hawthorn. In addition, decades of fire suppression in the park have resulted in congested understories ("dog hair" thickets) and ladder fuels, which are combustible fuels that provide vertical continuity between the ground fuels and the tree canopy fuels. Portland's largest wildland interface fire in the last century occurred in 1951, charring 2,500 acres in and around Forest Park. Several other small fires have occurred in Forest Park in recent years.

4.5.2 Environmental Consequences (Forest Park):

Alternative 1 – No Action

As new development occurs within the wildland urban interface (fire-prone areas), the risk of wildfire and Portland's associated loss rate would likely multiply unless the City increases its mitigation efforts (City of Portland 2005). Factors contributing to the highest fire risk include

combinations of steep topography, narrow roads with few connecting streets, inadequate water supply in older neighborhoods, dense development, fuel loads, and buildings lacking defensible space (clearings between wildland vegetation and structures). Under the No Action Alternative, FEMA would not provide funding to reduce urban fuel load in target areas of Portland's wildland-urban interface. Increased invasive species creating an increased fuel load, resulting in an increased fire risk, would be expected.

Alternative 2 – Proposed Action

The integration of prescribed fire and manual/mechanical vegetative treatment would result in a minor loss of individual native plants. Various disturbances, as a result of the work crews, jackpot burning, removal of individual trees, and hard thinning/limbing would result in localized, direct, minor effects to native plant communities. However, thinning is generally desirable and promotes reduction of overstocked understory trees and shrubs. Spot and jackpot burning would result in some beneficial effects as nutrients are released into the soil.

Most native plant species have adapted to the effects of periodic surface fires; thus, prescribed fires would produce similar beneficial impacts to these plant communities while reducing the invasive species.

Changes in vegetative community or species population would be measurable, with small and localized effects to a relatively minor proportion of any native species population. These effects would be considered short term.

The City of Portland has graphically depicted demographic information and building stock data over hazardous and forested areas to calculate potential loss using FEMA's loss estimation software, HAZUS-MH. The City has developed Wildfire Hazard Target Areas as determined by weather, topography, natural vegetative fuels, and fuel distribution. Analysis of the information could lead to a greater success in targeting mitigation efforts and reducing the risk of urban fire scenarios. Education as part of mitigation efforts would increase home and business owner's awareness of the risks and would provide them with alternatives for reducing those risks.

Using prescribed fires, in combination with the use of manual/mechanical vegetative treatments, would benefit natural resources and the ecological system as a whole.

4.5.3 Powell Butte Nature Park

The vegetation in Powell Butte Nature Park includes a mixed conifer-deciduous forest community on the lower slopes with an overstory dominated by red alder, big leaf maple, western red cedar, and Douglas fir. Most of the understory on Powell Butte contains non-native invasive species, and in some areas, a very high percentage of the understory is comprised of invasive species, especially Himalayan blackberry, English hawthorn, and English holly. The midslope vegetation is comprised of a shrub community dominated by native red alder and non-native invasive Himalayan blackberry, Scotch broom, and English hawthorn. Various grasses including native red top grass and non-native tall fescue and velvet grass dominate the herbaceous layer in this community. The upper slopes of Powell Butte are comprised of grasslands dominated by red top, tall fescue, and velvet grass with occasional shrubs including non-native invasive Himalayan blackberry and English hawthorn. In part due to a build-up of highly flammable invasive species, Powell Butte Nature Park has experienced several small fires

since 1998. Two 3-alarm fires, affecting 35 acres of parkland required more than 70 firefighters and two-dozen pieces of firefighting equipment.

4.5.4 Environmental Consequences (Powell Butte Nature Park):

Alternative 1 – No Action

Under the No Action Alternative, FEMA would not provide funding to reduce urban fuel load in target areas of Portland's wildland-urban interface. Increased invasive plant species creating an increased fuel load, resulting in an increased fire risk, would be expected.

Alternative 2 – Proposed Action

Minimal environmental consequences to native vegetation would be expected from fuels reduction activities in the Powell Butte Nature Park. Continued manual, mechanical, and chemical vegetation removal would be expected to decrease the presence of highly flammable, non-native, invasive species, and therefore, would reduce the risk of wildfire. Occasional jackpot burns would not be expected to have negative consequences for native vegetation communities.

Changes in native vegetative or species population would be measurable, with small and localized effects to a relatively minor proportion of any species population. A reduction in invasive species could be considered a beneficial effect to the native populations.

4.5.5 Willamette Bluffs Escarpment

Approximately half of the South Bluff area of the Willamette Bluff Escarpment was historic floodplain, and vegetation was comprised of a mixed deciduous riparian forest dominated by Oregon ash, red alder, black cottonwood, white oak, and small quantities of conifers. Savanna and Douglas fir and a white oak woodland community dominated the steep bluff portion.

Currently, the vegetation in historic floodplain areas includes mixed forb-grassland and shrub community dominated by Himalayan blackberry. Wetlands are dominated by non-native reed canary grass. The escarpment is vegetated in some areas with deciduous forest containing an understory dominated by English ivy. The South Bluff Escarpment slopes are currently dominated by non-native invasive species including Himalayan blackberry, big leaf periwinkle, English ivy, Scotch broom, and evergreen clematis.

The steep bluff portion of the North Bluff Escarpment was historically described as mixed conifer forest with mostly deciduous understory (Darling 2005). The dominant communities included Douglas fir, western hemlock, western red cedar, grand fir, big leaf maple, Pacific yew, white oak, and red alder. Portions were described as burned Douglas fir forest. Currently, the understory and non-forested areas of the North Bluff are dominated by non-native invasive plant species. A typical plot in the Mocks Crest area of the North Bluffs is currently comprised of a severely degraded, deciduous woodland community with approximately 35% overstory of big leaf maple and an understory comprised of 50% Himalayan blackberry and 50% clematis. The North Bluffs include a forty-acre area burned in 2001 and replanted with native grasses, with native oak savannah being the desired plant community. Other areas lack tree canopy and are dominated by Himalayan blackberry and other invasive species including English ivy and Japanese knotweed.

Portland's largest, recent, wildland-urban interface fire occurred in August 2001 in the north portion of the Willamette Bluffs known as Mocks Crest. The Mocks Crest fire started when grass ignited along the railroad tracks situated in the floodplain between the bluffs and the Willamette River. It ignited the brushy fuels of the bluffs, aided by the steep topography and solar heating of the southwest facing slopes of the bluffs. The 5-alarm fire resulted in very little structural damage, but the City was faced with numerous expenses related to fire suppression, erosion control, and revegetation. The following year, a 2-alarm fire ignited in the vegetative fuels of the Willamette Bluffs, in close proximity to the location of the 2001 fire.

4.5.6 Environmental Consequences (Willamette Bluffs Escarpment):

Alternative 1 – No Action

Under the No Action Alternative, FEMA would not provide funding to reduce urban fuel load in target areas of Portland's wildland-urban interface. Increased invasive plant species creating an increased fuel load, resulting in an increased fire risk, would be expected.

Alternative 2 – Proposed Action

No environmental consequences to native vegetation are expected from fuels reduction activities in the Willamette Bluffs Escarpment. Continued manual, mechanical, and chemical vegetation removal in select areas would be expected to decrease the presence of highly flammable, non-native, invasive species; therefore, would reduce the risk of wildfire. Changes in native vegetative communities or species population would be measurable, with small and localized effects to a relatively minor proportion of any species population.

4.6 BIOLOGICAL RESOURCES

A comprehensive list of the wildlife species found in Portland includes 797 species of birds, mammals, reptiles, and amphibians. In particular, because of its large size and forest habitat, species found in Forest Park include large mammals such as Roosevelt elk, black-tailed deer, mountain lion, and bobcat. Species specific to each geographic area are described in further detail in the sections following.

4.6.1 Federally Listed Species and Critical Habitat

A list of federally endangered and threatened species (and species proposed for threatened or endangered status) with the potential to occur in the Wildfire Hazard Target Areas was obtained from the USFWS on October 28, 2005. In addition, an Oregon Natural Heritage Information Center (ORNHIC) data system search of occurrence records was prepared that included federally listed species and other special-status species (September 7, 2005). Fisheries biologists with National Marine Fisheries Service (NMFS) and the Oregon Department of Fish and Wildlife (ODFW) were contacted to verify salmonid and critical habitat presence in the Wildfire Hazard Target Areas. Isaacs and Anthony's "Bald eagle nest locations and history of use in Oregon and the Washington portion of the Columbia River Recovery Zone, 1972 through 2001" was also referenced. According to these inventories, the only federally listed species that may be found within the proposed project areas were bald eagles and salmonids.

4.6.1.1 Bald Eagle

Willamette Bluffs Escarpment

The bald eagle (*Haliaeetus leucocephalus*) is protected as both a state and federal threatened species in Oregon, although as a result of successful recovery efforts, USFWS has proposed delisting it (64 FR 36454-36464 in Federal Register). Prey availability, suitable nesting habitat, and disturbances from human activities including construction are considered important factors affecting bald eagle productivity and survival. Human activities near nest sites during the nesting season can disturb eagles and lead to nest abandonment or reduced reproductive success.

Potentially suitable nesting, roosting, and foraging habitats are abundant within the Willamette River and Columbia River corridors. The nearest active nest is approximately 0.25 mile from the South Bluff Fire Management Zone on Ross Island, which is located just west of the South Bluff area. This alternative nest site, which was first documented in 2004, is associated with a pair that has been nesting on the island since 1996 at two other nest sites. In 2005, the Ross Island pair successfully fledged two eaglets (Isaacs 2006). USFWS management guidelines recommend a minimum 0.5-mile buffer from active bald eagle nests if the nest is visible from the project limits or a 0.25-mile buffer if the nest is not visible from the project. The Ross Island nest is not within the project line-of-sight as it is visually buffered from the project limits by a stand of mature cottonwoods.

4.6.1.2 Salmonids

Powell Butte Nature Park

While there are no federally listed fish species in the Powell Butte Wildfire Hazard Target Area, Johnson Creek, situated in the lowlands to the southeast and south of the butte, supports a number of anadromous fish stocks. Johnson Creek is listed for spawning/rearing for Lower Columbia River (LCR) coho salmon (*Oncorhynchus kisutch*), rearing/migration for LCR Chinook (*O. tshawytscha),* and spawning/rearing/migration for LCR steelhead (*O. mykiss*) populations (Fellas 2005). NOAA Fisheries also announced its final critical habitat designations for 19 evolutionarily significant units (ESU) on August 12, 2005 that included Johnson Creek. Critical habitat will become effective January 2, 2006. While the Powell Butte Wildfire Hazard Target Area is adjacent to the floodplain of Johnson Creek, it is not within the Johnson Creek floodplain and no hydrological connection exists between Powell Butte and Johnson Creek.

Forest Park

Balch Creek, McCarthy Creek, and Saltzman Creek flow through Forest Park in Portland and enter the Willamette River on the west bank. Miller Creek also flows through Forest Park but enters Multnomah Channel, which flows from the Willamette River into the Columbia River. Balch Creek supports a population of cutthroat trout that has been isolated in the stream by a culvert installed at Lower Macleay Park in the early 1920s, but anadromous fish presence is limited due to the stream being piped underground beneath a major industrial area. McCarthy Creek is listed as spawning/rearing/migration for LCR coho. Saltzman Creek also supports a population of cutthroat trout, but a cement canal on Saltzman Creek below Highway 30 acts as an impassable barrier to fish movement. Coho salmon, steelhead, chinook, cutthroat trout, and

lamprey have been identified in Miller Creek below the culvert at Marina Way, but cutthroat is the only species found above the culvert.

4.6.1.3 Migratory Birds

The Wildlife Hazard Target areas provide habitat for a variety of migratory birds including songbirds and birds of prey. The USFWS Office of Migratory Bird Management maintains a list of migratory birds (50 CFR 10.13). The Migratory Bird Treaty Act (MBTA) of 1918, as amended, provides federal protections for migratory birds, their active nests, eggs, and parts from harm, sale, or other injurious actions; the MBTA has no take provision. Fuels reduction activities such as vegetation removal and selective burning have the potential to directly and indirectly affect migratory birds. However, potentially negative impacts to migratory birds can be eliminated or greatly reduced by avoiding fuels reduction activities during the most sensitive portion of the breeding season (early March through July). If seasonal restrictions are not practicable, a pre-construction survey to identify active nests should be conducted by a qualified biologist prior to any disturbing activities.

4.6.2 Environmental Consequences:

Alternative 1: No Action

Under the No Action Alternative, FEMA would not provide funding to reduce urban fuel load in target areas of Portland's wildland-urban interface. The No Action Alternative would not conduct vegetation management activities, and therefore, would not directly impact proposed or listed threatened and endangered species and their habitat in the Wildfire Hazard Target Areas. However, the potential for losses of listed species due to wildfire would remain. Native plant and wildlife species would not benefit from the selective reduction of non-native vegetation. Also, uncontrolled wildfires have the potential to burn at a greater intensity than a prescribed fire. Therefore, future uncontrolled wildfires could result in adverse impacts to wildlife through the loss of habitat and/or the mortality of individuals.

Alternative 2: Proposed Action

While some habitat would be affected by the Proposed Action Alternative activities, the activities are not anticipated to have long-term, adverse effects for listed species. Impacts to native fish and wildlife would be detectable, but would not be expected to exceed the natural range of variability, and long-term effects to native species, their habitats, or the natural processes sustaining them would not be expected. Ecosystem processes and species habitat could have minor disruptions but no long-term impacts that would be considered outside natural variations.

An analysis of effects of the proposed action a "Letter of No Effect" determined that the Proposed Action Alternative would have no detectable effect on bald eagles.

4.7 ESSENTIAL FISH HABITAT

Essential Fish Habitat (EFH), established under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), includes those waters with substrate necessary to ensure the production

needed to support a long-term sustainable fishery (i.e., properly functioning habitat conditions necessary for the long-term survival of the species through the full range of environmental variation). EFH includes all streams, lakes, ponds, wetlands, and other water bodies currently, or historically, accessible to salmon in Washington, Oregon, Idaho, and California. Three salmonid species are identified under the MSA: Chinook salmon, coho salmon, and Puget Sound pink salmon. Johnson Creek (Powell Butte Nature Park) is listed as spawning/rearing ground for Lower Columbia River (LCR) coho salmon (*Oncorhynchus kisutch*) and rearing/migration ground for LCR Chinook (*O. tshawytscha)* populations. McCarthy Creek (Forest Park) is listed as spawning/rearing/migration ground for LCR coho.

4.7.1 Environmental Consequences:

Alternative 1: No Action

Under the No Action Alternative, FEMA would not provide funding to reduce urban fuel load in target areas of Portland's wildland-urban interface, and therefore, this alternative would not adversely affect essential fish habitat.

Alternative 2: Proposed Action

Implementation of the projects covered in this EA would not adversely affect essential fish habitat. These projects would not have any negative, long-term effect on water or the substrate essential for coho or Chinook salmon that inhabit the watersheds where the proposed projects would take place.

4.8 HISTORIC, ARCHAEOLOGICAL AND CULTURAL RESOURCES

4.8.1 Historic Resources

A search for historic resources within the three Wildfire Hazard Target Areas identified only those associated with Forest Park. No historic resources were found within the Willamette Bluffs Escarpment, or Powell Butte. The Pittock Mansion and associated Gate Lodge, are located in the southeast portion of Forest Park within the Wildfire Hazard Target Area; however, these structures are situated within a large designated buffer ("no burn area") surrounding the site (see Appendix B, Site Map).Pittock Mansion and Gate Lodge are listed in the National Register of Historic Places for their association with Henry and Georgiana Pittock, prominent Oregon pioneers. Henry Pittock became the owner of *The Oregonian Newspaper* in 1860 and, over 30 years, built the business into the principal regional newspaper. Henry Pittock married Georgiana Martin Burton in 1860. An Oregon Trail pioneer in 1852, Georgiana became a leader in social affairs and worked towards improving the lives of women in Portland by establishing the Ladies Relief Society.

The Pittocks moved into the mansion in 1914. The well-known architect Edward T. Foulkes designed the house in the French Renaissance style. Foulkes incorporated the latest state-of-the-arts technologies in the house, using concrete with a sandstone veneer for the walls, and stone, plaster, and wood paneling throughout the interior. Other innovations included electric service and wiring in steel conduit, a forced air heating system, private elevator, kitchen refrigeration system, a telephone and intercom system, and a central vacuum-cleaning system.

Foulkes also designed the gatehouse, which was finished in 1914. The four-story house was carefully designed to utilize the steep hill where it was located and was designed so that the caretakers could control access to the grounds. After the City purchased the property in 1977, restoration of the Gate Lodge began, and a Tea Room was opened in the building in 1984.

The Pittocks only enjoyed their mansion for a few years before their deaths in 1918 and 1919 respectively. The Pittock's children remained in the residence until 1958 when they put the estate on the market. The threat of demolition caused local citizens to raise funds in order to save the site; in 1964, the City purchased the estate, and the house and grounds were opened to the public as a museum in 1965. The Pittock Mansion Society was formed to aid in the preservation, operation, and restoration of the estate.

4.8.2 Environmental Consequences:

Alternative 1 – No Action

Under the No Action Alternative, FEMA would not provide funding to reduce urban fuel load in target areas of Portland's wildland-urban interface. Protection action and activities would continue for Pittock Mansion, regardless of FEMA funding. The City has already identified evasion actions and has implemented these actions to protect and maintain the cultural and historical integrity of Pittock Mansion. Without these actions, the vulnerability of the Mansion to catastrophic wildfire also increases.

Alternative 2 – Proposed Action

Based on the information provided, it is the finding of FEMA that the project will have a *no effect* on the property. Concurrence with this finding is being requested from the Oregon State Historic Preservation Office (SHPO). This "Finding of Effect" is made pursuant to the requirements of Section 106 the National Historic Preservation Act (NHPA) of 1966 (36 CFR 800), Executive Order 11593, and NEPA. The Portland Urban Fuels Reduction project would minimally affects the Pittock Mansion because of its location in the southeast corner of Forest Park and the type of fuel reduction tasks proposed as part of the project.

The City is very aware of the significance of the Pittock Mansion and has outlined mitigation measures that will assure that the mansion and grounds will not be affected by the proposed fuel reduction project. The City has:

- Delineated a no burn area around the Pittock Mansion that measures approximately ½ mile north-south and 3/4-mile east-west (Figure 2). There will be no controlled burns in this area.
- Isolated controlled burns to small areas (purple hexagons on Figure 1); the nearest one is about 3/4-mile away from the mansion. These areas would have spot or jackpot burns in degraded oak habitats and be heavily monitored. These controlled burns would be planned for the third year of the project, and may change as the planning and modeling phases are developed in the first two years of the project.
- Other areas outlined on the Wildfire Mitigation Tasks are over 1 1/2 –miles away and would not affect the mansion. The fuels reduction projects would be located in small isolated areas; the remaining fuel reduction tasks would not affect the mansion since the projects utilize non-burn removal techniques.

Pursuant to 36 §800.5(a)(2), application of the Criteria of Adverse Effect resulted in a finding of "No Historic Properties Adversely Affected." Therefore, it is FEMA's determination that the proposed Portland Urban Fuels Reduction Project as it relates to the area in Forest Park would not adversely affect the Pittock Mansion and grounds, a National Register of Historic Places listed property (1974).

4.8.3 Archaeological and Cultural Resources

A search of archeological records was recently conducted at the SHPO in Salem for the area of potential effect, which consists of the Wildfire Hazard Target Areas for the three project areas (see Appendix B). The search provided information related to the amount of previous survey coverage and/or previously recorded archaeological sites in the Wildfire Hazard Target Areas. Results of the search provide a basis for recommendations regarding the level of effort that will be required for the proposed project.

The current archaeological database shows that no previous archaeological inventories have been conducted within the Willamette Bluffs or Powell Butte areas of the Urban Fuel Load Reduction Project. A small linear survey had been conducted along the southern portion of the Forest Park area, as related to a survey of the Balch Creek watershed (Ricks and White 1996). No cultural resources were recorded as a result of this effort; however, the survey only overlaps a small portion of the Forest Park project area.

One archaeologically sensitive area was identified during a review of maps on file at the SHPO. An "Indian Camp" is currently identified on the east side of the Willamette River near Ross Island and falls within the northernmost portion of the South Bluff area of the Willamette Bluffs project component. The site has not been formally recorded, and record of its existence is based entirely upon notes taken by the previous SHPO archaeologist. However, this area should be considered to have a high probability to contain archaeological deposits.

No Tribal consultation has taken place other than involvement with the ongoing projects. The City is not aware of any local Tribal entities with treaty and/or jurisdictional interests in the projects. The EA will be sent to the Columbia Intertribal Council for their review and comment prior to finalizing.

4.8.4 Environmental Consequences:

Alternative 1: No Action

Under the No Action Alternative, FEMA would not provide funding to reduce urban fuel load in target areas of Portland's wildland-urban interface. Under this alternative, there would be a continued increase in fuel loading and invasive plants over time. The effects of an unplanned, higher intensity ignition could be extensive because of the increased and elevated level of heat that would penetrate into subsurface sites and the extensive suppression activities that have been conducted. Archaeological resources would be at risk from fire, suppression activities, and the buildup of fuels.

There is the possibility that fire or use of equipment could expose previously unknown sites or artifacts that have been obscured by vegetation or forest litter, which could be viewed as a benefit. However, runoff and erosion after the fire could displace these artifacts from their

historic or prehistoric context, causing loss of site integrity. Adverse, indirect impacts could also occur if unauthorized collecting occurred following a fire. Rehabilitation of burned areas could also disturb the site or cause loss of site integrity.

Alternative 2 – Proposed Action

The implementation of the proposed activities does not include any substantial ground disturbing activities or large scale burning. Archaeological surveys would need to be conducted to protect undiscovered cultural or archeological resources and mitigation measures would need to be implemented for tree removal, round disturbing and burn activity sites within the Wildfire Hazard Target Areas. Monitoring would only need to be conducted in any high probability areas identified in the archaeological surveys. Based on the maintenance and planning nature of the activities planned for the next three years, impacts would be expected at the lowest levels of detection – barely measurable with no perceptible consequences, either adverse or beneficial, to archaeological resources. For purposes of Section 106, the determination of effect would be *no adverse effect.*

4.9 HAZARDOUS WASTES AND MATERIALS

Hazardous materials and toxic wastes are managed under state and federal permitting requirements for staging, handling, storage, treatment, and disposal. The Resource Conservation and Recovery Act (RCRA) would regulate any hazardous wastes encountered. The objective of RCRA is to prevent release and impacts from hazardous materials to human health and the environment.

4.9.1 Environmental Consequences:

Alternative 1: No Action

Under the No Action Alternative, FEMA would not provide funding to reduce urban fuel load in target areas of Portland's wildland-urban interface. The No Action alternative would not disturb any hazardous materials or create any potential hazard to human health.

Alternative 2 – Proposed Action

The implementation of the proposed activities would not include any ground disturbing activities and would not disturb any hazardous materials or create any long-term potential hazard to human health. If hazardous constituents are unexpectedly encountered in the project area during construction operations, appropriate measures for the proper assessment, remediation, and management of the contamination would be initiated in accordance with applicable federal, state, and local regulations. The contractor would take appropriate measures to prevent, minimize, and control the spill of hazardous materials in the construction staging area, according to the specifications of applicable permits required for the project.

4.10 SOCIOECONOMIC AND ENVIRONMENTAL JUSTICE (EO 12898)

Executive Order (EO) 12898, Environmental Justice, directs federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects on minority and low-income populations in the United States resulting from federal

programs, policies, and activities. The No Action Alternative and Proposed Action Alternative are both located within the town limits of Portland. Socioeconomic and demographic data for residents in the project vicinity was studied to determine if a disproportionate number (defined as greater than 50 percent) of minority or low-income persons have the potential to be affected by the alternatives.

PPR is committed to maintaining the highest standards of respect for the dignity of every individual. Everyone is welcome in parks, including the homeless. Regardless of circumstance, everyone may use the park and recreation facilities as long as they conduct themselves lawfully and according to the established Recreation Code of Conduct.

Pursuant to City Code 14A.50.020 - Camping on Public Property, and 20.12.210 - Park Closure Hours, PPR does not allow camping or overnight sleeping in city parks, natural areas, or PPR recreational facilities. Despite these prohibitions, and while PPR supports enforcement of these laws as a matter of health and safety for everyone in the community, on any given night, many people sleep overnight or camp on PPR property. For this reason, PPR works with the City of Portland to provide skilled homeless outreach workers, addiction services, mental health outreach workers, and other social service providers. In addition, PPR provides information about temporary shelter and other resources. Park maintenance employees often have contact with homeless persons in parks providing help by reporting problems and calling for assistance as needed. Field-going employees work with Park Rangers, Police and others to provide information to individuals and help them find services that can help end their homelessness.

It can be expected that park maintenance activities of any sort and the associated enforcement of the “no camping” rule has the potential to compel illegal campers to move out of a park or into another part of the park**.**

Alternative 1 – No Action

Under the No Action Alternative, FEMA would not provide funding to reduce urban fuel load in target areas of Portland’s wildland-urban interface. Because no federal activity would occur, no requirement for compliance with EO 12898 exists.

Alternative 2 – Proposed Action

While maintenance activities of any sort within the project areas may inconvenience a homeless person or other illegal camper, a disproportionate number of minority or low-income persons would not have the potential to be affected by the Proposed Action. The Proposed Action would not cause adverse economic impacts, and would be compliant with EO 12898.

Cumulative impacts are those effects on the environment resulting from the incremental effect of an action when added to past, present and reasonably foreseeable future actions, regardless of the agency (federal or nonfederal) or person that would undertake such actions. Cumulative effects can result from minor but collectively significant impacts on the human environment.

5.1 CUMULATIVE EFFECTS ANALYSIS

The Council on Environmental Quality (CEQ) regulations for implementing NEPA requires an assessment of cumulative effects during the decision-making process for federal projects. Cumulative effects are defined as "the 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 effects are considered for both the No Action and Proposed Action. Cumulative effects were determined by combining the effects of the alternative with other past, present, and reasonably foreseeable future actions.

The cumulative impacts associated with implementation of the proposed projects within the time frame of the Proposed Action Alternative would have no significant cumulative impacts because of their disparate locations, the limited scope of the work, and the proposed mitigation. Nor are other actions by the City at these locations expected to have any significant cumulative impacts with the vegetation management projects. Finally, the totality of the City's vegetation management projects and the other proposed actions would not have any significant cumulative impacts through the loss of any sensitive species or habitat. There are no other known projects that, when added to the Proposed Action, would have a cumulative impact on the human environment.

FEMA is the lead federal agency for conducting the NEPA compliance process for the vegetation management project. As the lead agency, FEMA expedites the preparation and review of NEPA documents, responds to the needs of residents surrounding the park lands, meets the spirit and intent of NEPA, and complies with all NEPA provisions.

A public notice is required for this draft EA. The public will be provided an opportunity to comment on the EA for 30 days after the publication of the public notice. The notice identifies the action, location of the proposed site, participants, location of the draft EA, and who to write to provide comments.

FEMA will review all written comments submitted for identification of any significant issues that need to be addressed and will incorporate them into the Final EA, as appropriate. Public and agency involvement has been ongoing and City Staff have conducted several public meetings in the North Portland neighborhoods. Educations of homeowners within the three geographic areas regarding defensible space have been ongoing. Multiple City programs such as Portland Parks Ecosystem Management and Bureau of Environmental Services Watershed Revegetation Program are now incorporating goals related to reducing fuel loads for fire hazard into landowner education and citizen outreach programs. The City plans to launch a much larger public involvement effort with this program.

Public Involvement and input into this process has been extensive and ongoing. A list of those interested parties and participants follows.

Citywide

- Neighborhood Emergency Teams (NET)

Forest Park vicinity (all Multnomah County unless noted)

- Arlington Heights Neighborhood Association
- Clean Water Services (Washington County)
- Friends of Forest Park
- Forest Park No Ivy League (PP&R/Friends of Forest Park)
- Forest Park Neighborhood Assoc
- Linnton Neighborhood Association
- Northwest District Association
- Northwest Heights Neighborhood Association
- Northwest Industrial Neighborhood Association
- Portland Public Schools
- Portland State University
- Skyline Ridge Neighbors (Washington County)

Powell Butte vicinity

- Centennial Neighborhood Association

- Johnson Creek Watershed Council
- Pleasant Valley Grange
- Pleasant Valley Neighborhood Association
- Friends of Powell Butte
- Portland Public Schools
- Portland State University
- Powellhurst Gilbert Neighborhood association

Willamette Bluffs Escarpment vicinity (Oaks Bottom, Waud's Bluff & Mocks Crest)

- Arbor Lodge Neighborhood Association
- Brooklyn Action Corps (neighborhood association)
- Corbett, Terwilliger, Lair Hill Neighborhood Association
- Friends of Oaks Bottom
- Hosford-Abernathy Neighbors
- Overlook Neighborhood Association
- Portland Public Schools
- Portland State University
- Reed College
- Sellwood-Moreland Improvement League (SMILE Neighborhood Association)
- Swan Island Business Association
- Swan Island Transportation Management Alliance (TMA)
- University of Portland
- University Park Neighborhood Association

Response to Comments: (respond to the draft environmental assessment)

The City is required to obtain and comply with all required local, state, and federal permits and approvals prior to implementing the Proposed Action Alternative. Development at the Proposed Action Alternative sites shall be in compliance with the approved site plan. Any expansion or alteration of this use, beyond that initially approved would require a new or amended permit. In the event that historically or archaeologically significant materials or sites (or evidence thereof) are discovered during the implementation of the project, the project shall be halted immediately and all reasonable measures taken to avoid or minimize harm to property. The City would then be required to consult with FEMA and OAHP for further guidance.

The draft EA evaluated potentially significant resources that could be impacted. The evaluation resulted in identification of no significant impacts associated with the resources of Air Quality; Climate, Geology and Soils; Floodplains; Wetland and Waters; Vegetation; Biological (ESA), Essential Fish Habitat; Historic, Archaeological, Cultural; Hazardous Waste; and Socioeconomic and Environmental Justice. Obtaining and implementing permit requirements along with appropriate BMPs will avoid or minimize any effects associated with the action. It is recommended that a finding of no significant environmental impact to the human or natural environment be issued for the Proposed Action Alternative.

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