



United States Department of the Interior

NATIONAL PARK SERVICE

Pacific West Region
333 Bush Street, Suite 500
San Francisco, California 94104-2828



IN REPLY REFER TO:
L7617 (PWRO-PP)

02 JUL 2013

Memorandum

To: Superintendent, Crater Lake National Park

From: Regional Director, Pacific West Region

Subject: Environmental Compliance for Improvements on West and East Rim Drives, Pull-outs and Parking, and Rockfall Mitigation

The finalized *Finding of No Significant Impact* for this roadway safety and rehabilitation project, designed in collaboration with staff at Federal Highway Administration's Western Federal Lands Highway Division, is approved. To complete this particular compliance effort, at the time when the park announces the decision, the attachment should be made available to all individuals, interested organizations, and agencies that received the supporting environmental assessment.


for Christine S. Lehnertz

Attachment

cc:
PWR-FLHP
DSC-PM

TAKE PRIDE[™]
IN AMERICA 



**National Park Service
U.S. Department of the Interior**

**Crater Lake National Park
Oregon**



REHABILITATE EAST and WEST RIM DRIVES and ROCKFALL MITIGATION

FINDING OF NO SIGNIFICANT IMPACT

June 2013

INTRODUCTION

The National Park Service (NPS), in cooperation with Western Federal Lands Highway Division of the Federal Highway Administration (FHWA), proposes actions at Crater Lake National Park (Crater Lake or park) to rehabilitate East and West Rim drives, improve a number of pullouts and parking areas, and implement rockfall mitigation and safety improvements.

Three action alternatives were evaluated in the Environmental Assessment (EA) to meet the project purpose and need and objectives; a no action alternative was also considered. The action alternatives each had two components: 1) road rehabilitation and 2) rockfall mitigation. The elements considered in the road rehabilitation component were the same for all three action alternatives (2, 3, and 4). The rockfall mitigation component differed between each alternative based on the level of disturbance, ranging from only technical rock scaling in Alternative 2 to comprehensive rock fall treatment in Alternative 4.

This finding of no significant impact (FONSI) and the environmental assessment (EA) constitute the record of the environmental impact analysis and decision-making process for the rehabilitation of East and West Rim Drives. The NPS will implement the preferred alternative, which includes site-specific repairs needed to address the identified deficiencies and the associated improvements to rehabilitate the road. The selected alternative includes measures for protection of park resources, safety improvements, and a sustainable road for visitor travel; and provides long-term conditions necessary to sustain scenic, natural, and cultural resources. Road rehabilitation will improve traffic safety, facilitate maintenance, and provide a pleasant driving experience.

This document records (1) the FONSI determination as required by the National Environmental Policy Act of 1969 (NEPA), (2) a determination of no impairment from implementation of the selected alternative, which was rendered solely by the NPS (see Attachment 1), and (3) a Programmatic Agreement executed with the Oregon State Historic

Preservation Office (SHPO) in order to address stewardship of historic resources and cultural landscapes (Attachment 2).

PURPOSE AND NEED FOR FEDERAL ACTION

The purpose of the proposed project is to correct road and associated parking and pullout deficiencies to improve safety for park visitors and personnel, reduce maintenance requirements and costs, and extend the useful life of the road. Rim Drive was originally completed in 1941 and has periodically needed repairs to address structural deficiencies and normal wear that has led to deterioration of the road, and road damage caused by rockfall. Road rehabilitation is needed because the existing pavement on both East and West Rim drives has exceeded its service life and has developed ruts, lateral cracking, and severe raveling of the road pavement edge. At many locations the roads have suffered from incremental narrowing of the roadway bench supporting the pavement due to the erosion of the soft underlying pumice soils and rock. Stone retaining walls and guardwalls (masonry guardrails) are failing in some locations due to erosion and age and require stabilization to prevent further damage to these historic features.

Numerous steep rock cliffs and cut slopes along East and West Rim drives are eroding, resulting in rock falling onto the road creating safety and maintenance concerns. As a result, measures are needed to reduce the potential for rock falling onto the road. Improvements to the parking lot at Cleetwood Cove, as well as various pullouts along Rim Drive, also are needed to accommodate high seasonal use. Informal dirt/gravel pullouts created by visitors that are a safety concern or that adversely impact natural resources require reclamation and revegetation. The road rehabilitation work will improve the efficiency of park operations by correcting structural deficiencies and reducing maintenance requirements, as well as improving visitor enjoyment and safety while protecting park scenic, natural, and cultural resources.

SELECTION OF THE PREFERRED ALTERNATIVE

Three action alternatives were considered capable of meeting project objectives, which include: 1) managing rockfall along the road to promote visitor and park staff safety and reduce ongoing maintenance costs, while protecting park resources; 2) preserving water quality by redirecting stormwater runoff away from Crater Lake; 3) efficiently implement construction activities while minimizing impacts on visitors and protecting resources; and 4) conducting rehabilitation and restoration work to maintain and protect Rim Drive's listing on the National Register and nomination as a cultural landscape.

Alternative 3 (identified as the preferred alternative in the EA) is the NPS's selected alternative for implementation. There are no changes or modifications incorporated as a result of public comment. This alternative was selected because it best balances addressing the purpose and need and project objectives described above. Key components of Alternative 3 are summarized below (additional detail can be found in the EA).

Road Rehabilitation

The selected alternative includes site-specific actions for rehabilitation of 5.9 miles of West Rim Drive from Rim Village to North Junction and 23.5 miles of East Rim Drive from North

Junction to the junction with Munson Valley Road. Road rehabilitation includes restoring the paved width of the road to the original design of 22 or 24 feet. Subgrade improvements will be made in several locations. Slight shifts in road alignment will be implemented at several locations to increase the distance from rockfall areas and reduce bench erosion. A variety of different stabilization measures will be implemented to address bench erosion at locations where the roadway bench has eroded, resulting in shoulder and pavement edge raveling and instability of stone guardwalls and retaining walls. The Skell Head Overlook retaining wall (guardrail) will be stabilized. Drainage improvements will be implemented, including redirecting pullout and parking runoff away from the lake. Existing paved scenic pullouts will be maintained, although several informal, unpaved pullouts created by visitors parking on the road shoulder that present safety concerns or that adversely impact natural resources will be obliterated and revegetated. The Rim Village and Crater Lake Lodge parking areas will be repaved. In order to eliminate overflow parking along the Rim Drive shoulder, Cleetwood Cove parking area will be expanded (not appreciably beyond the original area of disturbance). East and West Rim drives will remain open during road rehabilitation and rockfall treatment work, subject to temporary traffic delays and periodic closures.

Roadwork on the 29.4-mile Rim Drive is expected to begin in 2015, and is expected to occur in phases over several years, depending on available funding. Construction work on West Rim Drive and East Rim Drive from North Junction to Cleetwood Cove is the highest priority because of the road condition and the greater volume of visitor traffic. Rehabilitation of the remainder of East Rim Drive may not occur for up to 7 to 10 years.

Rockfall Mitigation

Rockfall mitigation under the selected Alternative 3 includes scaling loose, broken, or partially detached rock from slopes. This work will be conducted with hand tools or mechanized equipment as appropriate. In addition, specialized rockfall mitigation measures to stabilize eroding slopes will be conducted at two locations. A combination of rock bolts, colored and sculpted shotcrete, buttressing, and anchored wire mesh will be used at Anderson Point and Dutton Cliff to assess the effectiveness of these techniques. Rockfall mitigation will be conducted prior to road rehabilitation work for any given segment to avoid damaging the rehabilitated road. Temporary road closures will be necessary during rockfall work at Anderson Point and Dutton Cliff because of the need for a large crane that will occupy both travel lanes. Implementation of rockfall mitigation at Dutton Cliff is expected to take approximately three to four weeks. Road closures will be limited to Monday through Thursday and will be announced to the public well in advance.

MITIGATION MEASURES AND BEST MANAGEMENT PRACTICES

To prevent and minimize potential adverse impacts associated with the action alternatives, mitigation measures and Best Management Practices (BMPs) will be implemented during the construction and post-construction phases of the project. General and resource-specific BMPs and mitigation measures for the project are listed below in Table 1. NPS and FHWA oversight responsibility is identified for each measure. (Note: This list is not all-inclusive as additional mitigation measures will be included in the contractor's specifications.)

TABLE 1. MITIGATION MEASURES AND BEST MANAGEMENT PRACTICES

General Measures	Oversight Responsibility
<ul style="list-style-type: none"> • The FHWA Project Engineer will ensure the project remains within the construction limits and parameters established in the compliance documents and that mitigation measures are properly implemented. • Construction zones will be signed at approach points. No construction activities will be permitted outside the construction limits. • All applicable protection measures will be clearly stated in the construction specifications/special construction requirements, and workers will be instructed to avoid conducting activities beyond the construction limits as defined by construction plans or marked limits. • Garbage, trash, and other solid waste associated with construction operations will be disposed of in bear-proof trash bins and disposed of weekly, or sooner if warranted, outside the park. • All tools, equipment, barricades, signs, surplus materials, and rubbish will be removed from the project work limits upon project completion. Any asphalt surfaces damaged during construction of the project will be repaired to original conditions. All demolition debris will be removed from the project site, including all visible concrete and metal pieces. This material will be disposed of outside the park at an approved location. • Contractors will be required to properly maintain construction equipment (i.e., mufflers) to minimize noise from equipment use. • Down cast lighting will be used for night work to minimize the impacts to lightscape. • A hazardous spill plan will be in place, stating what actions will be taken in the case of a spill, notification measures, and preventive measures to be implemented, such as the placement of refueling facilities, storage, and handling of hazardous materials. • All equipment on the project will be maintained in a clean and well-functioning state to avoid or minimize contamination from mechanical fluids. All equipment will be checked daily. • BMPs for drainage and sediment control, per a Stormwater Erosion and Sediment Control Plan, will be implemented to prevent or reduce nonpoint source pollution and minimize soil loss and sedimentation in drainage areas. Use of BMPs in the project area for drainage area protection will include all or some of the following actions, depending on site-specific requirements: <ul style="list-style-type: none"> ○ Keeping disturbed areas as small as practicable to minimize exposed soil and the potential for erosion. ○ Waste and excess excavated materials will be placed in upland areas above the ordinary high water mark to avoid sedimentation. ○ Installing silt fences, temporary earthen berms, temporary water bars, sediment traps, stone check dams, or other equivalent measures (including installing erosion-control measures around the perimeter of stockpiled fill material) prior to construction. ○ Conducting regular site inspections during the construction period to ensure erosion-control measures were properly installed and are functioning effectively. ○ Storing, using, and disposing of chemicals, fuels, and other toxic materials in a proper manner. 	<p>Park Project Manager and Park Safety Officer, FHWA Project Engineer</p>
Vegetation	Oversight Responsibility
<ul style="list-style-type: none"> • Orange construction fencing will be used around large trees and special status plant species and their habitat within construction limits to minimize the potential for inadvertent impact from heavy equipment during construction. Large trees and special status plant species will be avoided to the extent possible during construction. • Ground surface treatment will include grading to natural contours, conserving and replacing topsoil, and, where necessary, hand seeding or planting. In some locations, topsoil placement and mulching with litter and duff will be the primary treatment. If 	<p>Park Project Manager and FHWA Project Engineer</p>

<ul style="list-style-type: none"> • Insufficient litter and duff is salvaged from the project area, additional litter and duff may be gathered from adjacent areas on a small scale where approved by the NPS. • A revegetation plan will be developed for disturbances outside of the existing road pavement. • Remedial actions will include installing erosion-control structures, reseeding, conserving and replacing topsoil and/or replanting the area, and controlling nonnative plant species. • Impacts on pumice grapefern, Crater Lake rockcress, and whitebark pine will be minimized through reseeding or salvage of existing plants in areas with favorable soils, sunlight, and other growing conditions, or other methods found to be effective. • Reclaimed areas and propagation efforts for the pumice grapefern and Crater Lake rockcress will be monitored after construction to determine if reclamation efforts are successful or if additional remedial actions are necessary, as outlined in the revegetation plan developed by the NPS. • Introduction of nonnative/noxious plant species will be minimized by implementing several BMPs, including: <ul style="list-style-type: none"> ○ Minimizing soil disturbance. ○ Pressure washing and/or steam cleaning all construction equipment to ensure all equipment and machinery are cleaned and weed free before entering the park. Construction equipment will be inspected by FHWA staff prior to entering the park to ensure compliance with cleanliness requirements; inadequately cleaned equipment will be rejected. ○ Covering all haul trucks bringing fill materials (excluding asphalt) from outside the park to prevent seed transport and dust deposition along the road corridor. ○ Limiting vehicle parking turnouts to existing roads, parking lots, or access routes. ○ Limiting construction staging to existing roads, parking turnouts, and other designated areas – no machinery or equipment should access areas outside the construction limits. ○ Obtaining all fill, rock, or other earth materials from the project area, if possible. If not possible, obtaining weed-free earth materials from approved sources outside the park or sterilizing imported soils through heat treatment. ○ No hay or straw bales will be used during revegetation or for temporary erosion control. ○ Initiating revegetation of disturbed sites immediately following construction activities. • To maximize vegetation restoration efforts after completion of construction activities, the following measures will be implemented: <ul style="list-style-type: none"> ○ Salvaging available topsoil or the top several inches of native soil from construction areas for reuse during restoration of disturbed areas. ○ Incorporating native litter and duff layer in forested sites for replacement over salvaged topsoil. ○ The NPS will survey for and treat invasive plants prior to and three years after construction. 	
Wetlands	Oversight Responsibility
<ul style="list-style-type: none"> • Impacts on wetlands will be avoided and minimized to the extent practicable. No wetland fill will occur without authorization from the Corps and appropriate permitting under the Clean Water Act. • Appropriate permits (404 permit and 401 certification) will be acquired by FHWA should there be any impacts on wetlands. 	Park Project Manager

Water Quality	Oversight Responsibility
<ul style="list-style-type: none"> • Sediment traps, erosion checks, and/or filters will be constructed above or below all culvert drains (if such drains are required) and in all other ditches before the water (runoff) leaves the project construction limits. • At all cut and fill areas, erosion and sediment control will be implemented to minimize impacts on water quality. • Stormwater presently discharged into the caldera will be redirected away from the caldera provided that this does not result in more than minor additional physical impacts. • Surface restoration and revegetation of disturbed soils will be implemented to minimize long-term soil erosion. • Water needed for construction and dust control will come from Pole Bridge Creek, Lost Creek, or existing developed water systems within the park or sources outside the park. 	Park Project Manager and Hydrologist, FHWA Project Engineer
Soils	Oversight Responsibility
<ul style="list-style-type: none"> • Erosion and sediment control will be required (see the "General Measures" section). • Topsoil or native soil will be removed from areas of construction and stored for later reclamation use. The topsoil will be redistributed as near the original location as possible and supplemented with scarification, mulching, seeding, and/or planting with native genotypes. 	Park Project Manager and FHWA Project Engineer
Wildlife	Oversight Responsibility
<ul style="list-style-type: none"> • NPS staff will inform construction personnel of the occurrence and status of special status species and will be advised of the potential impacts on the species and penalties for taking or harming a special status species. • To reduce noise disturbance and limit impacts on breeding avian and mammalian species, all tree removal will be conducted from August 15 to March 1, where feasible. If trees need to be removed outside of this time frame, they will be identified for removal and evaluated for nesting or roosting use. If nesting or roosting is found, the tree will be left in place or removed outside of the breeding season. • Construction personnel are prohibited from feeding or approaching wildlife. • Construction personnel will report to park personnel vehicle collisions with large wildlife or special status species within 24 hours of an incident. • The construction contractor will implement a litter-control program during construction to eliminate the accumulation of trash. All food will be stored either within a secured vehicle (e.g., windows up or in a toolbox) or a bear-proof container on-site. Spilled food will be cleaned up quickly. Visitors in traffic delays will be instructed by NPS staff, when available, to not approach or feed wildlife. • Construction activities will occur within construction limits identified and approved by the Park on the plan set. If construction activities need to occur outside of these limits, park approval will be required. • The following measures will be taken to limit noise and disturbance from vehicles and construction equipment: <ul style="list-style-type: none"> ○ All motor vehicles and equipment will have mufflers conforming to original manufacturer specifications that are in good working order and are in constant operation to prevent excessive or unusual noise, fumes, or smoke. ○ Use of air horns within the park will be limited to emergencies only. 	Park Project Manager and FHWA Project Engineer
Air Quality	Oversight Responsibility
<ul style="list-style-type: none"> • Dust control will occur, as needed, on active work areas where dirt or fine particles are exposed using water from Pole Bridge Creek, Lost Creek, developed sources, and sources outside the park. 	Park Project Manager and FHWA Project

<ul style="list-style-type: none"> • The contractor will not leave vehicles idling more than 15 minutes. • Asphalt plants will be located outside the park. Small quantities of asphalt may be stored short term only at the designated staging areas. • Construction debris will be hauled from the park to an appropriate disposal location. • Visitors will be asked to not idle their vehicles while waiting for the traffic delay to be reopened. 	Engineer
Cultural Resources	Oversight Responsibility
<ul style="list-style-type: none"> • Known historic sites and isolated occurrences will be flagged and avoided during construction, and a NPS archeologist will be on-site during the entire ground disturbance near the site. • All new stone masonry features or rehabilitation of an existing historic stone masonry feature will be in accordance with the <i>Secretary of the Interior Standards for the Treatment of Historic Properties</i> (1992), per the programmatic agreement (PA). • Contractor-selected, noncommercial areas outside of the project limits including, but not limited to, material sources, disposal sites, waste areas, haul roads, and staging areas, will not encroach upon sites listed or eligible for listing in the National Register. Written proof satisfactory to the NPS and the Oregon SHPO shall document, for compliance with section 106, that no historic properties will be affected because: <ul style="list-style-type: none"> ○ there are no historic resources present, or ○ there is no effect on historic properties. • Should unknown archeological resources be uncovered during construction, work will be halted in the discovery area, the site will be secured, and the appropriate park staff will consult with the Oregon SHPO and affiliated tribes, if necessary, according to 36 CFR 800.13 and, as appropriate, provisions of NAGPRA. • In compliance with NAGPRA, the NPS will also notify and consult concerned American Indian tribal representatives for the proper treatment of human remains and funerary and sacred objects should these be discovered during project construction. • Archeological resources found within the construction area will be removed only by the NPS or their designated representatives after documentation, evaluation, and consultation has occurred between the Oregon SHPO, NPS, and other consulting parties, including Tribes. 	NPS Archeologist that meets or exceeds Secretary of Interior Standards, FHWA Project Engineer,

Visitor Use and Experience	Oversight Responsibility
<ul style="list-style-type: none"> • A detailed traffic control plan, as described in the "Traffic Control and Scheduling" section of the "Alternatives" chapter will be implemented to minimize impacts on visitors and complete construction work as quickly and efficiently as feasible. • Rim Drive will remain open throughout construction, subject to temporary delays or closures under Alternatives 2, 3, and 4. • Access to Rim Village, Cleetwood Cove, trailhead parking lots, and other park attractions will remain open during construction, subject to traffic delays and parking limitations, although temporary closure of the Skell Head Overlook will be required for work on the retaining wall. • The park will provide information (e.g., brochures, signs, telecommunication, and interpretive programs) to inform visitors, concessioners, and employees of alternative routes and the project schedule. • Visitors will be notified when road closures or traffic delays will occur and information will be posted in neighboring communities, on the park website, at visitor centers, and at entrance stations. • At the traffic delay locations and if conditions warrant, a NPS interpreter will be present to answer questions from visitors and advise them of procedures and construction expectations. 	FHWA Project Engineer, Park Safety Officer
Park Operations	Oversight Responsibility
<ul style="list-style-type: none"> • Once the winter season halts construction, the turnouts will be cleared of all construction storage equipment and materials. • Delays for emergency response vehicles will be kept to a minimum by having the emergency responders notify the traffic monitors via park radio/frequency immediately when the vehicle is dispatched, thus allowing approximately 10 minutes to clear the road before the arrival of the emergency vehicle. • Roadwork and rockfall mitigation will be conducted to the extent practicable with one lane closure and alternating one-way traffic. One-way traffic may be used as a temporary measure on East Rim Drive. Delays will be no more than 30 minutes on each of the East and West Rim drives. • Temporary road closures may be needed for some areas of rockfall treatment or roadwork where closure of both lanes is necessary to complete the work. Road closures will be limited to Monday through Thursday and will be announced to the public well in advance. • Night work may be implemented throughout the project area. If night work involves full road closure, the road may be closed up to a maximum of 10 consecutive hours at a time. • In the event that full road closure is implemented (either day or at night), a signed detour will be used for travelers and a pass-through will be required for emergency vehicles. No night work will be allowed within 1 mile of Crater Lake Lodge or 1.5 miles on either side of the junction of East Rim and Kerr Valley Road to avoid impacts on visitors at the Lost Creek campground. • Existing road shoulders wide enough to accommodate traffic will be used as feasible to route traffic around work zones. 	FHWA Project Engineer, Park Safety Officer
Health and Safety	Oversight Responsibility
<ul style="list-style-type: none"> • Traffic monitors will have park radios with the appropriate park frequency, appropriate safety clothing, and reflective signs. • Visitors and NPS staff will not be allowed to stop/park in a pullout or on the road in a designated work zone. Emergency vehicles will be allowed on an as-needed basis. 	Park Safety Officer

OTHER ALTERNATIVES CONSIDERED

Two additional action alternatives and a no action alternative were also evaluated in the EA. Under the no action alternative, East and West Rim drives would not be rehabilitated. No work would be done apart from the road maintenance, asphalt patching and sealing, minor repairs, and snow removal, as is currently being done. Road pavement and structural integrity would continue to deteriorate and the safety issues associated with narrow sections of road, non-uniform road width, bench erosion, lack of foreslopes, sharp drop-offs, and failing pavement would persist. Prevention of road failures would continue to rely on maintenance of the infrastructure including pavement, retaining walls, guardwalls (masonry guardrails), culverts, and ditches. Park staff would conduct periodic manual scaling of loose rocks on lower slopes bordering the road to reduce rockfall hazards.

Two other rockfall mitigation alternatives also were evaluated in detail in the EA. Alternative 2 was limited to use of manual and mechanical rock scaling at approximately 21 slopes along Rim Drive to reduce the potential for rockfall. Alternative 4 included a complete program of rockfall mitigation treatments at all of the high and medium hazard slopes along Rim Drive. Alternative 4 includes first conducting the same manual technical rock scaling measures as Alternative 2 and then systematically implementing additional rockfall mitigation techniques such as rock bolting, buttressing, anchored wire mesh, and colored and sculpted shotcrete at approximately 21 slopes, including those described for Alternative 3, the selected alternative.

The NPS also considered, but rejected from analysis in the EA, several additional preliminary alternatives related to road rehabilitation and specific treatment areas:

- Minor improvements to the road surface, such as milling and overlay or chip and seal, would not address issues associated with bench erosion, restoring the original road width, structural deficiencies, and other issues contributing to the deteriorating condition of the road. Resurface-only options were eliminated because they would not meet the project purpose and need.
- The addition of bicycle lanes to Rim Drive, while partially addressing the objective of improving safety for all road users, would require the park to consider broader operation and management issues, as well as other alternatives that have no bearing on the current purpose and need. Adding sufficient width to the roadway bench for both 10-foot vehicle lanes and 5-foot bicycle lanes would require reconstruction of the road with extensive walls, fill slopes, and cuts and the resource impacts and financial costs are not feasible. Thus, this alternative was eliminated from detailed analysis in the EA.
- Converting part of Rim Drive to one-way travel was not the selected alternative approved in the Record of Decision for the park General Management Plan. Thus, converting part of Rim Drive to one-way travel was dismissed from consideration as part of the road rehabilitation project.
- Maintaining a road width greater than the original 22 feet of West Rim Drive would require construction of a wider road base. This would require a variety of treatments including lowering the subgrade, shifting the road alignment, constructing retaining walls, and implementing other structural measures. The primary objective of the project is to make the existing road safer and reduce maintenance costs.

Maintaining the original 22-foot road width preserves the integrity of the historic district. Constructing the structural support to maintain a road width greater than 22 feet is beyond the purpose and need for this project to address deteriorating road conditions and safety concerns and, thus, this alternative was eliminated from consideration in the EA.

- Expansion of the Cleetwood Cove parking area west of the existing lot was considered, but this would require a new road access, substantial earthwork, and clearing of old growth forest. Thus, this alternative was dismissed from further consideration in the EA.
- A shuttle transportation system was considered as an option to address inadequate parking at Cleetwood Cove. A shuttle system would require visitors to park their cars in designated lots and ride the shuttle to Cleetwood Cove. While this option would fulfill the purpose and need of the project by improving safety for park visitors and reducing maintenance requirements, it would result in other logistical issues, resource impacts, and increased maintenance costs. There is no excess parking capacity at other locations in the park to support shuttle operations and construction of a new parking area away from the Cleetwood Cove lot would have greater resource impacts than expansion and reconfiguration of the existing lot. For these reasons and because a shuttle system is outside the scope of this project, this option was dismissed from further consideration in the EA.
- The park evaluated six options to repair the Skell Head Overlook retaining wall (masonry guardrail). Each option included a different technique to address erosion of the toe of the masonry stone wall that is undermining the foundation and causing distress that could result in wall failure. Following a value analysis, FHWA and the park determined that Option 6, as described for the preferred alternative, was the best option because it maintains the existing wall face alignment, preserves the integrity of the historic wall, reduces earth pressures acting on the masonry wall, confines disturbance to the outboard of the wall, is fairly low cost, and would take less time to construct. Thus, other options were dismissed from consideration.

ENVIRONMENTALLY PREFERABLE ALTERNATIVE

According to the CEQ regulations implementing NEPA (43 CFR 46.30), the environmentally preferable alternative is the alternative “that causes the least damage to the biological and physical environment and best protects, preserves, and enhances historical, cultural, and natural resources. The environmentally preferable alternative is identified upon consideration and weighing by the park superintendent of long-term environmental impacts against short-term impacts in evaluating what is the best protection of these resources. In some situations, such as when different alternatives impact different resources to different degrees, there may be more than one environmentally preferable alternative.”

Alternatives 2, 3, and 4 each provide very similar environmental advantages because all of these alternatives include the same road rehabilitation activities. The different levels of rockfall treatment included in these alternatives have both short-term impacts and long-term benefits to the environment. Alternative 2 will have the least amount of disturbance, but Alternatives 3 and 4, while having more short-term impacts, include rockfall mitigation

measures that will improve long-term slope stability, which will protect stone guardwalls and retaining walls (masonry guardrails). Overall, Alternative 2 will be considered environmentally preferable compared to Alternatives 3 and 4 because it can be implemented in the least amount of time with fewer disturbances to the environment than the more extensive rockfall mitigation measures. The additional time required to implement Alternatives 3 and 4 and the associated noise will be more disruptive to wildlife and the soundscape. While all of the action alternatives provide greater environmental advantages compared to the no action alternative, Alternative 2 is environmentally preferable.

By contrast, the no action alternative is not the environmentally preferable alternative because although no construction or ground-disturbing activities will damage previously undisturbed elements of the biological and physical environment 1) it will not protect park natural and cultural resources as the road will continue to deteriorate without rehabilitation; 2) rockfall damage to the road and historic structures along the road will continue and likely increase over time; 3) bench erosion and inadequate drainage could lead to impacts on roadside vegetation, soils, and water quality; and 4) continued high maintenance requirements will not be energy efficient.

WHY THE SELECTED ALTERNATIVE WILL NOT HAVE A SIGNIFICANT EFFECT ON THE HUMAN ENVIRONMENT

As defined in 40 CFR § 1508.27, significance is determined by examining the following criteria.

Impacts that may be both beneficial and adverse: A significant effect may exist even if the agency believes that on balance the effect will be beneficial

Implementation of the selected alternative will result in some adverse impacts; however, the overall benefit of the project outweighs the negative effects. Resource protection measures, as listed in Table 1, will reduce adverse effects. No major adverse or beneficial impacts were identified that will require analysis in an environmental impact statement (EIS).

Geology and Soils. Road rehabilitation will result in local short-term minor adverse impacts on geologic and soil resources during construction, with a long-term beneficial effect by reducing the potential for slumping and accelerated erosion. Rock scaling will have a local long-term moderate adverse effect on geologic and soil resources. Scaling and rockfall treatments at Anderson Point and Dutton Cliff will have a long-term beneficial effect on geologic resources and erosion by reducing the potential for random rockfall. There will be a local long-term minor adverse effect to geology and soils with improvements to the Cleetwood Cove parking area.

Vegetation and Special Status Plant Species. Rehabilitation of damaged and deteriorating sections of the road, improvements to the Cleetwood Cove parking area, and rock scaling will have local short- and long-term negligible to moderate adverse effects on vegetation and special status species, as well as long-term beneficial effects. Additional mechanical

rock scaling and application of specialized rockfall treatment measures at Anderson Point and Dutton Cliff, because of the low vegetation cover on these steep slopes, will have a local long-term negligible effect on vegetation and special status species. Rockfall mitigation treatment that reduces the potential for accelerated slope erosion will have a local long-term beneficial effect on vegetation.

Wildlife and Special Status Wildlife Species. Rehabilitation of damaged and deteriorating sections of the road, improvements to the Cleetwood Cove parking area, and rock scaling will have local short- and long-term minor adverse effects on wildlife and special status wildlife species. Additional mechanical rock scaling and application of specialized rockfall treatment measures at Anderson Point and Dutton Cliff will have a local short-term minor adverse effect on wildlife from construction-related noise and disturbance. Pika may also be displaced from nearby habitat during construction, but no long-term adverse effect is likely.

Historic Structures. Road rehabilitation work will address deteriorating road conditions and will maintain and protect the historic features that contribute to the Rim Drive Historic District. Effects on historic structures are anticipated to be local, long-term, and negligible to minor with implementation of the provisions of a programmatic agreement (PA) between the NPS and State Historic Preservation Office (SHPO). Rock scaling and additional technical treatment of rockfall areas at Anderson Point and Dutton Cliff will have no direct effect on historic structures and treatments will not introduce elements incompatible with the Rim Drive Historic District. This work will reduce potential effects from unanticipated rockfall on downslope historic structures such as stone masonry retaining walls. Implementation of the Programmatic Agreement (PA) between the NPS and SHPO includes stipulations for the continued identification and assessment of effect for historic properties and any needed mitigation through the development of a treatment plan.

Cultural Landscape. The effects on the cultural landscape will be local, long-term, and negligible to minor for rehabilitation work on Rim Drive. Rockfall mitigation treatments will reduce the potential for damage to historic elements of the landscape, but will introduce short- to long-term audio and visual effects on the cultural landscape from the introduction of permanent rockfall mitigation elements such as rock bolting, buttressing, and anchored wire mesh. Implementation of the PA between the NPS and SHPO includes stipulations for the continued identification and assessment of effect for historic properties and any needed mitigation through the development of a treatment plan.

Visitor Use and Experience. Rehabilitation of damaged and deteriorating sections of the road will have a long-term beneficial effect on visitors traveling on Rim Drive. Selective rockfall treatments at Anderson Point and Dutton Cliff, in addition to manual and technical rock scaling, will result in local short-term minor to moderate adverse effects on the visitor use and experience.

Visual Resources. Rehabilitation of damaged and deteriorating sections of the road will have local short-term minor adverse effects on the visual quality of Rim Drive during construction, with a long-term beneficial effect by protecting and preserving the scenic and visual character of the road. Additional rockfall mitigation, such as rock bolting, shotcrete, buttressing, and anchored mesh, applied at Anderson Point and Dutton Cliff will have a local short-term minor adverse effect on visual quality during construction and a negligible

to minor adverse effect over the long term because most treatment measures will blend with the existing environment.

Natural Soundscape. Road rehabilitation will have a local short-term moderate adverse effect on the natural soundscape along Rim Drive. Rock scaling and selective rockfall mitigation at Anderson Point and Dutton Cliff also will result in local short-term moderate adverse effects on the natural soundscapes at two locations.

Public Health and Safety. There will be local short-term minor adverse effects on public health and safety due to risks from construction work and rock mitigation work. The road rehabilitation, Cleetwood Cove parking lot improvements, and rock scaling will address public health and safety concerns associated with Rim Drive and associated facilities. Improvements to the road pavement, minor road realignments, curve widening, guardwall/retaining wall repair, and drainage work will improve safety and driving conditions. The selected alternative will have local short-term minor adverse effects on public health and safety during construction and local long-term beneficial effects from improvements to the structural features of the road and selective rockfall treatments at Anderson Point and Dutton Cliff that reduce the potential for rockfall.

Park Operations. The selected alternative will result in local and parkwide short-term minor to moderate adverse effects on park operations from road rehabilitation activities and minor adverse effects during selective rockfall treatments at Anderson Point and Dutton Cliff, but will have beneficial effects over the long term.

Degree of effect on public health or safety

Improvements to road pavement, minor road realignments, curve widening, guardwall/retaining wall repair, and drainage work will improve safety and driving conditions. The selected alternative will result in local long-term beneficial effects on public health and safety from improvements to the structural features of the road and safety measures that reduce the potential for accidents and rockfall. Traffic-control measures will be implemented to protect visitors during construction.

Degree to which effects on the quality of the human environment are likely to be highly controversial

Throughout the environmental process, the proposal to rehabilitate East and West Rim drives and implement rockfall mitigation was not highly controversial and the effects are not expected to generate future controversy. None of the identified environmental effects from implementation of the project were highly controversial and there is no indication of controversy over the nature of the effects. Given the substance of public comments, there is no evidence that the effects on the quality of the human environment will be highly controversial. Responses to substantive comments on the EA are included in the Public Involvement and Native American Consultation section below.

Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risks

Road rehabilitation meets project objectives through implementation of structural improvements that correct damaged and deteriorating road conditions, address public safety, provide for visitor enjoyment, and protect park natural and cultural resources. The anticipated effects on the human environment, as analyzed in the EA, are not highly uncertain or unique, and do not involve unknown risks. Resource conditions in the project area are well known and the anticipated impacts from implementing commonplace road rehabilitation work are understood based on FHWA and NPS experience with similar projects.

Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration

Rehabilitation of Rim Drive will not result in significant adverse effects on the natural environment, cultural resources, or visitor experience because the project was designed to minimize resource and visitor impacts and resource protection measures were incorporated into the project to further reduce identified adverse effects. In addition, the selected alternative will provide for the long-term protection of resources and will not set a precedent for future actions that could have significant effects.

Whether the action is related to other actions with individually insignificant but cumulatively significant impacts

The EA concluded that past, present, and future activities, when coupled with the rehabilitation of Rim Drive and rockfall treatment, will have parkwide long-term minor adverse cumulative impacts on geology, soils, vegetation, and wildlife. Cumulative effects on historic structures and cultural landscape will be local, long-term, and negligible to minor. Construction activities will result in parkwide short-term minor adverse cumulative effects on visitor use and experience and natural soundscape. Cumulative impacts on visual resources will be parkwide, long-term, minor, and adverse. Road rehabilitation and rockfall treatment will have a parkwide long-term beneficial contribution to cumulative effects on public health and safety and park operations correcting roadway deficiencies and reducing the potential for rockfall. Overall, the selected alternative will have no significant cumulative effects.

Degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources

Road rehabilitation, rockfall mitigation, and related work will be conducted in a manner to preserve the integrity, design characteristics, and craftsmanship of structural features that are either individually listed on or eligible for the National Register or those features that contribute to the Rim Drive Cultural Landscape or Historic District or the Rim Village Historic District. To ensure appropriate treatment of historic features, the NPS and the Oregon SHPO prepared a PA that stipulates for the continued identification, evaluation, and assessment of effect for known and unknown historic properties and provides

stipulations for the treatment of historic properties that may be adversely affected by project implementation. Road and feature rehabilitation will be conducted in accordance with the stipulations provided for in the PA and the treatment plan contained in the Rim Drive Cultural Landscape Report (Mark and Watson 2009). In addition, rehabilitation will be conducted in accordance with the *Secretary of the Interior's Standards for Treatment of Historic Properties with Guidelines for Treatments of Cultural Landscapes* (1996), and the Secretary of Interior's Standards for Rehabilitation (36 CFR 67), including reuse of original material, repairing and replacing features in-kind, and using compatible designs when adding new features. Rehabilitation and stabilization of historic structures will address deteriorating road conditions and will maintain the characteristics of historic features that qualify it for inclusion on the national register and its contribution to cultural landscapes or historic districts. After applying the criteria of adverse effects (36 CFR Part 800.5, Assessment of Adverse Effects) stipulated for under Section 106, the NPS concludes that implementation of the selected alternative will have no adverse effect on historic structures, archeological sites, cultural landscapes, ethnographic resources, or museum collections.

Degree to which the action may adversely affect an endangered or threatened species or its critical habitat

There are no known federally listed threatened or endangered wildlife species in the project area that will be affected by road rehabilitation, rockfall mitigation, and related work. Northern spotted owl protected activity centers are at lower elevations 1.8 miles from Rim Drive, and no adverse effects will occur to nesting or foraging owls. No streams in the project area support bull trout. While portions of the forest habitat bordering Rim Drive may provide suitable habitat for lynx, no known populations of lynx are in the park. The park has determined there will be no effect on federally listed species or critical habitat from the selected alternative and the U.S. Fish and Wildlife Service concurred with the park's determination in a letter dated January 16, 2013.

Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas

As described in the EA, ecologically critical areas, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas will not be affected by the project. The cultural landscape of Rim Drive and Rim Village will be preserved by adhering to the stipulations provided for in the PA to retain those characteristics of the landscapes that qualify it for inclusion on the National Register. Effects to the landscapes will be long-term, negligible to minor and will introduce short-term audio and visual effects during construction. The NPS determined that a PA is appropriate because the project will be phased and all effects on historic properties are unknown. The PA between the NPS and SHPO stipulates the continued identification and assessment of effect for historic properties and any needed mitigation through the development of a treatment plan.

Whether the action threatens a violation of federal, state, or local environmental protection law

The selected alternative does not violate any federal, state, or local environmental protection laws.

PUBLIC INVOLVEMENT

On September 19, 2011, the park initiated public scoping with a press release to provide the public and potentially interested parties an opportunity to comment on the project. The park sent letters to more than 240 interested individuals; organizations; state, county, and local governments; federal agencies; local businesses; and media outlets describing the alternative actions and asking for comments. In addition, scoping letters were sent to the Oregon SHPO and American Indian tribes traditionally associated with the park. During the 30-day scoping period that ended October 19, 2011, the park received 14 comment letters from the public by email and the NPS Planning, Environment and Public Comment (PEPC) website. The majority of the comments expressed overall support for road improvements and rockfall mitigation. A number of comments requested the addition of bicycle lanes to Rim Drive and other amenities to support cycling. Comments expressed concern for avoiding impacts on wildlife habitat and preserving the scenic values that visitors enjoy. Several commenters also suggested one-way travel along Rim Drive to facilitate traffic management, bicycles, and additional shuttle service.

The EA was made available for public review and comment during a 30-day period ending January 28, 2013. To notify the public of this review period, a letter was mailed or emailed to more than 240 stakeholders; interested parties; and federal, state, and local government agencies. Printed copies of the EA were made available in local public libraries, and the document also was posted on the NPS PEPC website with a link to this site from the park's public website.

The park received comments from 67 members of the public during the EA public review period. Most comments supported rehabilitation of Rim Drive and rockfall mitigation work; however, many of the comments questioned the removal of up to 25 unpaved informal pullouts located on the shoulder of Rim Drive. The park carefully examined which of the informal pullout presented a safety hazard or were eroding or causing resource damage, and selected those sites for reclamation and revegetation. No paved scenic pullouts will be removed. Responses to comments on the removal of these informal pullouts and other comments are documented in an Errata prepared as an attachment to the EA.

None of the comments received provided any additional new or substantive information that altered the determination of effects documented in the EA.

AGENCY CONSULTATION

Oregon State Historic Preservation Office Consultation

The Oregon SHPO was notified of the proposed project by letter on September 19, 2011. The SHPO responded in a letter dated October 7, 2011 that they look forward to being a part of the process for the continued protection of the historic resources at Crater Lake. The

ACHP also responded to the scoping letter in a letter dated November 9, 2011 that they would need several additional pieces of information to determine if their participation is warranted in the Section 106 process. NPS provided the additional information requested by ACHP following further consultation with the SHPO on the PA. NPS also invited ACHP to participate in the PA as a signatory.

On April 22, 2011, a Cultural Resources Survey of portions of Phase One of the Proposed West and East Rim Drive Rehabilitation and Rockfall Mitigation Project was sent to SHPO for review and comment. Additional Cultural Resources Survey will be required for Phase One and all subsequent Phases of the Project. A final project determination of effect was provided based on a determination of the final area of potential effect. The NPS determined that a PA is appropriate because the project will be phased and all effects on historic properties are unknown. A PA, executed pursuant to section 800.14(b) between the NPS and SHPO, was signed on June 5, 2013 (see Attachment 3).

U.S. Fish and Wildlife Service (Endangered Species Act)

In accordance with the Endangered Species Act, the NPS contacted the U.S. Fish and Wildlife Service (USFWS) by letter on September 19, 2011 to solicit input on threatened, endangered, and species of concern for the proposed project. The NPS also provide the USFWS a copy of the EA for their review. In a letter dated January 16, 2013, the USFWS concurred with the park's determination that the selected alternative will have no effect on federally listed species or critical habitat.

AMERICAN INDIAN CONSULTATION

The park initiated consultation with American Indian tribes and organizations, including the Cow Creek Band of Umpqua Tribe of Indians and Klamath Tribes, on September 19, 2011 informing them of the proposed project and soliciting comments. Information also was requested from the tribes to determine if any ethnographic resources are in the project area and if the tribes wanted to be involved in the environmental compliance process. The park has not received any written comments as of the date of the EA. The park provided the tribes with the PA for review and comment and invited their participation as concurring parties.

CONCLUSION

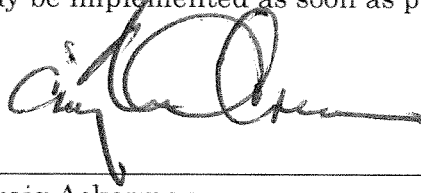
Based on the conservation planning and environmental impact analysis documented in the EA, with due consideration of the nature of the public comments and consultations with other agencies, and given the capability of the mitigation measures to avoid, reduce, or eliminate impacts, the NPS has determined that the selected alternative does not constitute a federal action that normally requires preparation of an environmental impact statement (EIS). Environmental impacts that could occur are limited in context and intensity, with generally adverse impacts that range from localized to widespread, short- to long-term, and negligible to moderate. The selected alternative will not have a significant

effect on the quality of the human environment or the park's cultural resources or natural resources, and there will be no effect on threatened or endangered species.

There are no unmitigated adverse impacts on public safety, sites, or districts listed in, or eligible for listing in, the National Register of Historic Places (National Register), or other unique characteristics of the region. No highly uncertain or controversial impacts, unique or unknown risks, cumulative effects, or elements of precedence were identified. Implementation of the selected alternative will not violate any federal, state, or local environmental protection laws.

Based on the foregoing, it has been determined that an EIS will not be prepared and the selected alternative may be implemented as soon as practicable.

Recommended:

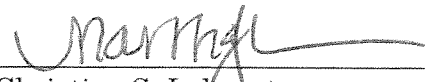


Craig Ackerman
Superintendent, Crater Lake National Park

6/25/2013

Date

Approved:

for 

Christine S. Lehnertz
Regional Director, Pacific West Region

7/2/13

Date

Attachment 1 – Determination of No Impairment

Crater Lake National Park

Rehabilitate East and West Rim Drives and Rockfall Mitigation

While Congress has given the National Park Service (NPS) management discretion to allow impacts within the park, that discretion is limited by the statutory requirement (generally enforceable by the federal courts) that the NPS must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. This cornerstone of the Organic Act establishes the primary responsibility of the NPS to ensure that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them. This Determination of No Impairment was prepared by the NPS based solely on the professional judgment of the park manager.

The impairment of park resources and values may not be allowed by the NPS unless directly and specifically provided for by the legislation or by the proclamation establishing the park. The relevant legislation or proclamation must provide explicitly (not by implication or inference) for the activity, in terms that keep the Service from having the authority to manage the activity so as to avoid the impairment.

The impairment that is prohibited by the Organic Act and the General Authorities Act is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of these resources or values.

An impact on any park resource or value may, but does not necessarily, constitute impairment. An impact would be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park; or to opportunities for enjoyment of the park, or identified in the park's general management plan or other relevant NPS planning documents as being of significance

An impact will be less likely to constitute impairment if it is an unavoidable result of an action necessary to pursue or restore the integrity of park resources or values and it cannot be further mitigated. An impact that may, but would not necessarily lead to impairment may result from NPS activities in managing the park, visitor activities, or activities undertaken by concessioners, contractors, and others operating in the park. Impairment may also result from sources or activities outside the park.

The National Park Service's Management Policies 2006 requires analysis of potential effects to determine whether or no actions would impair park resources. The park resources and values that are subject to the no-impairment standard include:

- the park's scenery, natural and historic objects, and wildlife, and the processes and conditions that sustain them, including, to the extent present in the park: the ecological, biological, and physical processes that created the park and continue to act upon it; scenic features; natural visibility, both in daytime and at night; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resources; archeological resources; cultural landscapes; ethnographic resources; historic and prehistoric sites, structures, and objects; museum collections; and native plants and animals;
- appropriate opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing them;
- the park's role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system; and
- any additional attributes encompassed by the specific values and purposes for which the park was established.

Crater Lake National Park was established in 1902, dedicated and set apart forever as a public park or pleasure ground for the benefit and enjoyment of the people of the United States. In managing this park, the NPS was originally charged with "the protection and preservation of the game, fish, timber, and all other natural objects therein." In 1980, Congress updated the park purpose "to preserve for the benefit, education, and inspiration of the people of the United States certain unique and ancient volcanic features, including Crater Lake, together with significant forest and fish and wildlife resources" (Public Law 96-553).

Based on the 1916 Organic Act and the Crater Lake National Park General Management Plan topics from the EA that were evaluated for potential impairment due to implementation of the selected alternative include: geology and soils, vegetation and special status plant species, wildlife and special status species, historic structures, cultural landscape, visual resources, and natural soundscape. Non-resource topics such as park operations, visitor use, or public health and safety are not subject to impairment determinations.

Geology and Soils

Crater Lake lies inside the collapsed remnants of an ancient volcano known as Mount Mazama. The present landscape at Crater Lake is dominated by the lake-filled caldera and the pumice and ash-covered flanks of truncated Mount Mazama. Soils bordering Rim Drive are primarily comprised of a variety of volcanic-derived parent material. Forest and low-growing herbaceous vegetation is present on most of the coarse-textured soils bordering Rim Drive.

- Road rehabilitation activities such as excavating, road widening, minor realignments, grading, and paving will occur primarily within areas of existing disturbance. Rehabilitation of Rim Drive will have limited disturbance to geologic resources. Construction disturbance outside of the existing road prism will occur on about 3.2 acres at various locations along the roadway, plus small areas of additional disturbance for work on pullouts, shoulder stabilization, and retaining wall repair. Improvements to the Cleetwood Cove parking area will require disturbance of up to about 1.6 acres of an existing fill slope and native soils on the south side of the parking lot. There will be a loss of soil productivity, but topsoil from the disturbed area will be salvaged and used in the revegetation of the fill slope. Soil material exposed during construction will be subject to erosion until stabilized or revegetated. Obliteration of about 25 existing unpaved road shoulder pullouts created by park visitors will allow reclamation of about 1.33 acres of existing disturbed areas, which will reduce the potential for future erosion and restore soil productivity and vegetation. Rockfall mitigation techniques at Dutton Cliff and Anderson Point will have a long-term beneficial effect on geologic features by reducing the potential for large volume rockfalls and further erosion of the slope. Effects on soil resources from rockfall mitigation treatments will be negligible because of the limited soil resources on these slopes.

The selected alternative will not result in an impairment of geology and soils because construction-related adverse effects will be local, mostly short-term, and minor, with beneficial effects from rockfall mitigation. In addition, a number of BMPs will be implemented to minimize erosion and restore disturbed areas.

Vegetation and Special Status Plant Species

Vegetation in the park is comprised primarily of coniferous forest. At lower elevations white fir, Douglas fir, and ponderosa pine forests are common. At higher elevations forests of lodgepole pine, Shasta red fir, and mountain hemlock occur. Subalpine woodlands of whitebark pine mixed with pumice meadows are found at the highest elevations. No federally listed threatened or endangered plant species are known in the park, although whitebark pine is a candidate species for listing. Three special status plant species – pumice grapefern (*Botrychium pumicola*), Shasta arnica (*Arnica viscosa*), and Crater Lake rockcress (*Boechera horizontalis*) – are known to occur in isolated populations along the rim of Crater Lake. Nonnative plant species are present primarily at lower elevations, along roadsides, in burned areas, and within the Crater Lake caldera.

Construction disturbance outside of the existing paved surface on adjacent cut and fill slopes will occur on about 3.2 acres along Rim Drive. Much of this disturbance will occur in areas of rock, windblown soils, and herbaceous vegetation cover. Whitebark pine trees adjacent to the Pumice Point road rehabilitation project will be protected by construction of retaining walls. Road rehabilitation activities will adversely impact individuals and populations of sensitive plant species – pumice grapefern plant and rockcress – at several locations. Impacts on special status species will be local, long-term, moderate, and adverse. Mitigation measures will be implemented to minimize impacts and may include reseeded; transplantation of existing plants in areas with favorable soils, sunlight, and other growing conditions; or other propagation methods found to be

effective. Obliterated pullouts will be revegetated with native plant species. Improvements to the Cleetwood Cove parking area will require disturbance up to about 1.6 acres of an existing fill slope and undisturbed native forest on the south side of the parking lot depending on the angle of the enlarged fill slope and use of retaining walls.

Overall, road rehabilitation will result in local short-term minor adverse impacts on vegetation from temporary construction disturbances, with negligible effects from rock scaling operations. Improvements to the Cleetwood Cove parking lot will have a local long-term moderate adverse effect on forest vegetation from tree and vegetation removal. Impacts on plant species of special concern will be local, long-term, moderate, and adverse from road rehabilitation activities. Placement of additional curbing along the traffic circle at Skell Head Overlook will provide a long-term beneficial effect. Avoidance and use of protective rock walls at Pumice Point will minimize impacts on whitebark pine. Scaling and other rockfall mitigation treatments will have a negligible adverse effect on vegetation because most of these slopes are nearly vertical with only limited vegetation.

The selected alternative will not result in an impairment of vegetation resources or special status plant species because construction-related adverse effects will be local, mostly short-term, and minor to moderate. In addition, a number of BMPs will be implemented to protect trees and vegetation, revegetate disturbed areas, seed or transplant sensitive plant species, and minimize the potential for weed establishment.

Wildlife and Special Status Species

The forested and meadow habitat along Rim Drive provides habitat for a variety of wildlife species. No federally listed endangered wildlife species are in the park. Federally listed threatened species inhabiting or potentially inhabiting the park include Canada lynx, northern spotted owl, and bull trout. The fisher and wolverine are candidate species for federal listing, and potentially inhabit the park. The bald eagle is a state-listed threatened species present in the park. Pika and peregrine falcons are not federally or state-listed as sensitive species, but are monitored by the park due to concerns about their possible decline.

Road rehabilitation and rockfall treatment will have limited direct effects on wildlife habitat because activities will occur primarily within areas of previous disturbance. However, wildlife could potentially be affected by construction disturbance and noise. Construction disturbance to about 3.2 acres adjacent to Rim Drive and outside of the existing road prism will have negligible effects on wildlife because the sparsely vegetated slopes adjacent to the road have limited value for wildlife use. Rockfall treatment will have a local short-term minor adverse effect on pika. Although rock scaling and other treatments will occur primarily on steep rocky slopes with limited habitat, pika on nearby slopes may be displaced by the noise and activities during scaling operations.

No known federally listed threatened or endangered wildlife species in the project area will be affected by road rehabilitation, Cleetwood Cove parking lot improvements, or rockfall mitigation. Northern spotted owl protected activity centers are at lower elevations 1.8 miles from Rim Drive and no adverse effects will occur to nesting or

foraging owls. No streams in the project area support bull trout. While portions of the forest habitat bordering Rim Drive may provide suitable habitat for lynx, no known populations of lynx are in the park.

The selected alternative will not result in an impairment of wildlife or special status wildlife species because most of the construction impacts will be short-term and minor and resource protection and conservation measures will be implemented to reduce impacts.

Historic Structures

The Rim Drive Historic District, comprised of the entire circuit beginning at Rim Village and ending at park headquarters, was listed on the National Register in 2008 for its association with events that made a broad contribution to American history and with structures that embody the distinctive characteristics of NPS rustic design elements. The Rim Drive Historic District includes 31 miles of road, nearly all of which (except for 0.25 mile) are within its original alignment. Ten historic structures and seven sites are contributing elements to the historic district, including the five segments of road built in different stages. The Rim Village Historic District was listed on the National Register in 1997 under criteria a and c for its association with the development of Crater Lake National Park and for its association with significant NPS rustic design building and landscape architecture.

Road rehabilitation work will be conducted in a manner to preserve the integrity, design characteristics, and craftsmanship of structural features. To ensure appropriate treatment of historic features, the NPS and Oregon SHPO prepared a Programmatic Agreement (PA) that stipulates for the continued identification, evaluation, and assessment of effect for known and unknown historic properties, and provides stipulations for the treatment of historic properties that may be adversely affected by project implementation. Road rehabilitation will be conducted in accordance with the stipulations provided for in the PA and the treatment plan contained in the Rim Drive Cultural Landscape Report. In addition, rehabilitation will be conducted in accordance with the *Secretary of the Interior's Standards for Treatment of Historic Properties with Guidelines for Treatments of Cultural Landscapes* (1996), including reusing original material, repairing and replacing features in-kind, and using compatible designs when adding new features.

There will be local long-term negligible to minor effects on historic structures from the road rehabilitation, including the Rim Village parking lot, with implementation of stipulations provided for in the PA. Road rehabilitation and stabilization of historic structures will address deteriorating road conditions and will maintain and protect the historic features that contribute to the Rim Drive Historic District. The selected alternative will not result in an impairment of historic structures with implementation of the provisions provided for in the PA.

Cultural Landscape

Rim Drive and associated historic structures comprise a historic designed landscape. Rim Drive's cultural landscape is significant under tourism, conservation, transportation, engineering, and landscape architecture themes. As a cultural landscape, the design relationship between the road and the landscape is its defining feature. The period of significance is 1926 to 1941, which includes the road's initial construction (1926-1931) and the period from 1931 to 1941 when the road was reconstructed under NPS guidance using character defining rustic design elements. Rim Drive's circuitous route was completed in sections and beginning in 1931, Bureau of Public Roads (BPR) contracted work crews constructed features such as stone retaining walls, stone guardwalls, shoulders, turnouts, stone-lined drainage ditches, culvert headwalls, and cut stone curbs. The NPS design resulted in the rustic natural character of the road, lessening its impact on the landscape.

Road rehabilitation and rockfall treatment will be conducted to preserve the integrity, design characteristics, and craftsmanship of structural features and enhance the overall historic designed landscape. Rehabilitation will be conducted in accordance with a PA prepared by the NPS and Oregon SHPO that stipulates for the continued identification, evaluation, and assessment of effect for known and unknown historic properties, and provides for the development of a treatment plan for historic properties that may be adversely affected by project implementation. Work will also be conducted in accordance with the treatment plan contained in the Rim Drive Cultural Landscape Report (NPS 2009) and will meet the *Secretary of the Interior's Standards for Rehabilitation* (1992). This includes reuse of original material, repair and replacement of features in-kind, and use of compatible BPR and NPS rustic designs when adding new features. Stabilization and paving will maintain the structural integrity of the road. Construction activities such as stabilizing slopes, road widening and repaving, adding guardrails and guardwalls, repairing stone masonry walls, and improving parking lot drainage will add new elements to the landscape or reinforce existing structural features adjacent to the road.

Rock scaling and the additional rock bolting, colored and sculpted shotcrete, buttressing, and anchored wire mesh at Dutton Cliff and Anderson Point will introduce temporary audio and long-term visual adverse effects on the historic designed landscape, but will also reduce the potential for rockfall that could affect historic structural elements of the landscape. The introduction of nonconforming elements to the historic landscape, such as rock bolting, shotcrete, buttressing, and anchored wire mesh will be designed and incorporated to blend with the natural landscape, as feasible. These elements will also be placed sufficiently upslope so that they will not be visible to visitors operating a vehicle and will not impair the visible portion of the historic circulation pattern. Rehabilitation and rockfall treatment will have a local long-term negligible to minor effect on the cultural landscape by addressing deteriorating road conditions and maintaining and protecting the historic features that contribute to the historic designed landscape.

The selected alternative will not result in an impairment of the cultural landscape because the action will have local short-term negligible to minor effects on the cultural landscape from improvements designed to repair and replace deteriorating structural

features that contribute to the integrity of the road. No adverse impact on the cultural landscape will occur with implementation of the provisions provided for in the PA.

Visual Resources

Rim Drive circles the caldera, offering views of the lake for much of the route. Two picturesque islands – Wizard Island and Phantom Ship – are on the west and south ends of the lake, respectively, and may be viewed from several locations around the lake. A number of pullout areas border the lake, giving visitors the opportunity to get out of their cars and fully enjoy the views. Rock formations along Rim Drive also provide visual interest to travelers. Rim Drive is linked to other Cascade Mountain volcanic areas by its 1997 designation by FHWA as part of the Volcanic Legacy Scenic Byway that links with the Shasta Volcanic Scenic and Lassen Volcanic National Park. In 1998, the FHWA named the Volcanic Scenic Legacy Scenic Byway, including Rim Drive an All American Road.

Visual impacts will occur during road construction from construction equipment, materials, and ground disturbance. Construction activities and construction-related disturbances such as road excavation and clearing, repair, and construction of stone masonry walls and MSE walls, and adding new pavement and striping will provide a short-term visual contrast from current conditions. Any disturbances to existing structural features or new structural features such as culverts, guardwalls, and retaining walls will be constructed with original materials, if possible, or materials that match the color, texture, and historic character of existing facilities. Rehabilitation of damaged and deteriorating sections of the road and structures will have a long-term beneficial effect on the visual quality of the road by protecting the scenic views of the lake for which the park is renowned. Improvements to the Cleetwood Cove parking lot will change the visual character with tree removal and additional asphalt parking and will have a local long-term moderate adverse impact on visual quality. Additional parking at Cleetwood Cove will improve visual quality by eliminating overflow parking along the shoulder of Rim Drive, which distracts from the views of the landscape. Rock scaling will have local short-term minor adverse effects on visual resources from equipment and debris during scaling and rockfall treatment work. Once completed, the results of rock scaling and other rockfall treatment are unlikely to be noticeable to most visitors. The selected alternative will not result in an impairment of visual quality because road rehabilitation will have a local short-term minor adverse impact and long-term beneficial effect by protecting and preserving the scenic and visual character of the road and rockfall mitigation will have minor effect with limited change in visual resource quality.

Natural Soundscape

Crater Lake National Park offers its visitors a wide range of recreational activities and opportunities to experience natural beauty, quiet, solitude, reflection, and inspiration. Natural sounds are considered an important part of park ecology and the visitor experience. In addition, more than 90% of the park is managed as wilderness or backcountry where visitor expectations for natural quiet and solitude are high. Daytime

motor vehicle traffic is the primary source of noise along Rim Drive and aircraft overflights is the most noticeable nighttime noise.

Road rehabilitation activities will result in temporarily elevated noise levels at construction zones along the road about 40 to 50 decibels (dBA) above existing ambient conditions. Equipment that will generate noise includes graders, trucks, backhoes, cranes, and other equipment. Rock scaling and other specialized rockfall treatment will result in elevated sound levels at discrete locations. Noise from cranes and heavy equipment, as well as loaders and haul trucks, will increase noise levels above ambient conditions. Construction and rock scaling operations will have a local short-term moderate adverse effect on the natural soundscape. There will be no long-term adverse effects on the natural soundscape following construction activities because none of the road improvements are anticipated to increase traffic capacity. The selected alternative will not result in an impairment of the natural soundscape because road rehabilitation and rockfall work will have a local short-term minor adverse impact and no long-term impact.

SUMMARY

As described above, adverse effects and environmental impacts anticipated as a result of implementing the selected alternative on a resource or value whose conservation is necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or identified as significant in the park's general management plan or other relevant NPS planning documents, will not rise to levels that will constitute impairment of park values and resources.

PROGRAMMATIC AGREEMENT

**Programmatic Agreement Between the
National Park Service and the Oregon
State Historic Preservation Office
Regarding the Rehabilitation and Rockfall Mitigation along
Rim Drive in Crater Lake National Park, Oregon**

WHEREAS, the National Park Service (NPS) in cooperation with Western Federal Lands Highway Division of the Federal Highway Administration (FHWA) proposes actions at Crater Lake National Park (Crater Lake or park) to resurface and rehabilitate East and West Rim Drives improve a number of pullouts and parking areas, and implement rockfall mitigation (the Undertaking). Roadwork would involve constructing new retaining walls, reinforcing fill slopes, making subsurface repairs, resurfacing paved areas with new asphalt. Curbing, masonry guardrails, and adjacent parking areas and walks would also be repaired or replaced as required. Rockfall mitigation would include reducing the hazards of frequent or high-risk rockfall events by using rock sealing, rock bolts, rockfall fences, attenuation barriers and other slope stabilization techniques; and

WHEREAS, the NPS intends to implement the Undertaking over the entire length of Rim Drive, as well as adjacent spur roads and parking areas in two or more phases; and

WHEREAS, the NPS has consulted the Oregon State Historic Preservation Office (SHPO) pursuant to regulations implementing Section 106 of the National Historic Preservation Act of 1966 as amended and the Programmatic Agreement of November 14, 2008 among the NPS (U.S. Department of Interior), the Advisory Council on Historic Preservation (ACHP), the National Council of State Historic Preservation Officers, and has notified the ACHP of the potential adverse effect pursuant to 36 CFR § 800.14(b3) and 36 CFR 800.6(a)(1); and

WHEREAS, the NPS notified the Advisory Council on Historic Preservation (ACHP) of the consultations to develop this PA pursuant to 36 CFR 800.14(b)(i) by letter dated January 23, 2012, and;

WHEREAS, the ACHP has concluded that Appendix A, Criteria for Council Involvement in Reviewing Individual Section 106 Cases, of their regulations, "Protection of Historic Properties" (36CFR Part 800) does not apply to this undertaking and has declined to participate in the consultation to resolve adverse effects; and

WHEREAS, Crater Lake National Park (park) contains historic properties of religious or cultural significance to federally designated American Indian tribes including the Klamath (Tribes) and the Cow Creek Band of the Umpqua Tribe of Indians; and

WHEREAS, the NPS therefore consulted with the Klamath (Tribes) and the Cow Creek Band of Umpqua in accordance with 36 CFR 800.14(f) and has invited the Tribes to be signatories to this agreement; and

WHEREAS, the NPS has completed cultural resource surveys of portions of the anticipated area of potential effect (APE) to identify potential historic properties; and

WHEREAS, the NPS has completed a cultural landscape report and has determined that Rim Drive is a significant designated landscape eligible for listing on the National Register of Historic Places (NRHP) under Criteria A and C; and thus nominated the Rim Drive Historic District for listing, which the Keeper entered on the NRHP January 30, 2008; and

WHEREAS, the NPS intends to follow the preservation guidelines and treatment recommendations contained in the Rim Drive Cultural Landscape Report, and the Secretary of the Interior's Guidelines for the Treatment of

PROGRAMMATIC AGREEMENT

Historic Properties with Guidelines for the Treatment of Cultural Landscapes during road rehabilitation and rock fall mitigation to preserve and protect contributing features to the historic designated landscape; and

WHEREAS, the terms in 36 CFR Part 800.2, "Definitions" are applicable throughout this Programmatic Agreement; and

WHEREAS, the NPS has a qualified staff of cultural resource specialists who meet or exceed the qualifications set forth in the Secretary of the Interior's Professional Qualifications Standards (48 FR 44738-39, 36 CFR 61) to carry out programs for cultural resource management including treatment of historic properties; and

WHEREAS, the NPS has consulted with the SHPO and the Tribes on ways to ensure that individual actions of the Undertaking provide for management of the park's historic properties according to the intent of the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 FR 44716), NPS management policies and guidelines, and Sections 106 and 110 of the NHPA.

NOW, THEREFORE, the NPS, SHPO, and the Tribes hereby agree that should the NPS proceed with the Undertaking, the NPS will ensure that the following stipulations are implemented to satisfy the NPS's Section 106 responsibilities as set forth in 36 CFR Part 800 during all phases of the Undertaking.

Stipulation 1: Phasing of Undertaking

The NPS expects to pursue the Undertaking in phases. The NPS will have met its obligations under this agreement if it fulfills the requirements listed herein for each individual phase, independently of future phases.

Stipulation 2: Consultation with the Oregon SHPO

The NPS initiated consultation with the SHPO via letter September 19, 2011. An archaeological survey of thirty one (31) parcels along Rim Drive was conducted in 2010 (Boston 2010). The parcels surveyed were investigated prior to design for the project began and is intended as a partial survey of the Phase One APE. A copy of the report was provided to the SHPO for review and consultation. No prehistoric archaeological sites were located during the 2010 survey. The NPS shall conduct an additional archaeological survey of the remainder of the Phase One APE during the summer of 2013. The NPS shall continue to consult with SHPO regarding the Undertaking and its effects on the listed historic property or the potential eligibility of historic properties affected by the Undertaking according to Stipulations 6 and 12.

Stipulation 3: Tribal Consultation

In accordance with 36 CFR 800.3(f)(2) the NPS shall consult with the Tribes that might attach religious and/or cultural significance to historic properties in the APE and invite Tribes to be consulting parties for all Program undertakings. Consultation with Tribes will follow procedures that are established with individual Tribes.

A. The NPS initiated consultation with the Tribes via letter September 19, 2011. The NPS shall continue to consult with the Tribes regarding the Undertaking and its effects on the listed historic property or the potential eligibility of historic properties affected by the Undertaking according to Stipulations 6 & 12.

B. The NPS shall submit design development drawings (70%, and 95%) and the construction documents (100%) for the initial phase of the rehabilitation and rockfall mitigation along Rim Drive to the consulting parties for review and comment. Consulting parties shall have 30 calendar days from the date of receipt to provide comments to the NPS. If the consulting parties fail to respond within this time, NPS shall assume the consulting parties have no comments and will proceed to the next step in the design/construction process.

Stipulation 4: Identification of Interested Parties

Upon advance planning and development of a new phase of the Undertaking, the Park Service shall seek to

PROGRAMMATIC AGREEMENT

identify interested persons pursuant to 36 CFR Part 800.1(c)(2) and 36 CFR Part 800.4(a)(1)(iii).

Stipulation 5: Professional Qualifications and Standards

A. All Historic Preservation Activities implemented pursuant to this PA shall be carried out by or under the direct supervision of a person or persons meeting at a minimum the Secretary of Interior's Professional Qualifications Standards (48 FR 44738-39) for the discipline appropriate (archaeology, cultural anthropology, history, historic landscape architecture) to the historic property in question.

B. Any inventory or documentation of historic properties pursuant to implementation of the PA shall conform to the provisions of the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 FR. 44716-44740). In addition any inventory or documentation of historic properties shall conform to SHPO Guidelines for Conducting Field Archaeology in Oregon and Archaeological Reporting Guidelines. All archaeological sites shall also be documented using the Oregon on-line site forms and all other pertinent Oregon SHPO forms.

C. Curation of materials and records resulting from actions stipulated by this PA shall be curated at Crater Lake National Park in accordance with 36 CFR Part 79.

D. The signatories to this PA acknowledge that historic properties covered by this PA are subject to the provisions of section 304 of the NHPA relating to the disclosure of archaeological site information and, having so acknowledged, shall ensure that all actions and documentation prescribed by this PA are consistent with said sections.

Stipulation 6: Standard Review for Program Undertakings

A. Area of Potential Effects (APE)

The NPS shall determine the area of potential effect (APE) for each phase of the undertaking in consultation with SHPO and other consulting parties. The APE shall include any area where there may be ground disturbance, demolition or construction activities including all areas within the temporary and permanent right-of-ways required for the project and all areas within the "clearing limits" as indicated on the construction plans plus a 10 – meter buffer area on either side. In addition the APE for indirect effects includes areas not impacted directly by construction related activities but may be visually or audibly impacted or that may be impacted by an "off-site" construction related activity (e.g. construction staging areas and borrow areas) or if construction activities make the structure visible from another vantage point. Indirect effects can be temporary (e.g. construction related noise) or permanent (e.g. changing the view shed).

B. Phased Identification and Evaluation of Historic Properties

1) Historic Properties (non-archaeological)

Historic Properties (defined as those listed or eligible for listing in the NRHP) are limited to the listed Rim Drive Historic District and its contributing features, along with sections of its immediate predecessor, Rim Road, and those that may be discovered during the course of project activities. To date, the NPS has completed a Rim Drive Cultural Landscape Report (Mark and Watson 2009) and as well as a reconnaissance report on the Rim Road (Mark and Churchward 2009) and a traditional use study covering the park (Deur 2008). A cultural landscape inventory document for Rim Drive was also drafted by NPS personnel (Germano and Gjestfeld 2011).

The NPS shall continue to identify and evaluate any additional historic properties that may be located within the APE of each phase of the Undertaking, according to 36 CFR 800.4(c) before taking any

PROGRAMMATIC AGREEMENT

actions that may affect NRHP-listed or eligible properties to determine if they qualify as integral parts of the Rim Drive Historic District, according to *National Register Bulletin 15 How to Apply the National Register Criteria for Evaluation*, such properties will qualify for listing on the NRHP if they are integral parts of districts that do meet the criteria.

2) Archaeological Sites and Isolates

An Archaeological Overview of the Park was completed in 1994 (Mairs et al.). An archaeological survey of thirty one (31) parcels along Rim Drive was conducted in 2010 (Boston 2011). The parcels surveyed were investigated before project design began and was intended as a partial survey of the Phase I APE. A copy of the report was provided to the SHPO for review and consultation. No prehistoric archaeological sites were located during the 2010 survey.

- a. The NPS shall ensure that an archaeological survey of the APE of each phase of the Undertaking is conducted and documented (for areas not previously surveyed) in a manner consistent with: The Secretary of the Interior's Standards and Guidelines for Identification (48 FR 44720-23) and which takes into account the guidance found in the NPS publication The Archaeological Survey: Methods and Uses (1978). In addition any inventory or documentation of historic properties shall conform to SHPO Guidelines for Conducting Field Archaeology in Oregon and Archaeological Reporting Guidelines. All archaeological sites shall also be documented using the Oregon on-line site forms and all other pertinent Oregon SHPO forms. The resulting survey report shall be submitted by the NPS to the SHPO and the Tribes for review and comment according to Stipulations 6 and 12.
- b. The NPS shall evaluate properties identified through survey according to 36 CFR 800.4(c) before approval of any actions that may affect NRHP-listed or eligible properties within the APE.
- c. If information gathered through the inventory process is found to be inadequate to determine an archaeological site's NRHP eligibility, the NPS shall develop an evaluation plan which may include subsurface testing. Such subsurface testing shall be intended to provide the minimal data necessary to make final evaluations of NRHP eligibility and to devise treatment options. It is not intended as a major component of survey, nor should it be construed as defiance to the policy of the Klamath Tribes of opposing excavation throughout their aboriginal territory. All evaluation plans will be submitted by the NPS to the SHPO, and the Tribes for review and comment according to Stipulations 6 & 12.
- d. Any inventory and test results, including NRHP eligibility recommendations, shall be reviewed by the NPS and will be submitted to SHPO and the Tribes for review and comment according to Stipulations 6 & 12. If the NPS and consulting parties disagree on whether a property is eligible to the NRHP, then 36 CFR 800.4(c)(August 5, 2004) will apply.

Stipulation 7: Assessment of Effects

The NPS shall submit the results of all efforts to identify historic properties, NRHP eligibility determinations, discovery plans, and treatment plans to the SHPO and other consulting parties for a 30-calendar-day review and comment period, which starts when the submittal is received at the SHPO and consulting parties.

The NPS shall consult with the SHPO and consulting parties whenever the Undertaking has either a no adverse of adverse effect, to determine the precise nature of anticipated effects on historic properties using the Criteria of Effect and Adverse Effect (36 CFR 800.9). If the SHPO and other consulting parties do not respond to the NPS within 30 calendar days of receipt of the submittal, the NPS may assume the SHPO and consulting parties do not object to the NPS findings and recommendations as detailed in the submission. If the SHPO and other consulting parties do not respond, or do not object, or propose changes that the NPS accepts, no further review is required and the NPS may proceed according to its findings and recommendations.

PROGRAMMATIC AGREEMENT

For project activities that have minimal or no potential to cause effects to historic properties the NPS shall comply with Stipulation 9 "Alternative Review of Program Undertakings" for those activities described in Appendix A.

The NPS maintains that the rehabilitation of contributing historic features does not constitute an adverse effect if the proposed Undertaking in this rehabilitation conforms to treatment recommendations in the Rim Drive Cultural Landscape Report, *The Secretary's Standards for Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*, and/or original specifications for the proposed work such as that for masonry guardrails.

Stipulation 8: Treatment of Adverse Effects

A. Historic Properties

- 1) When the effect on a historic property either adverse or no adverse, the NPS will consult with the SHPO, ACHP, and as appropriate the Tribes to develop a Treatment Plan that takes the effect of the Undertaking on the property into account. The plan will be in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* and recommendations contained in the *Rim Drive Cultural Landscape Report*. The NPS shall submit the plan to the SHPO for review and comment according to Stipulations 2 and 3 below. The implementation of any treatment plan agreed upon by the NPS and SHPO would occur prior to demolition, alteration, or relocation of a historic property.
- 2) Prior to any work that may destroy a historic property the NPS shall consult with the SHPO to determine whether the property shall be recorded in accordance with Historic American Buildings Survey/Historic American Engineering Record/Historic American Landscapes Survey (HABS/HAER/HALS) standards. If the NPS and SHPO agree on HABS/HAER/HALS recordation of the property then the NPS will expedite this part of the project in compliance with recognized standards. Copies of the HABS/HAER/HALS documentation will be distributed to the SHPO, Crater Lake National Park Museum and Archives Collections, Oregon Historical Society, the University of Oregon Allied Arts and Architecture Library, and the Library of Congress.
- 3) If the NPS and SHPO agree that HABS/HAER/HALS recordation is not appropriate, then the NPS shall determine the appropriate form of recordation in consultation with the SHPO. At a minimum, recordation shall include documentation methods and standards and shall identify the appropriate repository where the NPS will deposit copies of the recordation materials.
- 4) The NPS will identify any significant features related to a historic property that may be salvaged. When feasible and appropriate, significant features shall be reused as part of the Undertaking covered by this agreement or conserved for use in other undertakings. The NPS shall ensure that significant features are salvaged before demolition or alteration and they are properly stored and protected.

B. Archaeological Sites and Isolates

- 1) Should any American Indian burial sites, human remains, funerary objects, sacred objects, and/or objects of cultural patrimony be encountered, the NPS will secure the area, halt work in the immediate vicinity and notify the NPS Regional Anthropologist and officials identified in Section 3 (d) of Native American Graves Protection and Repatriation Act (PL 101-601; hereinafter NAGPRA) and 43 CFR 10.5.
- 2) When an archaeological property cannot be avoided, the NPS shall treat the site as National Register Eligible until a formal determination of eligibility can be completed. The NPS shall consult

PROGRAMMATIC AGREEMENT

with SHPO and the consulting parties regarding its determination of eligibility. If SHPO and the consulting parties concur that the archaeological property is not eligible for listing on the National Register the NPS may proceed without further review.

3) When a NRHP listed or eligible archaeological property cannot be avoided, the NPS will consult with the SHPO and the Tribes to develop a suitable treatment plan. The plan will be submitted by the NPS to SHPO and the Tribes for review and comment according to Stipulations 2 and 3. The NPS shall ensure that all treatment plans are implemented.

4) When data recovery is the preferred treatment option for a NRHP listed or eligible property within the APE, the NPS shall ensure that an archaeological data recovery plan, based on an appropriate research design, is submitted to SHPO and the Tribes for review and comment according to Stipulations 2 and 3. Such data recovery plans shall be consistent with the *Secretary of the Interior's Standards and Guidelines for Archeological Documentation*.

5) Except as provided for by NAGPRA, the NPS shall ensure that all records and materials resulting from identification and data recovery efforts are curated in accordance with 36 CFR Part 79.

6) The NPS shall ensure that all final archaeological or other reports on cultural resources resulting from actions pursuant to this agreement are provided to the SHPO and the Tribes. All final archaeological and other reports shall be submitted to SHPO in printed format and as an electronic copy (on CD) and copies of all site forms shall be submitted using the SHPO on-line form. Archaeological site locations shall be withheld from the general public as provided by the Freedom of Information Act (FOIA, PL 89-554). The NPS shall provide a draft and a final report to SHPO and the Tribes according to Stipulations 2 and 3.

Stipulation 9: Alternate Review of Program Undertakings

The project types and activities listed in APPENDIX A have no potential or minimal potential to cause effects to historic properties if the activity: does not physically impact historic resources and/or materials, conforms to the applicable portion(s) in the *Rim Drive Cultural Landscape Report*, and the improvement is determined to not increase the visibility of the structure, object, or building as constructed or altered and the activity does not involve "replacement or upgrade" of historic resources and/or materials. These undertakings will not require review by the SHPO provided all terms and conditions of this Agreement are met.

For project types contained in APPENDIX A - Program Undertakings Eligible for Alternative Review Procedures-Summarized in Annual Report (No Effect) personnel meeting the Professional Qualification Standard described in Stipulation 5 A of this Agreement will employ a multidisciplinary approach to implement the following review process as appropriate to the project, and in conformance with current acceptable professional practice. Insofar as the activities in APPENDIX A are limited to the items specified and have no potential to affect a historic property, the following procedures will be used.

- A. Review project description to determine the scope of work and APE;
- B. Determine the degree of existing vertical and horizontal ground disturbance within the APE by performing a field inspection or reviewing plans from previous construction as appropriate;
- C. Review existing information on previously identified historic properties in the APE. This review may include, but not be limited to: the SHPO Above Ground Resources, and Archaeological, databases; Park associated ethnographic information; existing construction plans, both past and present;
- D. Determine the presence or absence of previously unidentified historic properties within the APE by performing appropriate investigations (literature review or reconnaissance survey);

PROGRAMMATIC AGREEMENT

E. Consult with the Tribes according to Stipulation 3 of this Agreement;

F. If the NPS determines that archaeological monitoring is required, NPS will notify the SHPO and park associated Indian tribes;

G. If NPS determines that the undertaking is included in Appendix A, AND has determined that the activity is of the type that has no potential to effect historic properties, and as such does not require any additional project-level review under Section 106, NPS will document its review in the applicable project file and in the applicable NEPA document as a memo to the file. This information will be provided to SHPO and park associated Indian Tribes, by the NPS in the Annual Section 106 Report Produced by the Pacific West Region Section 106 Compliance staff (EXHIBIT 2).

The project types and activities listed in APPENDIX B will have No Adverse Effect. Those activities listed in APPENDIX B involving the National Register-listed Rim Drive Historic District and similar resources determined to be eligible for listing are only eligible for Alternative Review if carried out according to the specific resource-type provisions described in the *Rim Drive Cultural Landscape Report, Chapter Four: Preservation Guidelines and Chapter Five: Specific Treatment Recommendations*, and the undertaking is determined to not increase the visibility of the structure, object, or building.

For project types contained in APPENDIX B - Program Undertakings Eligible for Alternative Review Procedures-Summarized in Annual Report (No Adverse Effect) personnel meeting the Professional Qualification Standard described in Stipulation 5 A of this Agreement will employ a multidisciplinary approach to implement the following review process as appropriate to the project, and in conformance with current acceptable professional practice. Insofar as the activities in APPENDIX B are limited to the items specified and have been determined to have a "No Adverse Effect" on historic properties, the following procedures will be used.

H. Review project description to determine the scope of work and APE;

I. Determine the degree of existing vertical and horizontal ground disturbance within the APE by performing a field inspection or reviewing plans from previous construction as appropriate;

J. Review existing information on previously identified historic properties in the APE. This review may include, but not be limited to: the SHPO Above Ground Resources, and Archaeological, databases; Park associated ethnographic information; existing construction plans, both past and present;

K. Determine the presence or absence of previously unidentified historic properties within the APE by performing appropriate investigations (literature review or reconnaissance survey);

L. Consult with the Tribes according to Stipulation 3 of this Agreement;

M. If the NPS determines that archaeological monitoring is required, NPS will notify the SHPO and park associated Indian tribes;

N. If NPS determines that the undertaking is included in Appendix B, AND has determined that the activity would have a "No Adverse Effect" on historic properties NPS will document its review in the applicable project file and in the applicable NEPA document as a memo to the file. This information will be provided to SHPO and park associated Indian Tribes, by the NPS in the Annual Section 106 (EXHIBIT 2) and will include a Memorandum Report. The Memorandum Report will describe the undertaking and how it conformed with the Treatments described in the Rim Drive Cultural Landscape Report, along with: a map/maps depicting the project location, before and after photo documentation, sufficient information describing how the work was accomplished, and reference to the section of the Cultural Landscape Report providing treatment guidance. For example, the memorandum report for repointing a Historic Masonry Guardrail along Rim Drive should clearly state that all repairs to the specific wall were done according to the "Repair and rehabilitation of stone masonry as described in the Rim Drive Cultural Landscape Report, pages 182 through 191."

PROGRAMMATIC AGREEMENT

Stipulation 10: Geotechnical Investigations Review

Because geotechnical investigations occur very early in project development, this type of Program project activity may be reviewed independently of its association with a larger undertaking. This activity has a limited and well defined APE, and will be reviewed for Section 106 purposes by the NPS cultural resources staff duty stationed at the park, regional office locations, or the Denver Service Center using the process defined in Stipulation 6 under the following conditions:

- A. NPS archaeological staff will conduct a cultural resource review for all geotechnical exploration requests and determine the likelihood of historic properties, or potential historic properties, being present within the proposed exploration area.
- B. If the area has been inventoried previously and no historic properties are present, NPS may proceed without further review so long as crews and equipment are restricted to the proposed exploration area.
- C. If historic properties are found to be in the area, NPS may proceed without further review so long as all work is contained within the road prism. If the geotechnical explorations are to be conducted outside of the road prism, and the area has not been surveyed previously a cultural resource survey shall be completed and the project must seek concurrence with a finding of effect from SHPO using the standard review process outlined in Stipulation 6.
- D. If drilling is proposed within the boundaries of a historic property other than the Rim Drive road prism, the property must be cleared through SHPO using the standard review process outlined in Stipulation 6. In these cases, testing and/or monitoring may be necessary.
- E. Review of Geotechnical Investigations may occur separately from Section 106 review for the rest of the undertaking. Monitoring for Geotechnical Investigations may be conducted as a result of consultation with SHPO, the Tribes and other consulting parties.

Stipulation 11: Construction Monitoring

A monitoring and discovery plan has been prepared that addresses historic properties discovered during implementation of the Undertaking (Appendix C). At a minimum, this plan will be adopted for use throughout the Undertaking. Additional details or procedures can be adopted for use during a given phase of work in consultation among the NPS, SHPO, and Tribes. At least one archaeological monitor will be hired by the NPS for the construction phase of the Undertaking, paid for by the project during each separate phase.

Stipulation 12: SHPO and Tribal Review Periods

1) Historic Properties (non-archaeological)

The NPS shall submit the results of all efforts to identify historic properties, NRHP eligibility determinations, Assessments of Effect, discovery plans, and treatment plans to the SHPO for a 21-calendar-day review and comment period, which starts when the submittal is received at the SHPO. If the SHPO and/or other consulting parties do not respond to the NPS within 21 calendar days of receipt of the submittal, the NPS may assume the SHPO does not object to the NPS findings and recommendations as detailed in the submission. If the SHPO does not respond, or does not object, or propose changes that the NPS accepts, no further review is required and the NPS may proceed according to its findings and recommendations.

2) Archaeological Sites and Isolates

The NPS shall submit the results of all efforts to identify historic properties, NRHP eligibility determinations, Assessments of Effect, discovery plans, and treatment plans to the SHPO for a 30-calendar-day review and comment period, which starts when the submittal is received at the SHPO. If the SHPO and/or other consulting parties do not respond to the NPS within 30 calendar days of

PROGRAMMATIC AGREEMENT

receipt of the submittal, the NPS may assume the SHPO does not object to the NPS findings and recommendations as detailed in the submission. If the SHPO does not respond, or does not object, or propose changes that the NPS accepts, no further review is required and the NPS may proceed according to its findings and recommendations.

Stipulation 13: Additional Provisions

A. Dispute Resolution

- 1) The signatories agree that this PA shall guide the implementation of the Undertaking for addressing its effects to and treatment of historic properties until this PA expires or is terminated. Should any of the signatories of this PA at any time object in writing to the manner in which the terms of this PA are implemented, to any action carried out or proposed with respect to implementation of this PA, or to any document prepared in accordance with and subject to the terms of this PA, the objecting party shall notify the other signatories of this PA. The signatories shall consult for 30 days from receipt of the notice of objection to promptly resolve the objection.
- 2) If the objection is resolved through consultation, the NPS shall notify the other signatories of the terms of the resolution, and the NPS may proceed in accordance with the terms of such resolution.
- 3) If after initiating consultation, the NPS determines that the objection cannot be resolved through consultation, or if the duration of the consultation has exceeded 30 days from the commencement of consultation to resolve the dispute, the NPS shall forward all documentation relevant to the objection to the ACHP, including the NPS's proposed resolution of the objection, with the expectation that the ACHP will within 30 days after receipt of such documentation:
 - a) Advise the NPS that the ACHP concurs in the NPS's proposed resolution of the objection, whereupon the NPS shall notify the other signatories, and NPS shall resolve the objection accordingly; or
 - b) Provide the NPS with recommendations, which the NPS shall take into account in reaching a final decision to resolve the objection. The NPS shall notify all the signatories and the ACHP of its final decision. If the ACHP or any of the signatories object to the final decision, the objecting party shall notify the other signatories and the ACHP, and the ACHP shall follow the procedures at 36 CFR 800.7(c).
- 4) The procedures outlined in Stipulations 13A(1 to 3), above, shall apply only to the subject of the objection. The NPS's responsibility to carry out all actions under this PA that are not the subjects of the objection, and which do not foreclose the consideration of alternatives to resolve the objection, shall remain unchanged.
- 5) At any time during implementation of the terms of this PA, should a member of the public object to the manner of such implementation, the NPS shall consult with the objecting party and, if the objecting party so requests, with the other parties to this PA, for no more than 30 days. Within 30 days following closure of this consultation period, NPS will render a decision regarding the objection and notify the other parties of its decision in writing. In reaching its decision, NPS will take all comments from the other parties into consideration.

B. Scope of Agreement

This Programmatic Agreement is limited in scope to those activities associated with the Undertaking and is entered into solely for that purpose.

PROGRAMMATIC AGREEMENT

C. Amendments

The NPS or SHPO may propose that this PA be amended, whereupon the NPS and SHPO shall consult to consider such amendment. This PA may be amended only upon the written agreement of the NPS and SHPO. The amended PA shall take effect on the date that it was executed by the NPS and the SHPO.

D. Termination

- 1) If the NPS or SHPO propose termination of this PA, the party proposing termination shall, in writing, notify the other, explain the reasons for proposing termination, and consult for 30 days to seek alternatives to termination.
- 2) Should such consultation fail, the party proposing termination may terminate this PA by promptly notifying in writing the other. Termination hereunder shall render this PA without further force or effect.
- 3) Should this PA be terminated, the NPS shall undertake consultation in accordance with 36 CFR 800.6(b).

E. Failure to Carry Out the Agreement

In the event the NPS does not carry out the terms of this agreement, the NPS will comply with 36 CFR Part 800.4 through 800.6 with regard to the individual undertaking covered by this agreement.

F. Review of the Agreement

- 1) On or before January 15 of each year until the NPS has completed its responsibilities under this programmatic agreement, the NPS will prepare and provide to the SHPO an annual report describing how it is carrying out its responsibilities. The NPS shall ensure that its annual report is made available for public inspection, that consulting parties and potentially interested members of the public are made aware of its availability, and that the interested parties are invited to provide comments to the SHPO, as well as to the NPS.
- 2) The SHPO may monitor activities carried out pursuant to this agreement, and the ACHP will review such activities if so requested. The NPS shall cooperate with the SHPO in carrying out their monitoring and review if they choose to do so.
- 3) At the request of any party to this agreement, a meeting or meetings may be held to facilitate review and comment or to resolve questions. If all parties agree that an amendment is needed such amendment shall be implemented according to Stipulation 13 C.
- 4) Signatories to the Agreement shall meet to review the Agreement at least every five (5) years to insure that current staff for all parties are familiar with the agreements and all of the provisions. If all parties agree that an amendment is needed such amendment shall be implemented according to Stipulation 13 C.

G. Duration of the PA

Unless terminated pursuant to Stipulation, 13, section D., the duration of this PA is ten years from the date of its execution or until this project is complete, whichever is shorter. If necessary, NPS shall initiate consultation with SHPO approximately one year prior to the expiration of this PA to reconsider its terms. Reconsideration may include the continuation or revision of this PA by amendment or termination.

H. Effective Date of the PA

This PA shall take effect on the date that it has been signed by SHPO.

PROGRAMMATIC AGREEMENT

Anti-Deficiency Act

Any requirement for the payment or obligation of funds by the Government established by the terms of this PA shall be subject to availability of appropriated funds. No provision of this PA shall be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act, 31 USC Section 1341. If the availability of funds and compliance with the Anti-Deficiency Act impair the NPS' ability to perform under this PA, then the NPS shall consult in accordance with Stipulation 6 of this PA.

Execution of this PA, its subsequent filing with the ACHP, and implementation of its terms evidence that NPS has taken into account the effects of this UNDERTAKING on historic properties and has afforded the SHPO, the ACHP, Western Federal Lands Highway Department/Department of Transportation, the Klamath Tribes, and the Cow Creek Band of the Umpqua Tribe of Indians an opportunity to comment on the UNDERTAKING and its effect on historic properties.

SIGNATORIES

By:  Date: 5/16/13
Craig Ackerman, Superintendent, Crater Lake National Park
Scott Burd Acting

By:  Date: 6.5.13
Roger Roper, Deputy SHPO, Oregon State Historic Preservation Officer

CONCURRING PARTIES

By: _____ Date: _____
Klamath Tribes

By: _____ Date: _____
Cow Creek Band of the Umpqua Tribe of Indians

PROGRAMMATIC AGREEMENT

EXHIBIT 1. Section 106 Programmatic Agreement Annual Report Cover Letter.
January 15, 2015

Mr. Roger Roper
Deputy State Historic Preservation Officer
Oregon State Historic Preservation Office
725 Summer Street, NE, Suite C Salem, OR 97310-1271

Ms. Carol Legard
Advisory Council on Historic Preservation
1100 Pennsylvania Avenue, NW, Suite 809
Washington, DC 20004

Mr. Roper, Ms. Legard and Park affiliated Indian Tribes:

Attached is the annual report for the 2014 calendar of the projects processed under the Section 106 Programmatic Agreement (PA) executed by NPS, SHPO and the XXX. The PA outlines this provision of an annual listing of all projects reviewed under the provisions of the PA that are excluded from formal Section 106 review, along with findings for these projects. The annual report also includes a listing of all projects considered "undertakings" under 36 CFR 800.

The projects reviewed and processed under the PA are enumerated in the attached list. As outlined in our PA, we look forward to your acknowledgement of receipt and sufficiency of the information we have provided within the next 30 days. Please let me know if upon your review there are any questions or if you would like to meet to discuss the work we completed in 2014, or if your office feels the PA needs to be modified in any way.

Sincerely,

Craig Ackerman
Superintendent, Crater Lake National Park

Attachments:
CRLA Section 106 Programmatic Agreement Report 2014
Memorandum Reports for Undertakings with a "No Adverse Effect" under Appendix B

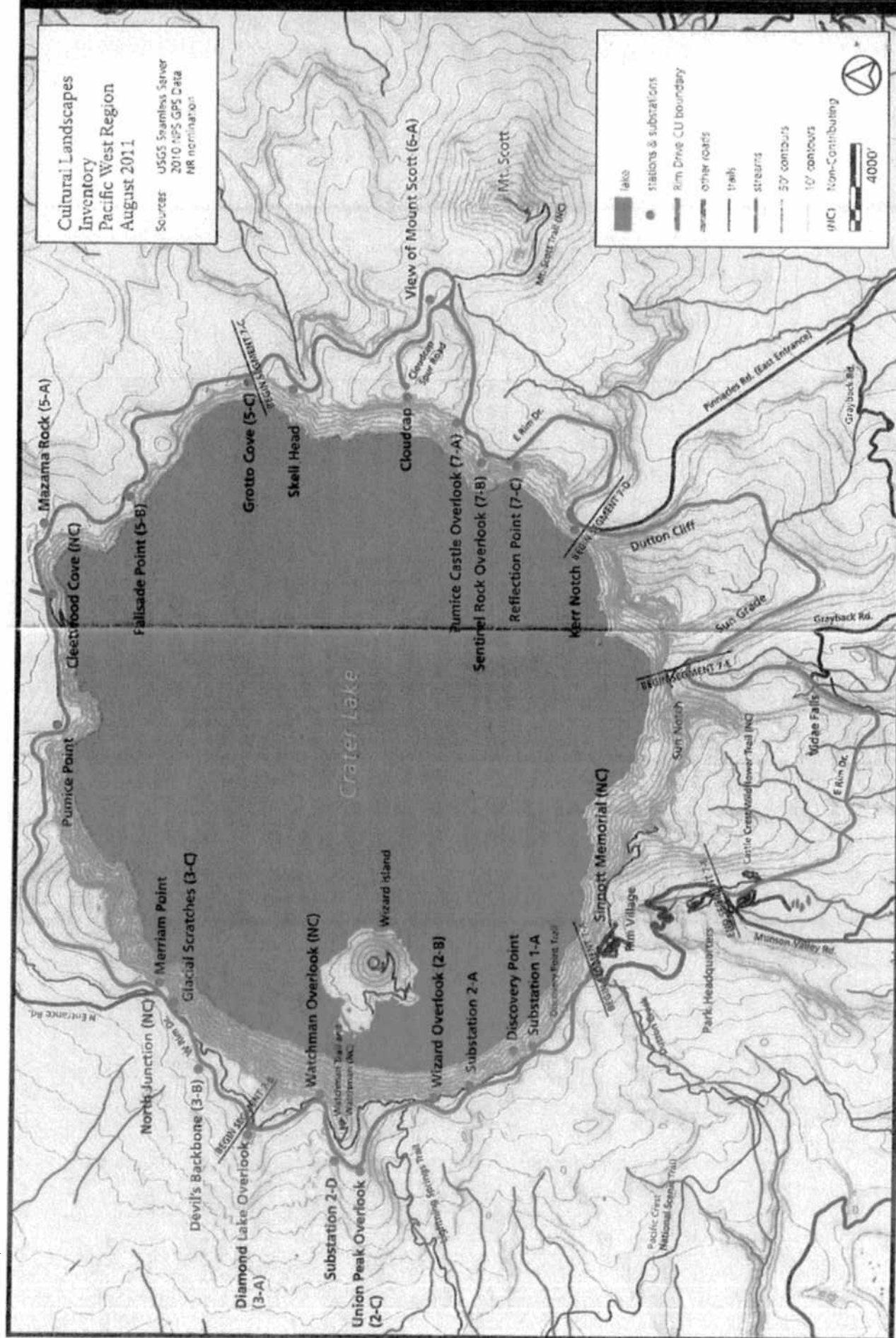
PROGRAMMATIC AGREEMENT

EXHIBIT 2. Section Two CRLA Specific Programmatic Agreement Annual Report Template

Park ID	PERC Title	Approval Date	Assessment of Effect	Documentation Method	Streamline Criteria	NPS Cultural Resources Reviewer	Discipline	SHPO Consult Required	THPO Consult Required	Additional Consulting Parties	Memorandum Report Included Yes/No	If Previously Surveyed SHPO Report Number
CRLA 25032	Streamlined Curio Historic Curio Headwall Repair	8/25/2014	No Adverse Effect	Streamlined Review (P2A) Appendix B	1. Repatriation/Installation of remaining walls, masonry guardrails, foundation stone steps, stone capping, culvert headwalls and outlets, and masonry way-side exhibit bases	Steve Mark, Historian	Above Ground Historic Resources	NO	NO	NO	YES	
CRLA 25039	Wayside Exhibit Replacements	8/22/2014	No Effect	Streamlined Review (P2A) Appendix A	1. Replacement of existing interpretive panels in historic museum house	Steve Mark, Historian	Above Ground Historic Resources	NO	NO	NO	NO	
CRLA 32703	Install new Traffic safety signs along Rom Drive between MP 1.0 and MP 6.5	8/22/2014	No Effect	Streamlined Review (P2A) Appendix A	2. Installation of new sign posts, back-sight devices, and improved crossing surfaces, as well as Archaeological survey that have been previously identified	Lava Beds Archaeologist	Archaeology	NO	NO	NO	NO	CR-06-2465
CRLA 32158	Re-establish native vegetation in the Lofth Island at Chetwood Cove	8/22/2014	No Adverse Effect	Streamlined Review (P2A) Appendix B	3. Replanting of existing planting beds with key cultural and native vegetation from the historic period	Lava Beds Archaeologist	Archaeology	NO	NO	NO	YES	CR-09-3245
CRLA 30107	Replace A badly deteriorated picnic tables in-kind at Grobo Cove	8/22/2014	No Adverse Effect	Streamlined Review (P2A) Appendix B	2. Repair if possible and in some cases replacement of small features such as picnic tables, fireplaces, benches, decking foundations and fencing that has become unserviceable and in-repairable.	Steve Mark, Historian	Above Ground Historic Resources	NO	NO	NO	YES	
CRLA 36081	Replace the existing and install new curio stones along the new handicap parking space in front of Fern Lodge	8/22/2014	No Effect	Streamlined Review (P2A) Appendix A	11. Repair, Replacement, and upgrading of curio and/or stone walls to meet ADA requirements	Steve Mark, Historian	Above Ground Historic Resources	NO	NO	NO	NO	

Crater Lake National Park, Oregon

Appendix D: Rim Drive Historic District Site Plan



PROGRAMMATIC AGREEMENT

APPENDIX A: Program Undertakings Eligible for Alternative Review Procedures- Summarized in the Annual Section 106 Report (No Effect)

The following activities eligible for Alternative Review have no potential or minimal potential to cause effects to historic properties if the activity: does not physically impact historic resources and/or materials, conforms to the applicable portion(s) Rim Drive Cultural Landscape Report, and the improvement is determined to not increase the visibility of the structure, object, or building as constructed or altered and the activity does not involve "replacement or upgrade" of historic resources and/or materials. These undertakings will not require review by the SHPO provided all terms and conditions of this Agreement are met.

1. Replacement of existing interpretive panels in historic masonry bases.
2. Installation of new sign posts, interconnection devices, and improved crossing surfaces insofar as such activities cause minimal ground disturbance and are in areas where previous ground disturbance has taken place or archaeological survey has been previously completed and no archaeological resources will be affected.
3. Replacement and upgrade of safety barrier and guardrail within the disturbed right-of-way that do not require the addition of fill material or grading outside of the existing roadway prism.
4. In-kind repair or replacement of existing signs, paved ditches, drop inlets, and guardrails in the same location.
5. Removal or replacement of roadway markings such as painted stripes, raised pavement markers, thermoplastic tape, or installation of sensors in existing pavements.
6. Modification of traffic control systems or devices using existing infrastructure including installation, removal, or modification of regulatory, warning or informational signs.
7. Replacement or modification of existing highway directional, safety and/or operational signs, providing that these follow recommendations in the Rim Drive Cultural Landscape Report.
8. Preservation of pavement including overlaying, inlaying, milling, grooving or resurfacing of existing ramp, roadway and parking lot surfaces where there will be no expansion of the surface area.
9. Correcting substandard roadway geometries and intersections (i.e., spot improvements), provided such corrections do not extend beyond the limits of the existing road prism.
10. Minor safety related drainage improvements Including:
 - a. Installation, replacement and extensions of pipes;
 - b. Addition of pipe end sections or traversable grates; and
11. Repair, Replacement, and upgrading of curbs and/or sidewalks to meet ADA Requirements.
12. Rockfall Mitigation activities when the project area has been previously disturbed by the construction and/or maintenance of Rim Drive and associated roads. Typically slopes or cliffs that present rockfall hazards are nearly vertical and unlikely locations for archaeological remains. In the case of Rim Drive nearly all these slopes and cliffs were created by the cut and fill necessary to construct and maintain the roadway.

PROGRAMMATIC AGREEMENT

APPENDIX B: Program Undertakings Eligible for Alternative Review Procedures-Summarized in the Annual Section 106 Report (No Adverse Effect)

The following activities involving the National Register-listed Rim Drive Historic District and similar resources determined to be eligible for listing will have no adverse effect and are only eligible for Alternative Review if carried out according to the specific resource-type provisions described in the *Rim Drive Cultural Landscape Report, Chapter Four: Preservation Guidelines and Chapter Five: Specific Treatment Recommendations*, and the undertaking is determined to not increase the visibility of the structure, object, or building.

1. Repair/rehabilitation of retaining walls, masonry guardrails, foundations/footings, stone steps, stone curbing, culvert headwalls and outlets, and masonry wayside exhibit bases.
2. Repair if possible and in some cases replacement of small features such as picnic tables, fireplaces, benches, drinking fountains and fencing that has become unserviceable and un-repairable.
3. Replanting of existing planting beds with key cultural and native vegetation from the historic period.
4. Restoration of individual sites to maintain the condition of cultural and natural resources especially those specifically identified in the *Rim Drive Cultural Landscape Report, Chapter Six: Opportunities for Restoration*, when such activities are based on, or consider the intention of, original plans and specifications.

Specific activities listed in items 1 thru 4 above would be reported to SHPO in a short memorandum report, included with the Annual Report. The memorandum report will describe the undertaking and how it conformed with the Treatments described in the Rim Drive Cultural Landscape Report, along with a map/maps depicting the project location, before and after photo documentation, sufficient information describing how the work was accomplished, and reference to the section of the Cultural Landscape Report providing treatment guidance. For example, the memorandum report for repointing a Historic Masonry Guardrail along Rim Drive should clearly state that all repairs to the specific wall were done according to the "Repair and rehabilitation of stone masonry as described in the Rim Drive Cultural Landscape Report, pages 182 through 191."

PROGRAMMATIC AGREEMENT

APPENDIX C: Monitoring and Discovery Plan, Crater Lake National Park, Updated, 2013

INTRODUCTION

Adoption of this monitoring and discovery plan is designed to satisfy the requirements of Section 106 concerning historic properties discovered during the implementation of an undertaking [800.11(a)(b)(1)J]. The continuation of the phased rehabilitation of the Crater Lake Rim Drive project (project) has the potential to unintentionally impact historic properties that are listed, or are eligible for listing, in the National Register of Historic Places (NRHP or National Register). Likewise, currently unknown historic properties may be discovered and impacted with the onset of construction. Adherence to this monitoring/discovery plan will expedite both the identification of previously unknown sites and the assessment of effects, while minimizing construction delays and site impacts. A National Park Service archaeologist/monitor (NPS archaeologist), who meets or exceeds the Secretary of the Interior's standards, will be employed by the park during the ground disturbing activities associated with the proposed undertaking.

THE MONITORING PLAN

The NPS archaeologist/monitor will observe ground-disturbing activities in areas of known sites or sensitive features associated with East and West Rim drives. Elsewhere, if previously unknown cultural materials or features are encountered within a given area of potential effect (APE), all ground disturbances within the immediate area will be stopped and the NPS archaeologist/monitor will be promptly notified. In all cases, the NPS archaeologist/monitor will inspect, record, and evaluate any newly exposed cultural material. The NPS archaeologist/monitor will immediately send recommendations to the project supervisor regarding the need to temporarily cease, or modify, the construction activity within the APE. If necessary, further investigation may be recommended (e.g., data recovery procedures). Protective fencing or alternative barriers will be used as necessary to ensure that new or additional impacts do not occur. The NPS archaeologist/monitor will have the responsibility of defining and executing the appropriate level of recordation and any sampling or collecting strategies. On the whole, however, it is recommended that collection be kept to a minimum. The emphases should be on quickly assessing the material's or feature's importance and identifying whether any additional data recovery is warranted. Specific procedures, as outlined below for discovery situations, will be followed. All monitors will meet, or will be under the direct supervision of someone who meets, the professional qualifications of an archaeologist as identified in 36 CFR 61. All reasonable efforts will be made to minimize both construction delays and inadvertent impacts to cultural resources, including Traditional Cultural Properties (TCPs). All monitors will work closely with construction personnel. An orientation meeting will be held prior to the onset of construction to familiarize key contractor personnel with cultural resource regulations, concerns, and procedures, including the penalties for intentionally damaging historic properties or illegally collecting archaeological resources (43 CFR 7.4). Procedures will be established in the contract specifications for notifying and updating the NPS archaeologist/monitor on the schedule of ground-disturbing activities in the vicinity of known sites.

THE DISCOVERY PLAN

For the purposes of this plan, a "discovery" means physical impact on, or exposure of, any human remains or associated funerary objects or objects of cultural patrimony; any portion of a previously unknown archaeological site, feature, or TCP; or inadvertent impact or exposure of a known burial, archaeological site, feature, or TCP. The following procedures will be employed when a discovery occurs during implementation of all remaining phases of the project.

PROGRAMMATIC AGREEMENT

- 1) The physical site of the discovery will be protected from further impact as quickly as possible. The NPS archaeologist will be notified immediately. If human remains or other items addressed by NAGPRA are involved, the NPS archaeologist will make immediate contact with pertinent park staff, law enforcement officials, and American Indian contacts as specified in the act.
- 2) If the discovery is made by an archaeologist/monitor as part of the monitoring program, he/she will immediately notify the government's Contracting Officer and Contracting Officer's Representative, and the contractor's field representative (e.g., crew boss/foreman) assigned to the project. The key players will cooperate to quickly halt any additional impact and to safeguard the discovery.
- 3) At the earliest possible opportunity, the NPS archaeologist/monitor will inspect the discovery and determine its nature and extent. Any recommendations for prompt action will be made to the project supervisor and appropriate notifications and consultations will begin. Photographs, maps and measurements, and samples will be undertaken at the monitor's discretion. The monitor will maintain a record of all actions and observations. The monitor will prepare and submit a report of all monitoring/discovery methods and findings including: soil descriptions, level and depth of previous disturbance in the area and any other cultural remains observed. The monitoring report will be prepared and submitted to the State Historic Preservation Officer (SHPO), the tribes, and other interested parties as appropriate for consultation and concurrence concerning the Assessment of Effect (AoE) and Determination of Eligibility (DoE). Notification will be by telephone, return receipt email, or facsimile (FAX) and a hard copy of the report will be mailed to the SHPO and other interested parties for archival documentation. Because of the costs associated with construction delays, the SHPO will respond to and concur with, request additional data, or make alternate AoE and/or DoE assessments for NPS consideration within 48 hours (not including week-ends or legal holidays) by email and/or FAX.
- 4) If the resource appears to be eligible for the National Register, initial notification by telephone to parties outside of the park will be made by the NPS archaeologist. Minimally, this notification will include area American Indian contacts, and SHPO. Preliminary decisions will be made in consultation with appropriate NPS Park, regional office or network staff and the Contracting Officer regarding any need for emergency funds, project extensions, and project redesign.
- 5) The significance of any discovery, and thus the degree to which efforts beyond initial inspection and identification are to be made, will be assessed immediately using available data. Discoveries will be evaluated within the broad context of contemporary research issues and concerns relating to the pre-settlement and settlement of the Crater Lake region. These issues include cultural chronology, economic exploitation and trade, paleo-environment, settlement patterns, social history transportation, and recreation. Minimally, a discovery will be considered significant if it displays at least one of the characteristics outlined below.
 - a) The presence of human remains.
 - b) The presence of sacred objects, funerary objects, or objects of cultural patrimony (see NAGPRA).
 - c) Cultural or religious importance for a local community.
 - d) The presence of a buried cultural feature (e.g., fire hearth, storage pit, or structure).
 - e) The presence of undisturbed, radio-metrically datable cultural material (e.g., charcoal, wood, shell, or animal bone).

PROGRAMMATIC AGREEMENT

- f) The presence of undisturbed material suitable for obsidian hydration or X-ray fluorescence (trace-element) analyses.
- g) The presence of activity areas or features yielding temporally or culturally diagnostic artifacts (e.g., projectile points, basketry, pottery, coins, bottles, or cans).
- h) The presence of organic refuse (e.g., trash pits or true middens) or undisturbed paleo-environmental data (e.g., floral or faunal remains including pollen, seeds, nuts, bone, and organic residue).

6) Limited testing (i.e., shovel or auger probes) will be conducted at the NPS archaeologist's or monitor's discretion when a discovery's significance is ambiguous. The testing strategy will be designed to quickly gather sufficient data to make an assessment.

7) All consultations, including the development of a salvage/treatment plan, will likely be conducted through telephone, email, and FAX communication in order to minimize delays.

8) A treatment plan for data recovery of large, complex sites will be prepared in consultation with the involved parties, as appropriate, prior to the initiation of any salvage or data recovery efforts. Because of the costs associated with construction delays, the SHPO will respond to and approve the plan within 48 hours (not including week-ends or legal holidays) by telephone and/or email and/or FAX. Emergency preservation and stabilization efforts will be carried out at the monitor's discretion.

9) If SHPO concurs that discoveries are non-significant they will not receive additional treatment beyond initial inspection, identification, and reporting.

10) If a discovery is believed to be significant, the NPS archaeologist, project supervisor, park superintendent, and DSC/FHWA engineers and designers will explore the feasibility of changing the project design to avoid the resources. If avoidance is infeasible, then data recovery procedures will be developed specific to the resource, and, in accordance with The Secretary of Interior's Standards and Guidelines for Archeology and Historic Preservation, NPS management policies and guidelines, and the procedures outlined below. As appropriate, significant discoveries will be subjected to the following general procedures.

- a. All significant discoveries will be point-plotted using a Global Positioning System (GPS) unit and mapped in plan view, showing the relationship of the discovery to the project area, pertinent cultural and natural features, surface artifacts, and existing ground surface. Minimally, the map will be executed using a compass and tape measure.
- b. All cultural features, including exposed trash pits and refuse middens, will be mapped and photographed in both plan view and profile. Partial or full excavation of feature fill is at the discretion of the monitor.
- c. Feature fill soil columns and flotation samples will be collected at the discretion of the monitor. Potential collections include charcoal fragments, wood, pollen, shell, and animal bone. Analyses will be conducted at the discretion of the NPS archaeologist, in consultation with the SHPO.
- d. Testing or auger probes may be executed mechanically or by hand. Probes will be spaced

PROGRAMMATIC AGREEMENT

and aligned at the discretion of the monitor, with the goal of defining feature or site boundaries and depths of cultural material previous disturbance. Minimally, all probe fill will be inspected visually.

- e. Any associated excavation will be done by hand. Excavation will not be undertaken in units exceeding 1 meter by 1 meter in plan view, and will progress in 10-centimeter levels within natural levels. All fill will be screened through hardware cloth mesh preferably $\frac{1}{8}$ inch and no larger than $\frac{1}{4}$ inch. Standard archaeological recording methods and terminology will be used.

PROGRAMMATIC AGREEMENT

APPENDIX D: Definition of Terms

Archaeologist: A "Qualified Archaeologist" is an individual who meets the Secretary of the Interior's qualifications as defined in 36 CFR 61.

Archaeological Monitor: An Archaeological Monitor shall be a "Qualified Archaeologist" who meets the Secretary of the Interior's qualifications as defined in 36 CFR 61, employed to visually inspect and monitor all excavations and ground disturbing activities with the potential to affect historic properties or in areas where surface indications of patterned cultural activities have been covered, obliterated or otherwise altered.

Geotechnical Investigations: Includes drilling and auguring up to 12 inches in diameter and the use of existing access roads.

Historic Preservation Activities: The act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction.

In-Kind Replacement: For the purposes of this agreement, In-Kind Replacement is defined as the replacement of historic features with matching historically correct features of appearance, type, material and craftsmanship.

Minor Ground Disturbance: In areas of low archaeological potential, alteration of the landscape that does not appreciably change the landform or alter large portions of the substrate. Examples include: (1) the installation of structures with a small below-ground footprint, such as signs or approved Manual on Uniform Traffic Control Devices (MUTCD) sign arrays; and (2) surface grading or shallow installations on relatively flat ground, including, grading for surface runoff, excavation for sidewalk construction or other similar activities.

Qualified Cultural Resources Specialists: Includes an archaeologist, cultural anthropologist, historic landscape architect, and historian meeting the qualifications established in 36 CFR Part 61.

Park Associated Indian tribes: A Federally recognized tribe whose aboriginal territory included some or all of the current area managed as a national park, often established by means of approved documentation meeting NPS standards for an archaeological overview, traditional use study and/or ethnohistory.

Road Prism: The three-dimensional area of a road that has been previously disturbed by roadway construction. This includes ditches, cuts, and fills on either side of the roadway and marked by the toe of the back slope.

PROGRAMMATIC AGREEMENT

APPENDIX E: References Cited

- Boston, Richard
2010 Cultural Resources Survey of the Proposed West and East Rim Drive Rehabilitation and Rockfall Mitigation Projects (164576) (Revised February 2013). Crater Lake National Park, United States Department of the Interior Crater Lake, Oregon.
- Deur, Douglas
2008 *In the Footprints of Gmukamps, A Traditional Use Study of Crater Lake National Park and Lava Beds National Monument*. Pacific West Region Social Science Series, Frederick F. York Managing Editor. National Park Service Publication Number 2008-01.
- Germano, Vida and Cortney Gjestfjeld
2011 Rim Drive Cultural Landscape Inventory, Crater Lake National Park, Oregon. Document produced by Pacific West Regional Office with Appendix D, map of Rim Drive, August.
- Mark, Stephen R. and Churchward
2009 Reconnaissance of abandoned sections of old Rim Road, Memorandum to the Superintendent, Crater Lake National Park, October 22, file code H2215.
- Mark, Stephen R. and Jerry Watson
2008 *Rim Drive Cultural Landscape Report Crater Lake National Park, Oregon*. Pacific West Region: Social Studies Series, Frederick F. York Managing Editor. National Park Service Publication 2009-01.

ERRATA - Response to Comments

December 2012 Environmental Assessment

Rehabilitate East and West Rim Drives and Rockfall Mitigation Crater Lake National Park

The following contains responses to substantive comments received on the Environmental Assessment. No changes in the text of the EA were made as a result of these comments.

Comment: Additional pullouts are needed, not removal of existing ones.

Response: Pullouts identified for removal and reclamation as described in the EA are informal or "social" pullouts created primarily by vehicles pulling off the road shoulder. Informal pullouts have been identified as deficient due to structural integrity because they were not professionally designed and constructed to standards. Several of the pullouts lack adequate sight distance and are a safety concern. As stated in the EA in "Chapter 1: Purpose and Need," the purpose of this project is to "correct road and associated parking and pullout deficiencies to improve safety for park visitors and personnel, reduce maintenance requirements and costs, and extend the useful life of the road." The addition of new pullouts is beyond the purpose and scope of the project, which is to fix existing roadside structural deficiencies. The objective of Rim Drive rehabilitation is to return the roadway to its original historic configuration and engineering design.

Comment: East Rim Drive should be a one-way road and West Rim Drive should be a two-way road.

Response: As stated on page 46 of the EA, a one-way system around much of Rim Drive was used for a period beginning in 1971; however, visitors complained of having to travel longer distances and the park noticed that average speeds increased with one-way traffic, as did traffic accidents (NPS 2009). Converting part of Rim Drive to one-way travel was not the selected alternative approved in the Record of Decision on the General Management Plan. In addition, the intent of this project is to address existing structural deficiencies of the road; not to change the current use. Changing the current use is beyond the scope of this project.

Comment: Removal of pullouts would impact the visitor use and experience.

Response: None of the existing paved or formal pullouts currently maintained by the park will be removed. The unauthorized dirt or gravel pullouts along Rim Drive are not part of the roadway design and are not maintained. Informal pullouts were identified for removal and rehabilitation for the following reasons:

- **Operational efficiency** – the pullouts are not formally recognized features of Rim Drive and were not developed by the park. The deferred maintenance backlog on the formally recognized features on park roads exceeds current and foreseeable funding levels, which is emphasized by the fact that the operable season is only three to four months of the year. According to the NPS Capital Investment Strategy (NPS 2012), parks are directed to identify areas that are not formally recognized features within the park for reclamation whenever possible to ensure that funding is being allocated for maintenance in the areas that will produce the optimal impact and results for the park's mission.
- **Public health and safety** – Informal pullouts were not formally developed by the park and there was no consideration for visitor use management or environmental impacts. In many cases the pullouts are located in areas with poor sight distance for traffic entering and exiting the roadway which causes a public safety concern. With the 75 formal pullouts designated

within the park and other parking, there is ample opportunity for visitors to view the lake and park features in a safe manner.

- **Natural resource impacts** – Vehicles pulling off the road shoulder at undesignated locations has resulted in resource damage at some locations. Vehicle use of these pullouts have damaged or eliminated vegetation, contributed to the establishment of noxious weeds, compacted soils, and increased the potential for erosion that impacts water quality. Reclamation of these sites with native vegetation is needed to protect and restore park natural resources.

Comment: Removal of pullouts would impact park maintenance, law enforcement, search and rescue, and interpretive activities.

Response: The 75 formal pullouts designated within the park provide opportunities for park maintenance, law enforcement, and interpretive staff; and search and rescue operations to perform their duties in a safe manner. Reclamation of informal pullouts will not preclude emergency vehicles from temporarily parking on the road shoulder as safety and conditions allow.

Comment: Removal of pullouts would be a safety hazard for motorists, bicyclists, and pedestrians.

Response: Most of the informal pullouts are being removed and reclaimed because they are a safety hazard for motorists due to the limited sight distance, improper slope, dirt/gravel surface, inadequate space for ingress and egress, and lack of maintenance.

Comment: Removal of pullouts would impact trolley operations.

Response: The proposed top paved width (22 feet) including the reconstructed road base is designed with gravel foreslopes which adds an additional 3 feet on either side of the paved roadway, making the road wider and safer than current conditions in many locations. Should vehicles need to move over to let other traffic pass, there will be more opportunities to do this and not be limited to the periodic informal pullouts. In addition the existing 75 formal pullouts designated along Rim Drive and additional parking lots provide sufficient opportunities for trolley operations to conduct their services in a safe manner.

Comment: Removal of pullouts would jeopardize the road's historic status.

Response: None of the informal pullouts planned for removal and reclamation are contributing elements to the Rim Drive Historic District. Reclamation of these pullouts will not alter any historic features or the road's historic status.

A Programmatic Agreement (PA) was developed between the park and the Oregon State Historic Preservation Office (SHPO). The PA provides recommendations to protect the cultural and historic resources of Rim Drive throughout the rehabilitation project. Although none of the pullouts identified for removal have been identified as contributing elements to the road's historic status, implementation of the PA will provide for continued Section 106 consultation between the NPS and SHPO and stipulate the continued identification and assessment of effect for historic properties and any needed mitigation.

Comment: Removal of pullouts would encourage visitor-created pullouts.

Response: The rehabilitation of Rim Drive is intended to improve the safety of the road for visitors, including improvements to the existing formally developed pullouts. While the park cannot guarantee that additional informal pullouts will not be created by visitors, park staff will encourage visitors to use the pullouts provided by the park to enhance their experience of the park, prevent resource damage, and provide a safe environment for enjoying the park.

Comment: Removal of pullouts would result in over-crowding at other pullouts, parking lots, or environmentally sensitive areas.

Response: See response to Concern Statement 3 regarding resource damage resulting from informal pullouts. In addition, the park believes that the existing formal pullouts and parking around Rim Drive provide adequate parking for visitors on most days, except at Cleetwood Cove where additional parking will be added.

Comment: Removal of pullouts would impact access for handicapped and elderly visitors.

Response: While many of the formally developed pullouts within the park have wheelchair-accessible wayside exhibits, the informal pullouts identified for removal are not in conformance with the Americans with Disabilities Act Standards for Accessible Design (DOJ 2010).

Comment: Not enough information was provided in the EA on removal of pullouts, such as maps of pullouts to be removed, impacts of removal, and justification for removal.

Response: The park has preliminarily identified 16 informal pullouts for removal and reclamation. The location of these pullouts is shown on the attached map. Additional informal pullouts for reclamation may be identified during final design, thus the EA conservatively estimated 25 informal pullouts for reclamation. These sites have all been evaluated by park staff as having a safety concern and/or are causing resource damage.

Comment: Removal of pullouts contradicts NPS guidance and policies.

Response: Removal of informal pullouts does not contradict NPS Management Policies 2006 regarding Park Roads (9.2.1.1). As stated in NPS Management Policies 9.2.1.1: "Park roads will be well constructed, sensitive to natural and cultural resources, reflect the highest principles of park design, and enhance the visitor experience". The informal pullouts are not well constructed; are not sensitive to natural and cultural resources; do not reflect the highest principles of park design; and because of the safety concerns, they do not enhance the visitor experience.

Section 9.2.1.2 refers to Non-NPS Roads and is not applicable to the Rim Drive rehabilitation project.

Comment: Removal of pullouts runs counter to the goals of the General Management Plan.

Response: Removal and revegetation of informal pullouts created by visitors parking along the road shoulder is not contrary to the park GMP. The GMP allows for improvements to existing pullouts and parking in response to road congestion. The informal pullouts created by visitors are not considered part of the existing maintained pullouts designed to accommodate visitor parking.

In addition, the Public Risk Management Program (DO 50) gives the park superintendent responsibility to reduce identified public safety concerns in the park, such as those created by informal pullouts"

"The means by which public safety concerns are to be addressed in each park falls under the discretion of the park's superintendent. Park superintendents will seek to identify risks within their jurisdiction and to mitigate these risks within the limits of available resources without compromising the integrity of the environments they are charged to protect."

Also, Section 8.2.5.1 of Management Policies 2006 says: 'The saving of human life will take precedence over all other management actions as the Park Service strives to protect human life and provide for injury-free visits. The Service will do this within the constraints of the 1916 Organic Act."

Comment: The EA does not address impacts of bicyclist-motorist conflicts.

Response: As stated in the EA in "Chapter 1: Purpose and Need," the primary objective of this project is to make the existing road safer and reduce maintenance costs. While the park recognizes the interface between motorists, cyclists and pedestrians, constructing bicycle lanes goes beyond this objective by not just treating the existing facility but by adding development. Narrowing the travel lanes for motor vehicles to allow a one-way bike lane would not leave sufficient width for safe vehicle travel. Design standards for bicycle lanes require a 5-foot width, which would only leave 8.5-foot travel lanes for motor vehicles. This would be inadequate to safely accommodate passenger and recreational vehicles that travel the road. Adding sufficient width to the roadway bench for both 10-foot vehicle lanes and 5-foot bicycle lanes would require extensive walls, fill slopes, and cuts and the resource impacts and financial costs are not feasible. The addition of bicycle lanes, while partially addressing the objective of improving safety for all road users, would require the park to consider broader operation and management issues, as well as other alternatives that have no bearing on the current purpose and need.

Comment: I oppose the use of mesh on rock walls due to visual impacts.

Response: Wire mesh is one of several rockfall mitigation techniques proposed for this project. The park is aware of the potential impacts to visual quality from the use of wire mesh, and for that reason, the anchored wire mesh will be designed and incorporated to blend with the natural landscape and will be placed sufficiently upslope so that it will not be visible to visitors operating a vehicle.

Comment: The placement of bolts should be random rather than in rows to avoid impacts to visual quality.

Response: Rock bolting is one of several rockfall mitigation techniques proposed for this project. The park is aware of the potential impacts to visual quality from the use of rock bolts, and for that reason, the rock bolts will be designed and incorporated to blend with the natural landscape without sacrificing the objective of stabilizing the rock.

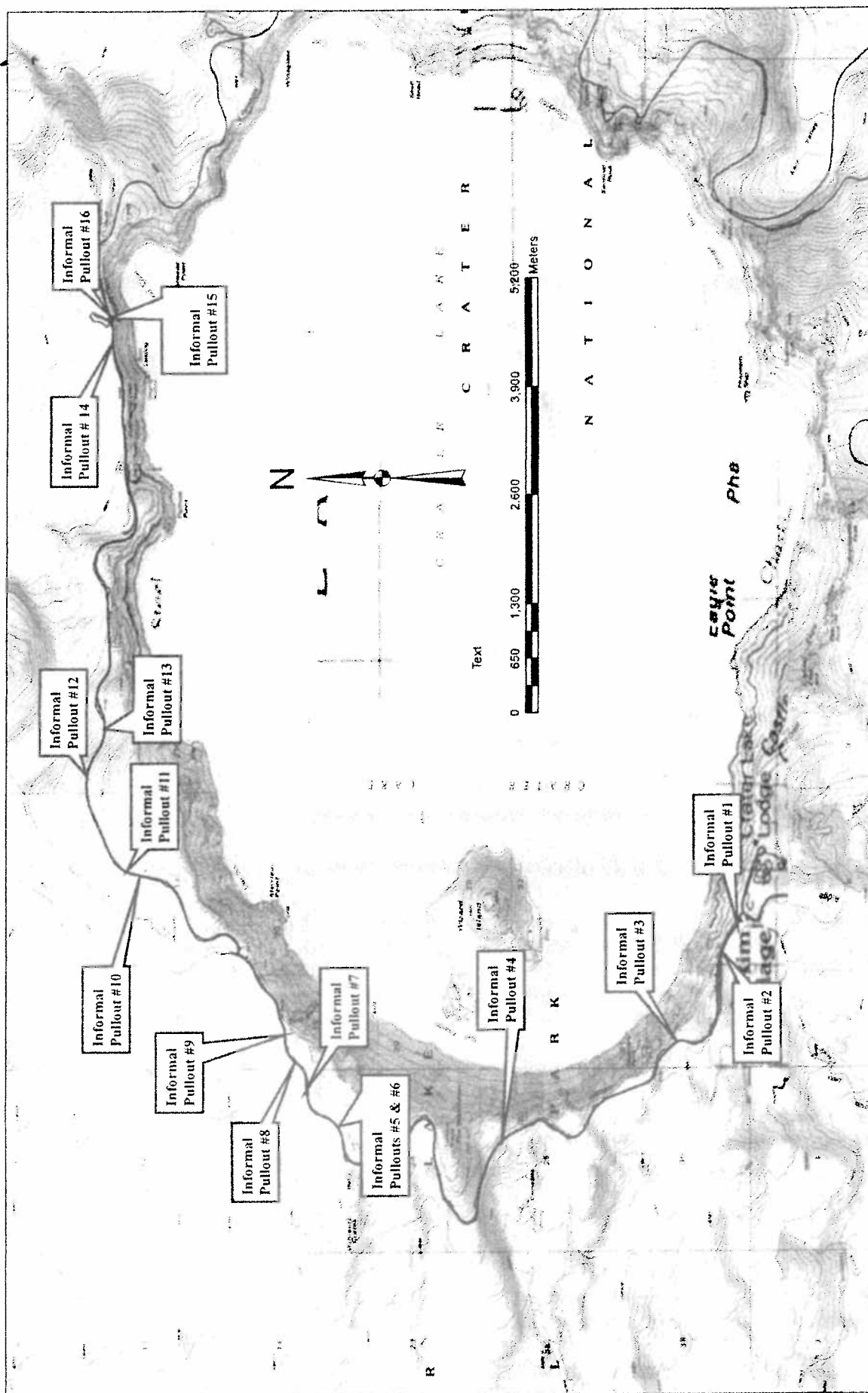
Comment: I question whether the photo representations of the rockfall mitigation techniques accurately represent the results.

Response: The photos provided in the EA are actual representations of rockfall mitigation techniques used in the past for similar projects. The design details and implementation of these techniques can depend on a number of factors, such as the type of area under consideration (a rock wall along a busy highway, rural road, scenic area, etc.), and the agency or individual managing that area. Because of the importance of the visual integrity of these walls, care will be taken in the implementation of these techniques. Contractors performing the work will be held to specific standards for workmanship and visual quality.

References

National Park Service (NPS). 2012. NPS Capital Investment Strategy Guidebook – Goals, Objectives and Functional Elements. Washington, DC. July.

U.S. Department of Justice (DOJ). 2010. ADA Standards for Accessible Design. September 15. Available at:
<http://www.ada.gov/regs2010/2010ADAStandards/2010ADAstandards.htm>.



Informal Pullouts for Reclamation

West Rim Drive	
Location Number	Location Description
1	Just north of the gates @ W. Rim
2	South side of road from first viewpoint on W. Rim
3	North, past the gates @ W. Rim
4	North of Lightning Springs picnic area before the cut slope on the left.
5 & 6	Across from the road cut after Watchman overlook.
7	Across from Last Snow pullout.
8	Just past Last Snow pullout.
9	West side of the road @ Devil's Backbone.
East Rim Drive	
Location Number	Location Description
10	East of the gate @ the North Junction intersection.
11	North side of the road.
12	North side of the road.
13	North side of the road before Grouse Hill picnic area.
14	North side of the road, just before Cleetwood Trail parking.
15	North side of the road, just after Cleetwood Trail parking.
16	South side of the road just past the guardrail after the Cleetwood trailhead.