Point Reyes National Seashore
California

National Park Service
U.S. Department of the Interior

Environmental Assessment

Road Improvement and Maintenance Projects

July 2014

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POINT REYES

National Seashore - California

United States Department of the Interior – National Park Service

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Summary

The National Park Service (NPS) in cooperation with the Federal Highway Administration/Central Federal Lands Highway Division proposes to rehabilitate and repave a total of 21.8 miles of road and adjacent parking areas in Point Reyes National Seashore. This program includes four separate road projects: Rehabilitation of portions of Limantour Road, Lighthouse Road, and Chimney Rock Road, and Pavement Preservation on 15 spur roads and 21 paved parking areas. This environmental assessment examines two alternatives: no action and the NPS proposed action alternatives. The proposed action includes upgrading road and parking surfaces and drainage features, installing new signs, striping the roads and parking areas, downsizing a beach-side parking area, and improving accessibility at two parking areas.

The National Park Service has carried out partial and temporary repair projects over the years to keep the roads and parking areas operational and to meet the needs of the traveling public. The roads and parking areas are now at an age where they are deteriorating at an accelerated pace and may require vehicle restrictions or closures if not rehabilitated in the near future. The project roads and connected parking areas need to be rehabilitated and paved surfaces restored to extend their service life, and/or reduce long-term maintenance requirements.

Notes to Reviewers and Respondents

This document will be available for review and comment for 30 days. If you wish to comment on the environmental assessment, you may mail comments to the name and address below or you can provide comments through the NPS Planning and Environment Public Comment (PEPC) website. The public access site for this project is: http://parkplanning.nps.gov/prnsroadea. A link to the site is also available from the Point Reyes National Seashore website: www.nps.gov.pore. Before including your address, phone number, e-mail address or other personal identifying information in your comment, you should be aware that your entire comment – including your personal identifying information – may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we would be able to do so. We would make all submissions from organizations, businesses, and individuals identifying themselves as representatives or officials of organizations or businesses available for public inspection in their entirety.

Please address written comments to:

PORE Roads EA
c/o Superintendent, Point Reyes National Seashore
1 Bear Valley Road
Point Reyes Station, CA 94956

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INTRODUCTION

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The project roads are in Point Reyes National Seashore in Marin County, California. Limantour Road is approximately 7.6 miles long and begins at the intersection of Bear Valley Road and extends westward towards Limantour Beach. Lighthouse Road starts at the intersection with Sir Francis Drake Boulevard and proceeds westward 2.1 miles to the Historic Point Reyes Lighthouse. Chimney Rock Road starts at the intersection of Sir Francis Drake Boulevard proceeds 1.0 mile eastward and ends at Chimney Rock Parking Lot. Pavement on another 11.9 miles of road and 21 parking areas would be treated to extend the life of the paved surfaces and reduce maintenance costs.

The proposed action includes upgrading road and parking surfaces and drainage features, installing new signs, striping the roads and parking areas, downsizing a beach-side parking area, and improving accessibility at two parking areas. Proposed road and parking area improvement work could begin as soon as 2015.

This environmental assessment (EA) analyzes the preferred alternative and no action alternative and their potential impacts on the environment. This environmental assessment has been prepared in accordance with the National Environmental Policy Act of 1969, as amended (NEPA), and regulations of the Council on Environmental Quality (40 Code of Federal Regulations (CFR) 1508.9); NPS Director's Order 12: Conservation Planning, Environmental Impact Analysis, and Decision-making; RM-12 Handbook for Environmental Impact Analysis; and the National Historic Preservation Act of 1966, as amended (NHPA).

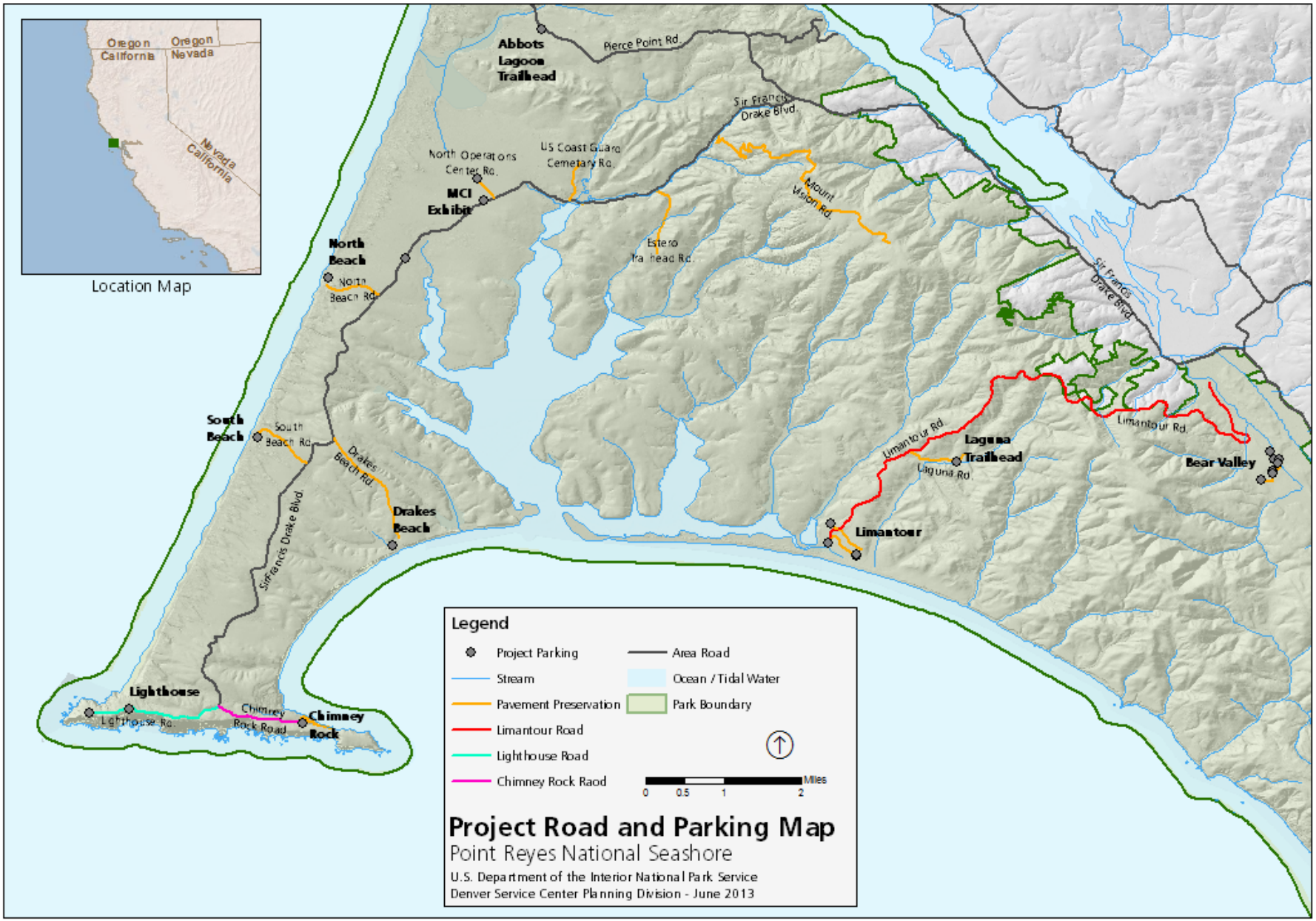


Figure 1. Project Location Map.

CHAPTER 1: PURPOSE OF AND NEED FOR ACTION

The purpose of the proposed action is to provide safe driving surfaces for all travelers on national seashore roads and to reduce the possibility of road failures and to reduce maintenance costs, while at the same time, having little or no impacts to the adjacent environment and adhering to the management philosophy for visitor access as outlined in the *General Management Plan: Point Reyes National Seashore* (NPS 1980). The management philosophy, as described in the 1980 general management plan, is to "alleviate existing problems and minimize potential ones in the interest of making park access as pleasant, safe, and convenient as possible."

The National Park Service has carried out partial and temporary repair projects over the years to keep the roads and parking areas operational and to meet the needs of the traveling public. The roads were originally unimproved dirt roads that were chip sealed and some roads have never had a full asphalt pavement surface installed. The roads and parking areas are now at an age where a comprehensive repair project is needed to ensure continued service for decades to come. They are deteriorating at an accelerated pace and may require vehicle restrictions or closures if not rehabilitated in the near future. The project roads and connected parking areas need to be rehabilitated and paved surfaces restored to extend their service life, and/or reduce long-term maintenance requirements.

The proposed action is needed because:

- If left untreated, the weathering and cracking of the project roads and parking surfaces could lead to pavement failure requiring increased maintenance and major repairs.
- A landslide damaged a 200-foot section of Limantour Road.
- Approaches to intersections on Limantour Road have sharp curves, steep profile grades, limited sight distance and minimal signage.
- Damaged or inadequately sized culverts on Limantour Road and Chimney Rock Road have caused and could cause substantial road damage.
- Drainage control issues on Chimney Rock Road have resulted in saturated road base and substantial damage to a road surface that is prone to failure because it is only a double chip seal on native material.
- Narrow travel lanes with limited and undersized passing locations on Chimney Rock Road force large buses to drive off the pavement.
- The Lighthouse and Chimney Rock parking areas lack pedestrian walkways and do not meet current accessibility standards.
- South Beach Parking area is oversized for the level of visitor parking needed for that area.

The following objectives of the proposed action are:

- Improve the safety of visitors and employees traveling on national seashore roads.
- Maintain the character of the roads and parking areas, including significant cultural landscape characteristics.
- Restore drainage features to control erosion and to protect natural and cultural resources.
- Increase accessibility for park visitors and reduce confusion regarding roadside turnouts.

- Manage roadside parking and traffic flow and increased visitor safety through improved turnouts, intersections, and road width.
- Manage and improve parking areas.
- Protect the natural and cultural resources of the national seashore and avoid or minimize impacts to seashore resources to the greatest extent possible.

PURPOSE OF POINT REYES NATIONAL SEASHORE AND PARK ROADS

An essential part of the planning for this project was consideration of the purpose of Point Reyes National Seashore and the purpose of national park roads. Congress established Point Reyes National Seashore on September 13, 1962 "to save and preserve, for purposes of public recreation, benefit and inspiration, a portion of the diminishing seashore of the United States that remains undeveloped (Public Law 87-657)." An amendment to Public Law 94-544 states that the Seashore is to be administered "…without impairment of its natural values, in a manner which provides for such recreational, educational, historic preservation, interpretation and scientific research opportunities as are consistent with, based upon, and supportive of the maximum protection, restoration and preservation of the natural environment within the area." In addition, the NPS Organic Act and its amendments (16 U.S.C. 1 et seq.) require all units of the National Park Service to both conserve park resources and values, and to "leave them unimpaired for the enjoyment of future generations."

An objective of this action is to maintain the purpose of the national seashore and road network in accordance with NPS *Management Policies 2006*: "Park roads will be well constructed, sensitive to natural and cultural resources, reflect the highest principles of park design, and enhance the visitor experience. Park roads are generally not intended to provide fast and convenient transportation; rather, they are intended to enhance the quality of a visit while providing for safe and efficient travel with minimal or no impacts on natural and cultural resources."

As stated in the 1984 NPS *Park Road Standards*, among all public resources, those of the National Park System are distinguished by their unique natural, cultural, scenic, and recreational qualities; values that are dedicated and set-aside by public law to be preserved for future generations. In general, the protection, use, and enjoyment of park resources in a world of modern technology have necessitated the development and maintenance of a system of public park roads. In most parks today, the basic means of providing for visitor and park administrative access is the park road system. For visitors, park roads provide both access and enjoyment.

PROJECT PLANNING AND SCOPING

Previous Planning

Point Reyes National Seashore has longstanding plans to improve transportation conditions, reduce congestion, and lessen environmental impacts. The Point Reyes General Management Plan (NPS 1980) recognized that visitor numbers would steadily increase and require improved transit service. This plan also identified repair of the project roads as a high priority.

Point Reyes National Seashore recently examined options for safely accommodating 2 million visitors each year. The Point Reyes Transit Access Study (Nelson\Nygaard 2009) summarized existing transportation conditions at Point Reyes National Seashore, and evaluated two existing transit services at the national seashore: the Point Reyes winter shuttle and the shuttle service between the Bear Valley Visitor Center and Limantour Beach.

The Federal Highway Administration and National Park Service did a detailed inspection of the project roads and documented the survey results and recommended repairs and improvements in "Limantour Road, Lighthouse Road and Chimney Rock Road Scoping Report" (Atkins 2011). They considered the needs of both private vehicles and large shuttle buses. The recommendations are the basis for the proposed road projects evaluated in this assessment.

Scoping

Scoping is an effort to involve agencies and the general public in determining issues to be given detailed analysis in the environmental assessment and eliminate issues not requiring detailed analysis. Scoping seeks to obtain early input from any interested stakeholder and any agency with jurisdiction by law or expertise. A press release initiating scoping and describing the proposed action was issued on July 30, 2013 (Appendix A: Public Scoping Letter), and public comments were solicited during a public scoping period that ended August 31, 2013.

Twelve comment letters were received. The topics of the substantive comments included bicyclist safety, adding bike lanes, excluding livestock, and repairing Sir Francis Drake Boulevard. These comments were addressed under the following "Visitor Experience and Safety" and "Alternatives and Options Considered but Dismissed" sections. Commenters also suggested various improvements and mitigation measures to minimize impacts including: not widening the road; not increasing the number of pullouts; not paving pullouts; adding fog lines on road edge; adding signs noting pullout locations; bio-stabilizing cut and fill slopes only; using culverts designed for greater than 100-year flood flows; test or estimate water quality from drainage ditches; installing underdrains to protect subsurface water quality; and treating polluted ditch water to protect listed species. These suggestions were considered and incorporated into the proposed project and mitigation measures to the extent practicable.

The public and agencies will have an opportunity to review and comment on this environmental assessment. "Chapter 5: Consultation and Coordination" of this document contains more information on public involvement.

ISSUES AND IMPACT TOPICS

Issues are potential environmental problems that may result from federal action, if it is taken. Issues were identified by specialists with the National Park Service, Federal Highway Administration, and by the public during scoping. Once issues were identified, they were used to help formulate the action alternative and mitigating measures. Impact topics were then selected for detailed analysis based on substantive issues; environmental statutes, regulations, and executive orders; and NPS *Management Policies 2006*. A summary of specifics and rationale for their selection are given below.

Impact Topics Selected for Detailed Analysis

Vegetation. The proposed road projects involve activities that would disturb soil and vegetation adjacent to Limantour, Chimney Rock, and Lighthouse roads. Some tree and shrub trimming would also occur along Limantour Road. The proposed activities have the potential to promote exotic invasive plants.

Special Status Species. The Endangered Species Act (1973), as amended, requires an examination of impacts on all federally endangered and threatened species. NPS Policy also requires examination of the impacts on state and locally

listed species. The proposed action could affect special status species by disturbing or removing vegetation, temporarily increasing noise and construction activities near sensitive habitat, and temporarily increasing the potential to spread nonnative plants. Therefore, special status species are addressed as an impact topic in this environmental assessment. This EA serves as the biological assessment for this project and was submitted to the U.S. Fish and Wildlife Service.

Wetlands. Repair work for the Limantour Road and Chimney Rock Road projects would affect vegetation, soils, and hydrology in and near wetlands and non-wetland waters of the United States. Special consideration of impacts on wetlands is required by the Clean Water Act, Executive Order (EO) 11990 ("Protection of Wetlands"), and NPS Director's Order 77-1: *Wetland Protection*. Therefore, impacts on wetlands and water resources are addressed in detail in this document.

Visitor Experience and Safety. Visitor experience and safety is affected by existing road conditions including narrow travel lanes, inadequate pullouts, limited signage, deteriorating road surface, failing culverts, temporary road closures for road repairs, and traffic volume. Several comments from the public during scoping suggested that current conditions are not safe for bike traffic and suggested various options for improving bike safety. Under the proposed action, short-term effects to visitors would be expected during project construction in the form of traffic delays and construction noise; however, the road and parking upgrades are expected to result in improved and safe access to some of the most visited areas in the national seashore. Visitors would be affected by selection of either alternative; therefore visitor experience and safety is addressed as an impact topic in this environmental assessment.

Historic Properties. *NPS DO -28 Cultural Resource Management Guidelines* defines "historic properties" as any site, district, building, structure, or object eligible or listed in the National Register of Historic Places, which is the nation's inventory of historic places and national repository of documentation on property types and their significance.

Three historic properties occur within the area of potential effect (APE), the Shafter/ Howard Tenant Ranches Historic District, the Point Reyes Peninsula Indigenous Archaeological District, and the Point Reyes Lighthouse Station Historic Site.

Additionally, two unevaluated cultural resources, CA-MRN-393 and CA-MRN-66IH, occur within the project's APE. CA-MRN-661H was originally identified in 2002 as the subsurface remnants of an historic redwood corduroy road along Lighthouse Road. The road is associated with the construction of the lighthouse in the 1870' and probably provided a stable base for the transport of supplies and materials over the sand dunes and drifts that occur along this stretch of Lighthouse Road. The National Park Service considers CA-MRN-393 and CA-MRN-661H eligible for purposes of this project.

A Ranch, a contributor to the Shafter / Howard Tenant Ranches Historic District, Lighthouse Road and Chimney Rock Road are also contributors to this district and Lighthouse Road is a contributor to the Point Reyes Lighthouse Historic Site.

Construction activities such as widening Chimney Rock Road by one foot, paving three existing pullouts, and placing aggregate on remaining pullouts have the potential to affect the Shafter / Howard Tenant Ranches District, therefore impacts on historic properties are addressed in detail in this document.

Impact Topics Dismissed from Detailed Analysis

If an issue was considered to be outside the scope of this environmental assessment, or if the best available information indicated that the proposal would have no effects or negligible effects, it was eliminated for further analysis, as per NEPA requirements. The following topics have been dismissed from detailed analysis. A brief rationale for dismissal is provided for each topic. Potential impacts on these resources would be none or negligible and most likely immeasurable.

Ecologically Critical Areas, Wild and Scenic Rivers, Other Unique Natural Areas. Except for designated critical habitat for California red-legged frog and western snowy plover, no areas near the project road corridors are designated ecologically critical, nor are there any existing or potential wild and scenic rivers within the project area, or receiving runoff from the project site. Designated critical habitats for federally listed species within and near the project corridors are addressed under the Special Status Species section. Point Reyes National Seashore is an important natural area, but the proposed action would not threaten the associated qualities and resources that make the park unique.

Hydrology and Water Quality. The 1972 Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977, is a national policy to restore and maintain the chemical, physical, and biological integrity of the nation's waters, and to enhance the quality of water resources and prevent, control, and abate water pollution. The NPS *Management Policies 2006* provide direction for the preservation, use, and quality of water originating, flowing through, or adjacent to park boundaries. The NPS seeks to restore, maintain, and enhance the quality of all surface and ground waters within the parks consistent with the Federal Water Pollution Control Act (1972), as amended, and other applicable federal, state, and local laws and regulations.

The project would require excavation and cut and fill actions to repair culverts and ditches, therefore, best management practices for erosion and sedimentation control would be implemented to reduce potential impacts to water quality. Surface restoration and revegetation of disturbed land would reduce soil erosion and minimize the potential for long-term impacts. No water would be removed or diverted from any drainage for this project. With mitigation measures there would be little potential for adverse impacts to water quality. The impacts of the proposed action, including culvert replacements and ditch work, on wetland hydrology were analyzed in the environmental consequences chapters. No culverts or ditches would be added in new locations. So no surface water would be diverted from existing drainage channels. Cleaning or replacing existing culverts with larger culverts and reestablishing the shape of existing ditches should have negligible adverse effects on existing hydrology outside of the wetlands analyzed within the road corridors. Because mitigation measures described under the "Mitigation Measures" section below would reduce the level of impact to negligible, hydrology outside the road corridors and water quality was dismissed from further analysis in this document.

Air Quality. The 1963 Clean Air Act, as amended (42 USC 7401 et seq.), requires land managers to protect air quality. Section 118 of the Clean Air Act requires parks to meet all federal, state, and local air pollution standards. Section 176(c) of the 1963 Clean Air Act requires all federal activities and projects to conform to state air quality implementation plans to attain and maintain national ambient

The national seashore, a Class I airshed, is within the San Francisco Bay nonattainment areas for

ozone and particulate matter (less than 10 and 2.5 micrometers) as defined by the National Ambient Air Quality Standards set forth in the Clean Air Act and further specified by the Bay Area Air Quality Management District. The primary air pollutant sources associated with the San Francisco Bay Area are related to urban activities (i.e., commuting). Ongoing activities within the national seashore have a minimal contribution to air pollution in the nonattainment area.

Should the proposed action be implemented, local air quality would be temporarily affected by dust and construction vehicle emissions. Hauling construction material and operating equipment during the construction period would result in increased vehicle exhaust and emissions (hydrocarbons, nitrogen oxide, and sulfur dioxide emissions), which would be expected to rapidly dissipate.

Fugitive dust plumes from construction equipment would intermittently increase airborne particulates in the area near the project site, but loading rates are not expected to be considerable; water sprinkling to abate fugitive dust would occur during construction as needed (see "Mitigation" section). The contractor would be required to maintain a dust-free traveled way such that visibility and air quality are not affected and a hazardous condition is not created (FHWA 14).

Overall, there would be a slight and temporary degradation of local air quality due to dust generated from construction activities and emissions from construction equipment. These effects would last only as long as construction occurred; impacts would be negligible and short term.

Climate Change. Climate change has begun to affect both park resources and visitors. The effects are predicted to include changes in temperature, precipitation, evaporation rate, ocean and atmospheric chemistry, local weather patterns, and increases in storm intensities and sea levels. These effects will likely have direct implications for resource management and park operations and influence the way visitors experience the park.

The National Park Service recognizes that the major drivers of climate change are outside the control of the agency. However, climate change is a phenomenon whose impacts throughout the national park system cannot be discounted. Consistent with Executive Order #13653, *Preparing the United States for the Impacts of Climate Change*, the National Park has developed a *Climate Change Response Strategy* (NPS 2010) and *Action Plan* (NPS 2012a) that focus on science, adaptation, mitigation, and communication, and identify near-term priorities for the agency.

Parts of the United States are projected to get wetter in the future while others will get dryer. However, many of the most significant transportation impacts will likely come from extreme precipitation events, which are projected to intensify. This poses flooding risks to roads and facilities, with poorly drained infrastructure being particularly vulnerable. The proposed road improvements would help reinforce the national seashore roads against climate change and anticipated changes in rainfall and weather patterns.

This project incorporates sustainable practices in that the existing road pavement on Chimney Rock Road would be pulverized and used in the road subbase, thereby reducing the amount of new aggregate needed to reconstruct the road and reducing the number of shipments of aggregate. Upon completion of the project, road maintenance would be reduced, also reducing the use of maintenance vehicles. Other impacts from construction equipment emissions would be temporary and would not measurably

contribute to global climate change. Because effects to climate change would be negligible and would not result in any unacceptable impacts, climate change was dismissed from detailed analysis in this environmental assessment.

Soundscapes. In accordance with NPS *Management Policies 2006* and Director's Order 47: Sound Preservation and Noise Management, an important part of the NPS mission is preservation of natural soundscapes associated with national park system units. Natural soundscapes exist in the absence of human-caused sound. The natural ambient soundscape is the aggregate of all the natural sounds that occur in national park system units, together with the physical capacity for transmitting natural sounds. Natural sounds occur within and beyond the range of sounds that humans can perceive and can be transmitted through air, water, or solid materials. The frequency, magnitude, and duration of human-caused sound considered acceptable varies among national park system units, as well as potentially throughout Point Reyes National Seashore; being generally greater in developed areas and less in undeveloped areas such as wilderness areas. Even though enhanced on the project road environment, noise associated with road improvements would be short term and localized, and construction activities would be scheduled to minimize effects on visitor use and experience. Road improvements would not result in a measurable increase in traffic noise following construction. Consideration of noise impacts on threatened and endangered species are addressed in the environmental consequences section. Therefore, noise was dismissed from detailed analysis in this environmental assessment.

Lightscapes and Night Skies. In accordance with NPS *Management Policies 2006*, the National Park Service strives to preserve natural ambient lightscapes, which are natural resources and values that exist in the absence of human-caused light. Construction activities would occur during daylight hours and the proposed project does not include the installation of additional lighting along the road alignment or would not appreciably add to an increase in nighttime traffic. The effects of the proposed project to lightscapes and night skies would be negligible; therefore, lightscapes and night skies were dismissed from detailed analysis in this environmental assessment.

Wilderness. Some of the project roads and parking areas are adjacent to, but not within any of the areas designated as the Phillip Burton Wilderness (PL 95-544, October 18, 1976, 90 Stat. 2515 and PL 94-567, October 20, 1976, 90 Stat. 2695). Wilderness was dismissed as an impact topic because proposed temporary construction activities would not occur within designated or potential wilderness areas.

Floodplains. Executive Order 11988, "Floodplain Management," requires an examination of impacts to floodplains and potential risk involved in placing facilities within floodplains. NPS *Management Policies 2006*, Director's Order 77-2: *Floodplain Management*, provide guidelines for proposals in floodplains.

Flood Insurance Rate Maps (FEMA 2009) classified most of the project area as Zone D ("Areas in which flood hazards are undetermined, but possible"). The middle section of Limantour Road is classified as Zone X ("Areas determined to be outside the 0.2% annual chance floodplain"). Soil survey data also indicates that the majority of project area soils are not flooded (NRCS 2013). However, soils along a short section of Limantour Road affected by culvert work are rated as "rare" for flooding; meaning flooding is very unlikely but possible under extremely unusual weather conditions. The cleaning of one culvert (at 51+51) and replacing two culverts (at 55+62,

60+09) with larger culverts within this road section would enhance hydrology along this road section. This would increase the capacity for flood waters to pass under the road and reduce the potential for flood damage during a major storm event. Also, the cleaning, repairing, and replacing culverts along all road sections would not support floodplain development or channel modifications that would adversely affect floodplains or high- hazard areas or increase the risk of loss of life and property from flood damage.

Only Drakes Beach Parking area is within a mapped tsunami inundation area. All other project roads and parking areas are outside mapped tsunami inundation areas (CalEMA 2009a, 2009b). Drakes Beach Road that provides access in and out of the parking area is outside the tsunami inundation area. The *Annex to the Marin Operational Area Emergency Plan* (Marin County Sheriff 2007) provides information and guidance that are specific to the tsunami threat. This emergency operation plan lists the roles and responsibilities of the local agencies, including the National Park Service, for carrying out the plan in the unlikely event of a tsunami.

The Procedural Manual 77-2 for Floodplain Management does not apply to certain park functions that are often located near water for the enjoyment of visitors but require little physical development and do not involve overnight occupation such as small daytime parking facilities. Most national seashore parking areas, including Drakes Bay Beach parking area, are closed to visitor vehicle parking from 12:00am to 6:00am. Proposed restoration of road and parking surfaces here would not create a flood hazard.

Soil and Geologic Resources. NPS *Management Policies 2006* directs that facilities be sited where they will not be damaged or destroyed by natural physical processes such as unstable soils and geologic conditions. If these areas cannot be avoided then facilities should be suitably designed. The roadway is already sited and in-place and would not put facilities into other geologically hazardous areas. The project would increase the stability of the roadway and soil and geologic conditions adjacent to the roadway by stabilizing drainage features and failing roadside slopes. Because the project provides a benefit and would not adversely affect geologic resources, this topic was dismissed from further analysis. There is an ongoing issue of potential geologic hazards related to unstable road conditions are addressed in the Visitor Experience and Safety section.

The replacement and repair of culverts, cleaning of ditches, installation of underdrains, and minor road and parking area realignments would disturb up to 4.1 acres of roadside soil. For the combined 10 miles of road rehabilitation projects, a total of 3,600 cubic yards of roadway material would be excavated. Effects on soils (soil erosion, effects on soil productivity or the ability of the soil to support native vegetation) would be relatively minor and limited to the roadways. Most of the adverse impacts on soils would be temporary. Surface restoration and revegetation of disturbed land would reduce soil erosion and minimize the potential for long-term impacts. Placing rip rap at the culvert inlets and outlets, installing curb and gutter next to wetlands along Chimney Rock road, and improving parking areas on Chimney Rock and Lighthouse roads would cause the permanent loss of 0.36 acres of roadside soils. Impacts to soils in wet areas are addressed and analyzed under the wetlands resource topic. Because mitigation measures described under the "Mitigation" section below would minimize impacts, soil was dismissed from further analysis in this document.

Prime and Unique Agricultural Land. In 1980, the Council on Environmental Quality (FR vol. 45, No. 175) directed federal agencies to assess the effects of proposed actions on farmland soils classified as prime or unique by the U.S. Department of Agriculture, Natural Resources Conservation Service. Prime and unique farmlands are defined as soil, which particularly produces general crops including common foods, forage, fiber, and oil seed; unique farmland produces specialty crops including fruits, vegetables, and nuts. There are no areas or soils where unique crops are produced within the project road corridors. NRCS (2013) classified soils within the project road corridors as "not prime farmland."

Indian Trust Resources. The federal Indian Trust is a legally enforceable obligation on the part of the United States to protect tribal lands, assets, resources, and treaty rights, and it creates a duty to carry out the mandates of federal laws with respect to Native American Tribes. Of the federally recognized Tribes pursuant to PL 103-454, 108 Stat. 4791, The Federated Indians of Graton Rancheria/Coast Miwok is the only Tribe affiliated with the national seashore. However, there are no known Indian Trust resources in the project area, and the lands composing the national seashore are not held in trust by the Secretary for the benefit of Indians. Therefore Indian Trust resources were dismissed form detailed analysis in this document.

Ethnographic Resources. Ethnographic resources are defined by the NPS as any "site, subsistence, or other significance in the cultural system of a group traditionally associated with it" (Director's Order – 28). The Federated Indians of Graton Rancheria are culturally affiliated with the national seashore. Letters from the tribe received on October 10, 2012 and December10, 2012 (Appendix B: Agency Correspondence) concurred with the definition of the APE and "no adverse effect" determination. The tribe will also receive a copy of this document for their review and comment. If subsequent issues or concerns are identified, appropriate consultations would be undertaken. According to NPS professional staff, no known ethnographic landscapes or resources are within proximity to project roads. Consequently, no adverse impacts are anticipated and appropriate steps would be taken to protect any human remains, funerary objects, sacred objects, or objects of cultural patrimony inadvertently discovered during project construction. Therefore, ethnographic resources were dismissed from further analysis in this document.

Museum Objects. Museum collections include historic artifacts, natural specimens, and archival and manuscript material. They may be threatened by fire, vandalism, natural disasters, and careless acts. The preservation of museum collections is an ongoing process of preventative conservation, supplemented by conservation treatment when necessary. The primary goal is preservation of artifacts in as stable condition as possible to prevent damage and minimize deterioration. Professional staff at the national seashore has indicated that the proposed activities would not require additional curatorial services or increase the number of museum objects at the national seashore; therefore, museum objects were dismissed from further analysis in this document.

Environmental Justice. Executive Order 12898, "General Actions to Address Environmental Justice in Minority Populations and Low-income Populations," requires all agency missions to incorporate environmental justice by identifying and addressing disproportionately high and adverse human health or environmental effects of agency programs and policies on minorities and low-income

populations or communities. No alternative under consideration would have health or environmental effects on minorities or low-income populations or communities as defined in the Environmental Protection Agency's *Draft Environmental Justice Guidance* (July 1996).

Socioeconomics and Land Use. Neither the no action or preferred alternatives would change local or regional land use, nor would it appreciably affect local businesses outside Point Reyes National Seashore. Any construction employment would have a beneficial short-term impact on the economies of Marin County and nearby municipalities. There would be limited increases in employment opportunities for the road construction work force and revenues for local businesses and government generated from construction activities and workers. Any increase would be beneficial locally and short-term in duration, lasting only as long as the construction period. Because the impact would be no greater than negligible, impacts on the socioeconomic environment are not analyzed in detail in this document.

Park Operations and Management. Routine maintenance activities are currently performed by national seashore staff on all the project roads and parking areas. The adverse impact of the proposed construction is expected to be short-term and negligible, consisting mainly of rescheduling these tasks around the construction period. The impacts of the proposed rehabilitation of park roads and parking areas are expected to be beneficial in the long term, due to the reduction of maintenance needs in the future once these facilities are upgraded. Therefore, park operations and management were dismissed from further analysis in this document.

CHAPTER 2: ALTERNATIVES

The alternatives section describes two management alternatives for Point Reyes National Seashore. Alternatives for this project were developed primarily to resolve deteriorating road and parking conditions affecting natural resources, visitor experience, and public safety. The preferred alternative presents the NPS proposed action and defines the rationale for the action in terms of resource protection and management, visitor and operational use, costs, and other applicable factors. A summary table comparing the environmental consequences of each alternative completes this environmental assessment section.

NO ACTION ALTERNATIVE

The no action alternative describes the action of continuing the present roadway management and condition. It does not imply or direct discontinuing the present action or removing existing uses, developments, or facilities. The no action alternative provides a basis for comparing the management direction and environmental consequences of the preferred alternative. Should the no action alternative be selected, the National Park Service would respond to future maintenance needs and conditions associated with the project roads and parking areas using common and approved repair protocols (e.g., asphalt patching, crack sealing, chip sealing, and/or asphalt overlay techniques). The National Park Service would continue to frequently repair and maintain the project roads and parking area with poor surface and subsurface drainage, damaged culverts, and insufficient road base. Temporary road closures for repairs would continue as needed.

PROPOSED ACTION ALTERNATIVE (PREFERRED)

The proposed action is the National Park Service preferred alternative.

Under the proposed action, most construction work would be limited to the existing road and parking area prisms and drainage ditches. Work on the culverts, drainage ditches, pullouts, and road approaches may disturb vegetation and soil associated with wetlands outside the existing roadway. But construction boundaries would be established at these sites to help minimize the size of disturbed areas. Equipment and material staging and storage as well as construction vehicle turnarounds would be confined to the road, parking areas, and other previously disturbed areas. Construction would generally occur during the dry season (April 1 to October 31), but could occur all year weather permitting. Ground disturbing activities would be limited to the period from April 1 to October 31.

Additional specific restrictions would apply for special status species. Other best management practices would also be employed to help avoid or minimize impacts. Details about the construction methods and equipment to be used follow the description of the four road projects. Other best management practices would also be employed to help avoid or minimize impacts. They are identified in "Chapter 4: Environmental Consequences."

Limantour Road Project

Limantour Road is a winding, scenic road through the park with no signalized intersections. The road begins at Bear Valley Road near Inverness Park, and travels south, crossing Inverness Ridge and ending at Limantour Beach (Appendix C: Road and Parking Area Location Maps, Area 2)

About 7.5 miles of the Limantour Road and 0.4 acres of parking areas would receive pavement preservation treatments. The road section to be improved is between Bear Valley Road and Limantour Beach Picnic Area Parking. The parking areas to be paved include Limantour Beach Trail Parking South, Limantour Residence Road West Parking, and Limantour Picnic Area Parking (see Project Location Map). The road work would include spot repairs, chip seal, and fog seal (see Construction Methods and Equipment section below), then restriped. The improvements would also correct pavement and drainage problems, rebuild deficient curbing, remove and replace signs, and upgrade guard rails. For most of this road segment, the existing horizontal and vertical alignment would be maintained as a two-lane paved road with intermittent pullout areas. A 200-foot slide damaged road section would be reconstructed and repaved (see Figure 2: Typical Sections and Appendix D: Plan Sheets, Limantour Road).

Drainage problems would be corrected with the replacement of failed or deficient culverts at 14 locations. An additional 10 obstructed culverts would be cleaned. Concrete box culverts would be used to replace culverts at two of the sites. Another five damaged culverts would be restored by slip lining the pipe. Erosion would be mitigated as much as possible by installing riprap or concrete headwalls near selected culverts (see Figure 3 and 4: Riprap at Culvert Outlets).

Geocomposite underdrains would be installed at three sites where water accumulates. A total of 560 feet of obstructed drainage ditches parallel to the road would be reconditioned at 10 sites where water tends to accumulate and erosion is evident. Reconditioning would include removing vegetation and debris, reshaping, or repaving. Reshaped ditches may be widened to create a flatter bottom and change the slope. Ditch reconditioning would help storm water properly drain through these sections.

Lighthouse Road Project

Lighthouse Road leads to the parking lot/shuttle stop to the Lighthouse Visitor Center. The visitor center offers exhibits on the historic Point Reyes Lighthouse, as well as on whales, seals and sea lions, wildflowers, birds and maritime history.

About 1.5 miles of the Lighthouse Road between the Sir Francis Drake Boulevard intersection and Lighthouse Visitor Center would be improved (Appendix C: : Road and Parking Area Location Maps, Area 4) to correct pavement and drainage problems on the road, roundabout, and parking area. Other improvements include removing and replacing signs, and upgrading guard rails. Near the parking area only, the existing horizontal and vertical alignment would be modified at the roundabout and driveway leading to a 38-space parking area. These changes would be made for accessibility to meet Architectural Barriers Act Accessibility standards and to accommodate shuttle busses. An area surrounding the parking area extending up to 20-feet beyond the existing pavement edge would be modified (see Figure 5: Lighthouse Parking Lot Plan). The road would be chip sealed or microsurfaced, and restriped. The roundabout and the parking area sub base and pavement would be replaced. Sidewalks would be installed on the perimeter of the parking lot and the roundabout (see Appendix D: Plan Sheets, Lighthouse Road).

Drainage problems would be corrected with the replacement of drainage catch basins and installation of a culvert at the parking lot. Erosion would be mitigated by installing riprap near the culvert (see Figure 3: Riprap at Culvert Outlets). About 40 feet of obstructed drainage ditches next to the road would be reconditioned at two sites. Reconditioning would include reshaping and removing vegetation and debris.

Chimney Rock Road Project

Chimney Rock Road is a single lane two-way road that goes to Chimney Rock Trailhead parking and the historic lifeboat station.

The 0.9 miles of the Chimney Rock Road between Sir Francis Drake Boulevard intersection and 120 feet east of the parking area would be rehabilitated (Appendix C: Road and Parking Area Location Maps, Area 4). Rehabilitation would correct pavement and drainage problems, and improve the parking area to address accessibility to meet Architectural Barriers Act Accessibility standards and accommodate shuttle busses. The existing road surface would be removed and roadway re-graded to create a consistent 12-foot wide one-lane road (see Figure 2: Typical Section). A new asphalt pavement surface would be applied to the road and 20-space parking area, and then restriped. Existing cattle guards would be cleaned. At existing wide spots in the road, eight pullouts would be reconstructed with three paved with asphalt concrete and five surfaced with aggregate. A curb with narrow paved gutter would be added to the south side of the road where it is needed to minimize impacts to adjacent wetlands. Some reshaping of the cut-slopes along other sections would be necessary to establish sufficient shoulder and drainage ditch width and could impact existing vegetation along some sections of the road corridor(see Appendix D: Plan Sheets, Chimney Rock Road).

Drainage problems would be corrected with the replacement of failed or deficient culverts at seven locations. Erosion would be mitigated as much as possible by installing riprap at culvert outlets (see Figure 3: Riprap at Culvert Outlets). Geocomposite underdrains would be installed at three sites where water accumulates. A total of 470 feet of obstructed drainage ditches parallel to the road or parking area would be reconditioned at three locations. Reconditioning would include reshaping and removing vegetation and debris.

Improvements to the parking lot include paving and striping the parking area, adding a concrete sidewalk and a wood fence would be moved and reconstructed on part of the parking area perimeter to address accessibility problems (see Figure 6: Chimney Rock Parking Lot Plan).

Pavement Preservation Project

A total of 11.9 miles of road and 9.4 acres of parking area (see Appendix C: Road and Parking Area Location Maps) would be treated with chip and fog seal or mircosurfacing to improve the pavement's durability and longevity. The roads and parking areas would be restriped. These treatments and staging would occur within the confines of the road prism and parking areas. The preservation treatment would postpone costly rehabilitation and reconstruction. In addition to Chimney Rock Road and parking area and Lighthouse Road and two parking areas, the following roads and parking areas would be treated:

- Park Headquarters Parking
- Bear Valley Visitor Center Parking
- Bear Valley Trailhead Road and Parking
- Bear Valley Headquarters Parking
- Bear Valley Building 77 Parking
- Limantour Beach Trail Access Road and Parking
- Limantour Residence Road West and Parking
- South Beach Road and Parking
- North Beach Road and Parking
- Drakes Beach Road and Parking
- McClure Beach Road and Parking
- Laguna Road and Laguna Trailhead Parking
- Chimney Rock Parking
- Bull Point Trailhead Parking Approach
- Abbots Lagoon Trailhead Parking
- Morgan Horse Ranch Road and Parking

- MCI Exhibit Parking
- Lighthouse Road and Visitor Parking
- North Operations Center Road and Parking
- Limantour Picnic Area Parking
- Cross Marin Trailhead Parking
- Bear Valley Maintenance Access Road
- Limantour Residence Road East and driveways
- Schooner Bay Road
- Estero Trailhead Road
- Mount Vision Road
- McClure Beach Access Road
- US Coast Guard Cemetery Road
- Commonweal Road
- Lifeboat Station Road
- Fish Dock (Mendoza) Road

In addition, South Beach parking area would be reduced from 73,000 square feet to 32,000 square feet by removing and recycling pavement from the north part of the lot (see Figure 7: South Beach Parking Lot Plan). Part of the pavement removal area would be reshaped to create a swale for capturing stormwater runoff from the remaining parking area. Vegetative ground cover within the pavement removal area would be restored to more natural conditions using native plants.

Construction Methods and Equipment

Road Work. The following surface treatments would be applied to the roads and would vary depending on the existing road conditions and level and type of vehicle traffic.

Hot Asphalt Concrete Pavement – The roadways that would receive this treatment have deteriorated beyond a simple surface maintenance treatment. These roadway surfaces would be obliterated in place, regraded and compacted. The roads would then be surfaced with a hot asphaltic concrete surface. The limit of disturbance would be restricted to the existing roadway except where any road widening is designated.

The steps for the hot asphalt concrete pavement and roadway aggregate method for Chimney Rock Road are:

- Remove and crush existing asphalt and stockpile for reuse as base material.
- Regrade road to accommodate the uniform 12' width and adequate ditches.
- Place recycled asphalt material and supplement with additional imported aggregate base and spread across the surface.
- Import and spread additional aggregate base across the surface.
- Grade the roadway base to match the proposed grades.
- Treat roadway base with water to optimum moisture for compaction and then the surface is compacted with a roller.
- Then spray roadway base with a primecoat. The primecoat is emulsified asphalt that is applied from an asphalt distributor truck.
- Use asphalt distributor truck to spray the roadway with the primecoat to assure an even application.
- Then use an asphalt paving machine to apply hot asphalt to the roadway. This process involves dump trucks delivering the hot asphalt to the paving machine that extrudes the asphalt out the back of the paving machine.
- Use various rollers to consolidate the asphalt mat and smooth the surface.
- Then spray the first lift (layer) of asphalt with a tack coat similar to the primecoat process above. This serves to bond the second lift (layer) to the first lift.
- Apply second lift of asphalt similar to the first lift.
- Add striping.

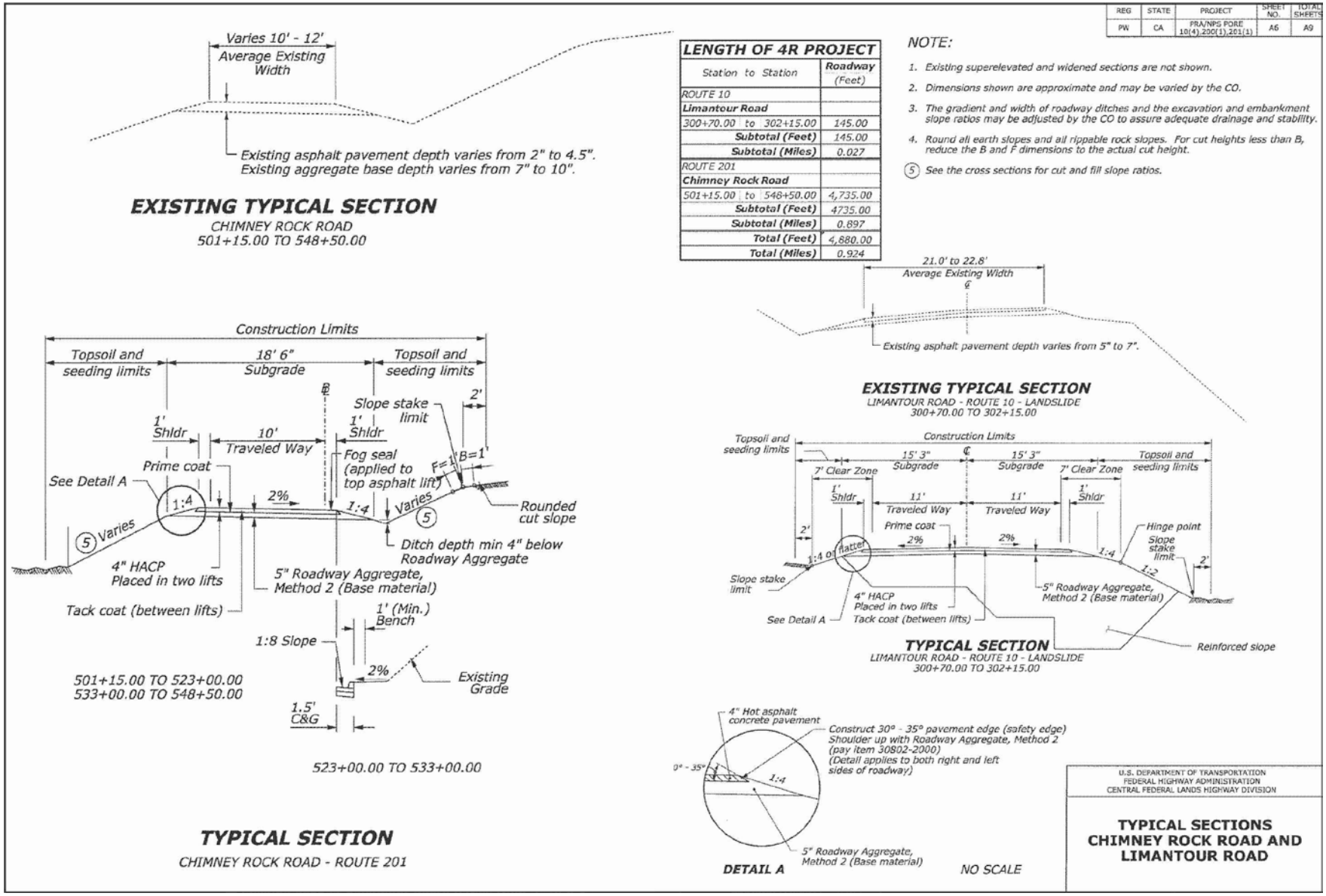
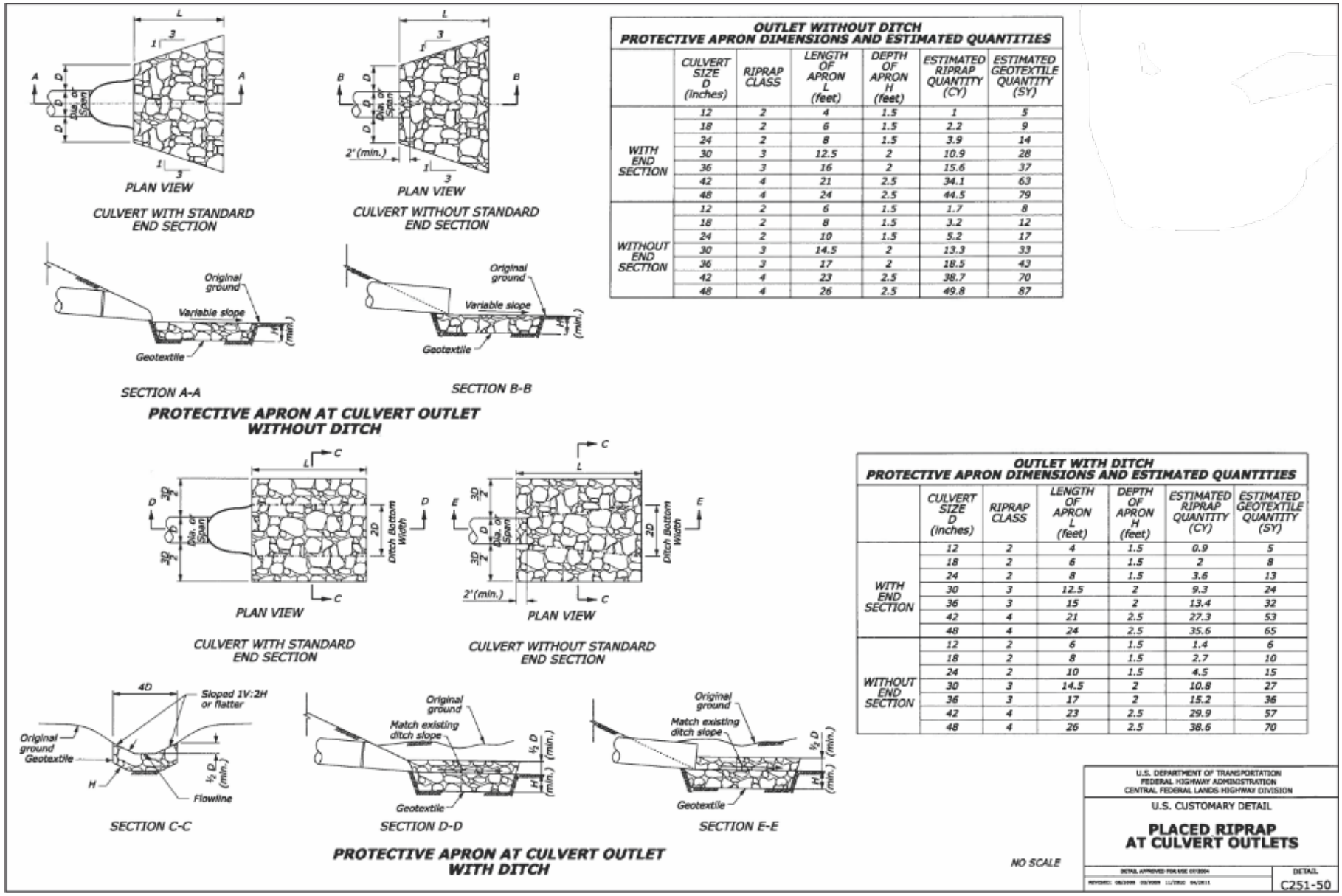


Figure 2. Typical Sections



OUTLET WITHOUT DITCH
PROTECTIVE APRON DIMENSIONS AND ESTIMATED QUANTITIES

	CULVERT SIZE D (Inches)	RIPRAP CLASS	LENGTH OF APRON L (feet)	DEPTH OF APRON H (feet)	ESTIMATED RIPRAP QUANTITY (CY)	ESTIMATED GEOTEXTILE QUANTITY (SY)
WITH END SECTION	12	2	4	1.5	1	5
	18	2	6	1.5	2.2	9
	24	2	8	1.5	3.9	14
	30	3	12.5	2	10.9	28
	36	3	16	2	15.6	37
	42	4	21	2.5	34.1	63
	48	4	24	2.5	44.5	79
WITHOUT END SECTION	12	2	6	1.5	1.7	8
	18	2	8	1.5	3.2	12
	24	2	10	1.5	5.2	17
	30	3	14.5	2	13.3	33
	36	3	17	2	18.5	43
	42	4	23	2.5	38.7	70
	48	4	26	2.5	49.8	87

OUTLET WITH DITCH
PROTECTIVE APRON DIMENSIONS AND ESTIMATED QUANTITIES

	CULVERT SIZE D (Inches)	RIPRAP CLASS	LENGTH OF APRON L (feet)	DEPTH OF APRON H (feet)	ESTIMATED RIPRAP QUANTITY (CY)	ESTIMATED GEOTEXTILE QUANTITY (SY)
WITH END SECTION	12	2	4	1.5	0.9	5
	18	2	6	1.5	2	8
	24	2	8	1.5	3.6	13
	30	3	12.5	2	9.3	24
	36	3	15	2	13.4	32
	42	4	21	2.5	27.3	53
	48	4	24	2.5	35.6	65
WITHOUT END SECTION	12	2	6	1.5	1.4	6
	18	2	8	1.5	2.7	10
	24	2	10	1.5	4.5	15
	30	3	14.5	2	10.8	27
	36	3	17	2	15.2	36
	42	4	23	2.5	29.9	57
	48	4	26	2.5	38.6	70

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

U.S. CUSTOMARY DETAIL

PLACED RIPRAP AT CULVERT OUTLETS

DETAIL APPROVED FOR USE 01/2004
REVISED: 08/2008 03/2009 11/2010 04/2011

DETAIL C251-50

Figure 3. Riprap at Culvert Outlets

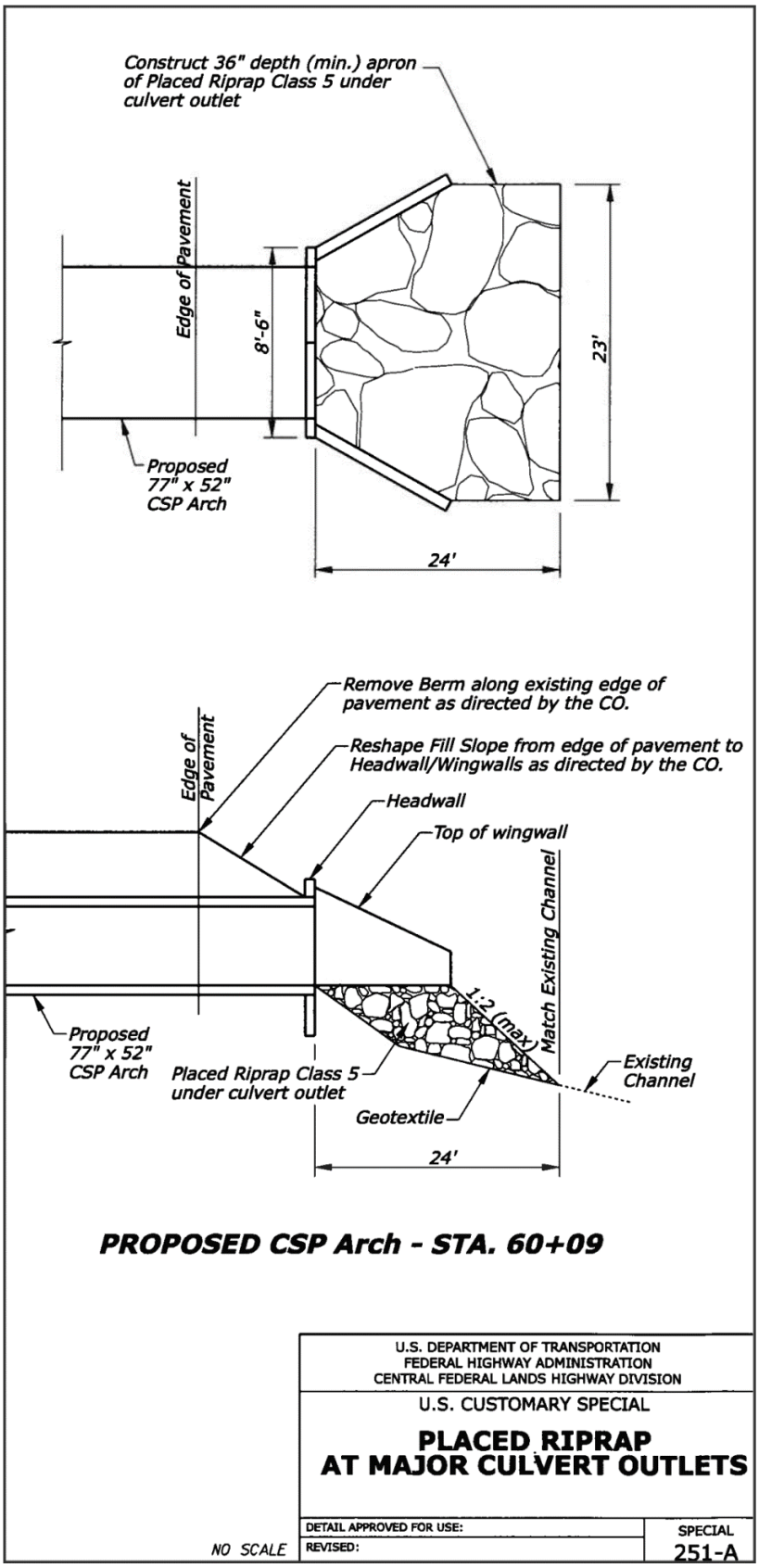


Figure 4. Riprap at Major Culvert Outlets

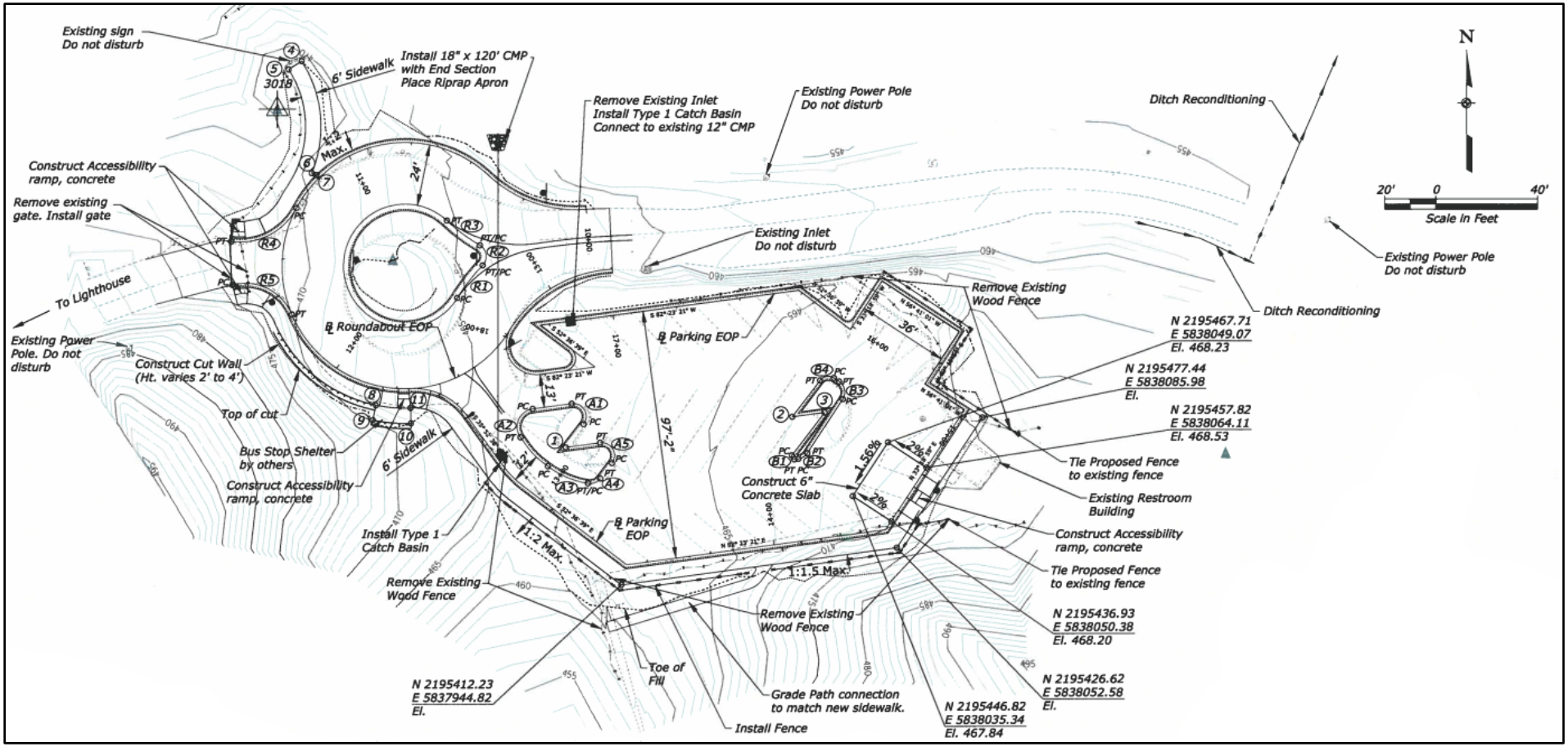


Figure 5. Lighthouse Road Parking Lot Plan

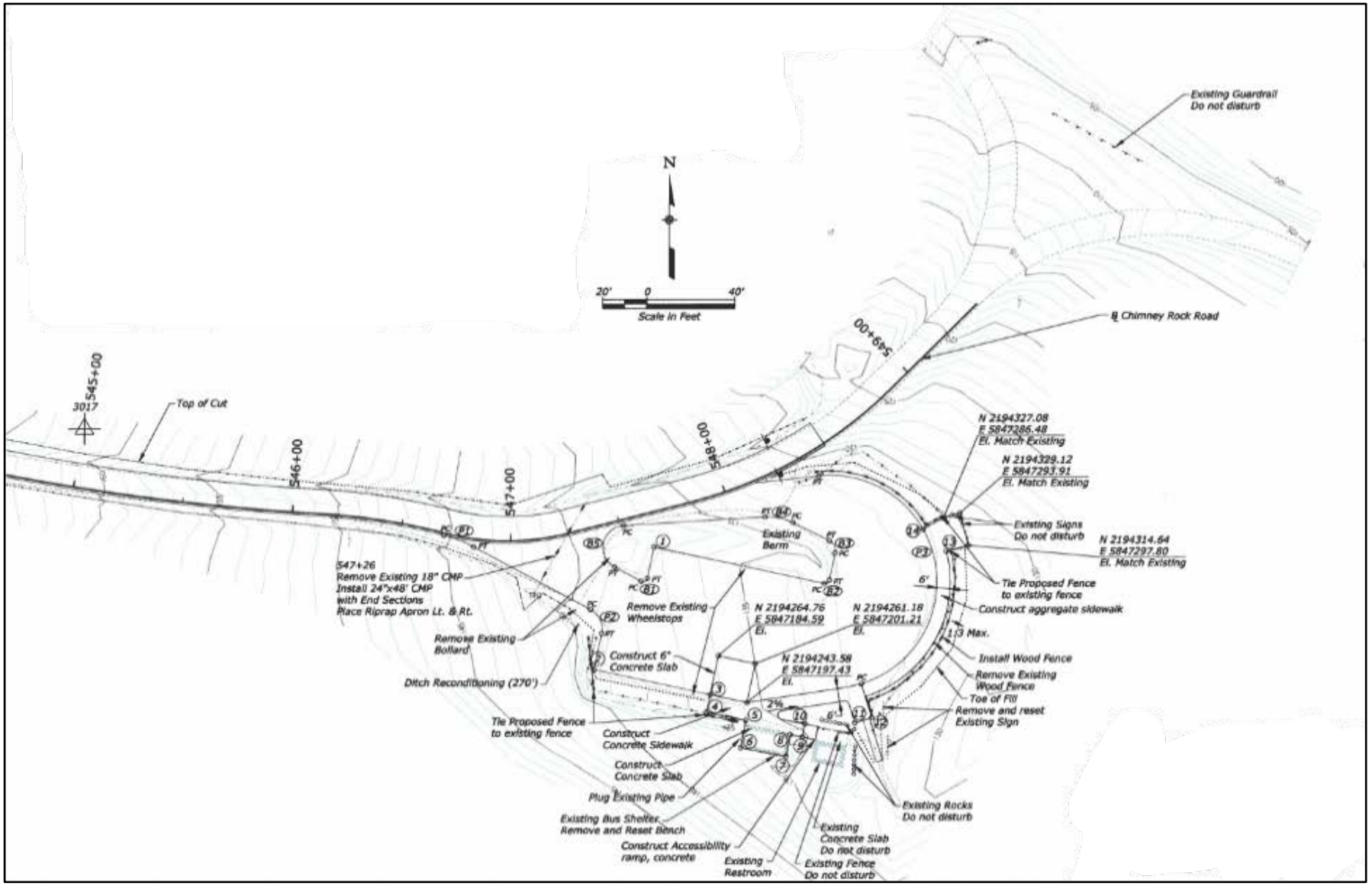


Figure 6. Chimney Rock Road Parking Lot Plan

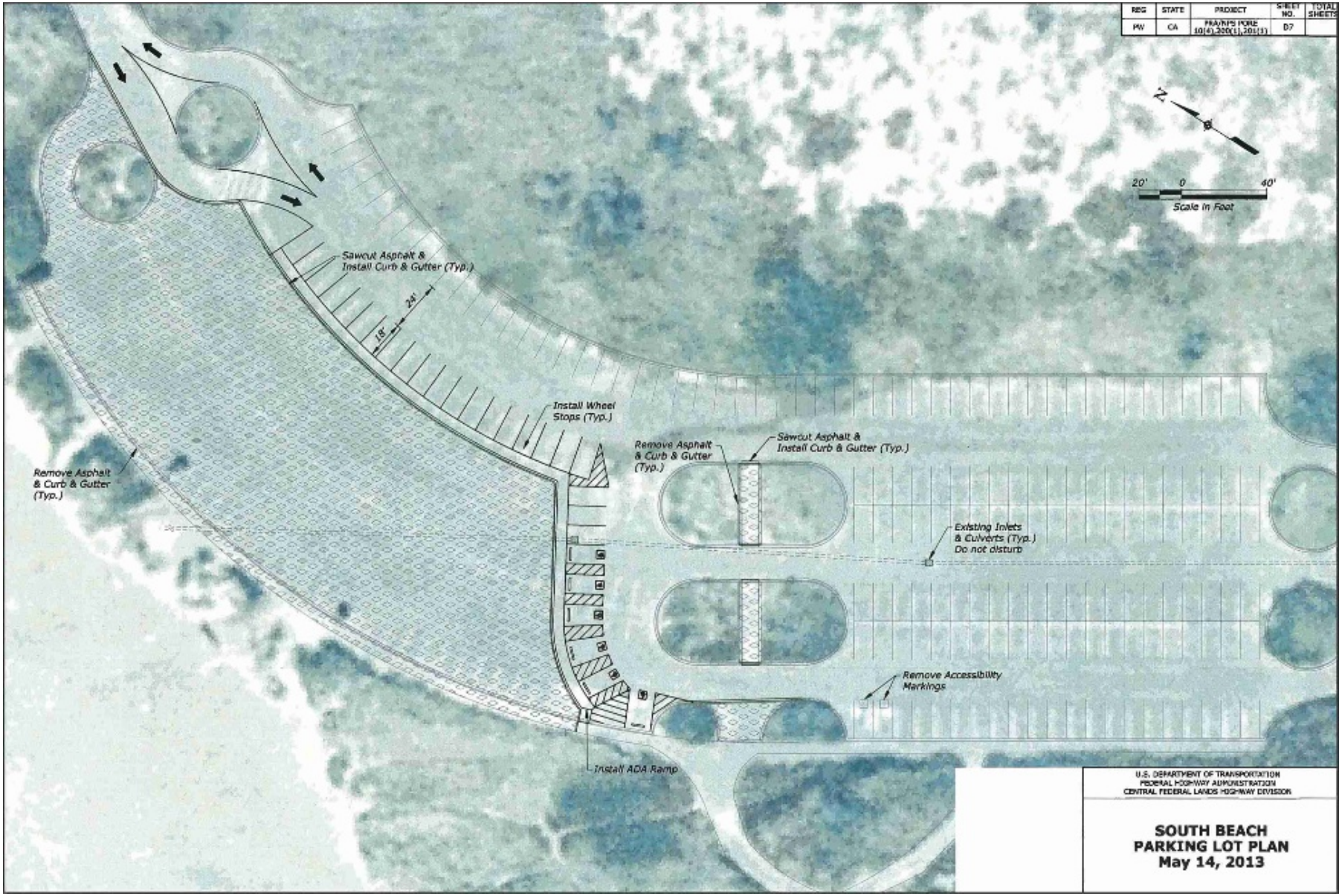


Figure 7. South Beach Parking Lot Plan

Chip Seal – Chip seal is a roadway maintenance treatment that uses a thin film of heated asphalt emulsion that is sprayed on the existing road surface, followed by the placement of small aggregates ("chips"). The chips are then rolled into the asphalt, and excess stone is swept and removed by vacuum truck from the surface. No work is performed outside of the existing edge of road. The steps for the chip seal road maintenance are:

- First, the road surface needs to be properly cleaned of debris.
- An asphalt distributor truck starts by spraying each lane with hot liquid asphalt to assure an even application. The asphalt used is applied at a temperature between 150 and 185 degrees Fahrenheit.
- A chip spreader dump truck follows as rapidly as possible with a rock application, preferably within one minute. The asphalt must be fluid so the rock would be embedded by the displacement of the asphalt. The rocks are an aggregate crushed to a special specification for size and cleanliness.
- Next, a rubber-tire roller is used to set the rock into the liquid asphalt. Rolling orients the flat sides of the rock down and produces a tighter chip seal. It takes two to four passes of the roller to set the rock.
- Sweeping is done at the completion of the chip seal process to remove surplus rock from the surface. Sweeping is done within 4 hours of the rolling operation, and typically again a day or two later.
- Excess chips would be swept or vacuumed and removed, then the road restriped.
- For some of the roads the application has been specified as a Double Chip Seal. On those sections the process would be repeated for a thicker surface on the existing road.

Fog Seal Emulsified Asphalt –A fog seal is a road surface maintenance application of asphalt emulsion sprayed onto an existing pavement surface. No work is performed outside of the existing edge of road. The steps for the fog seal are:

- First, the road surface needs to be properly cleaned of debris. If the fog seal is following the chip seal then the road has been broomed and is ready for the fog seal.
- A fog seal distributor truck sprays each lane with the diluted emulsified asphalt to assure an even application. The emulsified asphalt is typically applied at ambient temperatures.
- The applied emulsified asphalt is allowed to dry, striped, and then the road is opened to traffic.

Microsurfacing – Microsurfacing is a road surface maintenance application of emulsified asphalt mixed with aggregate to provide a sacrificial surface on an existing asphalt roadway. No work is performed outside of the existing edge of road. The steps for the microsurfacing are:

- First, the road surface needs to be properly cleaned of debris.
- A microsurfacing machine (The size of a dump truck) applies the emulsified asphalt with the sand and aggregate along each lane to assure an even application. The emulsified asphalt is typically applied at ambient temperatures.
- The applied microsurface is allowed to dry, striped, and then the road is opened to traffic.

Drainage Work. The work required for the drainage repairs detailed below would typically be confined to the existing roadway. The contractor would not be permitted to access the existing drainage by means of driving heavy equipment up or down the watercourse that is

supplied by the culvert being worked on. If access is required the contractor would access the culvert and end sections from the existing roadway prism with all work outside of the existing disturbed roadway monitored by the NPS monitor. The following drainage work that would take place as proposed in the current plans:

Culvert Removal and Replacement –

- Excavate through the existing roadway to the culvert.
- Remove the existing failed culvert.
- Overexcavate, then place and compact bedding material.
- Install the new culvert underneath the existing roadway.
- Backfill new culvert and place aggregate base and asphalt surfacing.
- Install culvert end sections as appropriate. On Limantour Road concrete headwalls would be formed and placed at the ends of two culverts.
- Some of the new culverts would receive additional rip-rap (see Figures 2 and 3: Riprap at Culvert Outlets) at the culvert outflows to help dissipate the energy from the drainage conveyed through the culvert during storm events.

Slip Line or Clean Culverts in Place –

- Remove all debris from the culvert
- Some culverts would be slip lined that uses a liner within the original culvert. The liners are slipped into the pipe and then grouted or activated with heat to conform the liner to the existing culvert. The two types would include:
  - Segmental Slip Liner – PVC or HDPE is the material for the liner pipe. The pipe segments are pushed or pulled into place and joined together. Grout is used to fill the annular space between host pipe and liner.
  - Cured In Place Pipe (CIPP) – flexible polyester fabric is the liner pipe material. The fabric comes from the factory saturated with a polyester resin. Once the fabric is pulled into place, hot water or steam is used to cure the liner inside the host pipe. Water used for this process would be contained and disposed off-site outside the national seashore.

Ditch Reconditioning –

- Ditch reconditioning consists of clearing debris from existing ditches and reestablishing their shape for positive drainage. In some instances these may be asphalt paved ditches that require new asphalt to repair damages to the existing ditch.

Environmental Protection. The construction contractor would be required to carry out specific environmental protection measures stipulated in the Special Contract Requirements for the proposed action. These contract requirements amend and supplement the *Standard Specifications for Construction of Roads and Bridges, on Federal Highway Projects, FP-14* (FHWA 2014). The environmental protection measures required for the four road projects are summarized below and the following mitigation section.

- Staging and storage areas for construction vehicles, equipment, material and soil would be sited in previously disturbed or paved areas approved by the National Park Service. These areas would be outside of high visitor use areas and would be clearly identified in advance of construction.

- All tools, equipment, barricades, signs, and surplus materials would be removed from the project area upon project completion. Construction debris would be immediately

hauled from the national seashore to an appropriate disposal location.

- A Hazardous Spill Plan or Spill Prevention, Control and Countermeasures Plan, would be in place, with actions to be taken in the event of a spill, notification measures, and preventative measures to be implemented, such as the placement of refueling facilities, storage, and handling of hazardous materials, and provisions for the containment and disposal of contaminated soils. The plan would be submitted to the National Park Service at least 14 days before beginning construction work.

- To revegetate disturbed upland and wetland areas, treatments would include grading to natural contours, replacing stockpiled topsoil, mulching, and replanting or reseeding with native plants from the watershed or nearby watersheds under guidance of NPS biologists.

- Reclaimed disturbed areas would be monitored for up to three years after construction to determine if remedial actions such as installation of erosion-control structures, nonnative plant species control, or replacement planting are necessary. Treatment of nonnative vegetation would be completed in accordance with Director's Order 13: Integrated Pest Management Guidelines.

- Clean Water Act permits from the U.S. Army Corps of Engineers and Regional Water Quality Control Board would be obtained for the Limantour Road and Chimney Rock Road projects because they would affect Waters of the U.S. (including wetlands). Provision of these permits would be followed.

MITIGATION

Mitigating measures would be employed to reduce or avoid adverse effects of the actions proposed in the alternatives. The NPS project manager would ensure that the project remains confined within the parameters established in the compliance documents and that mitigation measures would be properly implemented.

Natural Resources

- Construction zones outside existing disturbed areas would be delineated with flagging and all surface disturbing work would be confined to the construction zone. This mitigation does not exclude necessary temporary structures, including silt-control barriers.

- To minimize air pollution, dust control would occur as needed on active work areas where dirt or fine particles are exposed. Operators would avoid leaving equipment and vehicles idling for more than five minutes when parked or not in use.

- To prevent or reduce soil erosion and nonpoint source pollution in drainage areas during construction: (1) keep disturbed areas small to minimize erosion; (2) place waste and excess excavated materials outside drainages to avoid sedimentation; (3) install silt fences, temporary earthen berms, temporary water bars, sediment traps, stone check dams, or other equivalent measures prior to construction activities and removing these features after construction; (4) protect stockpiled soil and fill material from erosion with plastic sheeting, filter fabric, or other erosion control measures; (5) conduct regular site inspections during construction to ensure that erosion-control measures were properly installed and functioning effectively; and (6) store, use, and dispose of

chemicals, fuels, and other toxic materials at least 100 feet from surface water, ditches, and other drainage features.

- Only erosion-control materials made of tightly woven fiber netting or nonbinding materials (e.g., rice straw) would be used to ensure that small animals do not become trapped.

- To minimize introduction or spread of invasive or non-native plant species, the contractor would: (1) minimize soil disturbance; (2) thoroughly clean and inspect all construction equipment and materials before entering the national seashore; (3) cover fill material in haul trucks entering the park; (4) limit vehicle parking to existing roadways, parking lots, access routes or previously disturbed sites approved by the National Park Service; (5) limit heavy equipment to the roadway and within construction limits; and (6) obtain all sand, rock, gravel and erosion-control materials from NPS approved sources that are free of weeds and non-degradable contaminants.

- Before construction begins, the National Park Service would survey for rare California plants in areas where they may occur within the vegetated construction zones. Surveys for state and locally (California Native Plant Society) listed plants that may be in the project area would be conducted at appropriate times. If state or locally listed plants are found and can't be avoided, then seeds would be collected and plants propagated before revegetating disturbed areas. Revegetated areas with rare plants would be monitored to up to three years and remedial actions taken to ensure that rare plants are reestablished.

- All work would be carried out in accordance with the applicable terms and conditions stipulated in the Biological Opinions (USFWS 1999, 2003) for Section 404 permitted and Federal Highway Administration projects that may affect the California red-legged frog (see Appendix E: Programmatic Biological Opinions).

- Construction workers and supervisors would be educated about California red-legged frogs and other listed species before the project begins and as needed throughout the duration of the project as staff changes occur or as conditions warrant. The program would consist of a brief presentation by persons knowledgeable about the California red-legged frog and other listed species. Emphasis of the education program would be on identification of the species, Endangered Species Act requirements for protecting listed species and critical habitat, and the measures being taken during the project to reduce adverse impacts. A fact sheet describing all information included in the education program would be distributed to all staff and personnel entering the work area.

- To protect non-breeding dispersing or aestivating California red-legged frogs where they could potentially occur, a qualified USFWS-approved biologist would survey areas where California red-legged frogs occur during a three night surveys prior to start of any construction or preparation activities. One of these surveys would take place no later than 48 hours prior to construction.

- If California red-legged frogs are detected before July 31, a 100-foot buffer would be established around the detection location. If frogs are found after July 31, then all

construction work would cease until the individual(s) have left the area.

- If any life stage of the California red-legged frog is discovered by the on-site biologist or anyone else, all construction work in that area of the project site would cease and not restart until a qualified USFWS-approved biologist has determined that the individuals have left the area. If the individuals remain in the construction area for an extended period, then the National Park Service would contact the U.S. Fish and Wildlife Service for further guidance.

- To prevent inadvertent entrapment of California red-legged frog during construction, the on-site biologist or construction foreman would ensure that all excavated, steep-walled holes or trenches more than 1 foot deep are completely covered at the close of each work day with plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks and inspected by the on-site biologist. In addition, all on-site construction pipes, culverts or similar structures in which frogs might take refuge during the construction period would be securely capped prior to storage on-site or would be inspected by a qualified USFWS-approved biologist for California red-legged frogs prior to being moved. Before any holes are filled, they would be thoroughly inspected for trapped animals by a qualified biologist.

- To avoid construction noise impacts to Northern spotted owls, no construction work would occur on Limantour Road between Bear Valley Road and Sky Trail Parking intersections (near culvert 187+68) during the owls breeding season between February 1 and August 1.

- To avoid construction noise impacts to snowy plovers, no work would occur on North Beach and South Beach parking areas near western snowy plover designated critical habitat between March 1 and September 15. However, construction work could be allowed during this period if the park biologists determine that no plovers are nesting near the construction area based on annual plover monitoring.

- To avoid impacting Myrtle's silverspot butterfly, no larval host plants (western dog violet) would be disturbed in areas where Myrtle's silverspot butterfly are known to occur.

Cultural Resources

- If, during construction, archeological resources are discovered, all work in the immediate vicinity of the discovery would be halted until the resources are identified by a NPS archeologist. If it is determined that the archeological resources are important, they would be documented and an appropriate mitigation strategy developed, if necessary, in consultation with the California SHPO.

- Should human remains, funerary objects, sacred objects, or objects of cultural patrimony be discovered during construction, park staff would follow provisions outlined in the Native American Graves Protection and Repatriation Act of 1990.

- Paleontological remains and archeological specimens found within the construction area would only be removed by the National Park Service or by NPS-designated representatives.

- Avoid impacts to archeological resources through contract language requiring the construction contractor to attend preconstruction meetings with park archeologists to develop archeological site protection and avoidance measures. The plan would be documented in an archeological monitoring and inadvertent discovery plan, which would outline areas that would undergo archeological monitoring during construction, and would designate who would perform the monitoring.

- Four archaeological resources were identified; CA- MRN-661H, CA-MRN-277, CA-MRN-278, and CA-MRN-378. To avoid impacts to archeological resources, these sites would be avoided by all construction activities and temporary fencing would be installed along the roadside to ensure no construction activity or staging of equipment would occur within the site boundaries and an archeological monitor would be on site during construction in these areas.

Visitor Traffic and Park Operations

- Contractors would coordinate with national seashore staff to reduce disruption during peak visitation or special events, and normal park activities. Equipment would not be stored along the roadway overnight without prior approval from national seashore staff. Construction workers and supervisors would be informed about special sensitivity of park values, regulations, and appropriate housekeeping.

- During peak visitation periods and special events, one lane of traffic would remain open to the extent practicable and traffic delays would be limited to 30-minutes.

- Temporary road closures for installing culverts or replacing road surfaces would be limited to off-peak recreational traffic periods (i.e., road closures would be avoided on weekends and holidays).

- Delays for emergency response vehicles would be kept to a minimum by having the emergency responders notify the traffic monitors via the national seashore radio/frequency immediately when the vehicle is dispatched, thus allowing approximately 10 minutes to clear the road before the arrival of the emergency vehicle. Emergency response providers and the contractor would need to coordinate on any road closures (e.g., it may be necessary to temporarily stage emergency vehicles on both sides of a road closure).

ENVIRONMENTALLY PREFERRED ALTERNATIVE

In accordance with the criteria outlined in NEPA and DO-12 an Environmentally Preferred Alternative must be identified, which meet the following criteria:

1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
2. Ensure for all Americans, safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
3. Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
4. Preserve important historic, cultural, and natural aspects of national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice;

5. Achieve a balance between population and resource use that would permit high standards of living and wide sharing of life's amenities; and
6. Enhance the quality of renewable resources and approach the maximum attainable recycling of resources.

The proposed action alternative meets all of the criteria (1-6) listed above and is therefore the Environmentally Preferred Alternative for this project. The proposed improvements would reduce park maintenance needs and costs, improve public safety, and enhance the visitor experience at Point Reyes National Seashore. In addition, the proposed action alternative would preserve important historic, cultural, and natural resources by conducting all construction activities within the existing roadways and parking areas. This would eliminate and minimize impacts to important park resources.

The no action alternative does not meet any of the criteria. It fails to meet the other criteria because drainage features such as damaged culverts would continue to fail causing erosion and sediment transport to wetlands and sensitive plant and wildlife habitats, public safety would be compromised from a failing and deteriorating roads and parking areas, visitor experience would decline due to poor roadway and parking conditions, and increasing maintenance costs would divert money from other important programs. Therefore, the no action alternative is not the Environmentally Preferred Alternative.

ALTERNATIVES AND OPTIONS CONSIDERED BUT DISMISSED

Several alternative elements were identified during the design process and internal and public scoping. Some of these options were determined to have unacceptable impacts to national seashore resources or were beyond the project purposes and scope.

Add Dedicated Bike Lanes

Several comments were received during public scoping suggesting adding dedicated bike lanes to improve safety and enhance the biking experience. Adding bike lanes to the project roads was considered to be outside the scope of this project. The road projects are intended to repair existing road and drainage features. Widening the roadways to accommodate a separate bike lane would be a major and costly construction project that could result in the roadway expanding into sensitive habitats. As a result, this option was dismissed. But bike safety elements are included in the road rehabilitation plans, such as shared lane signs and markings, improved line of sight, and reduced speeds.

Repair Sir Francis Drake Boulevard

Some commenters expressed concerns about the condition of sections of Sir Francis Drake Boulevard and suggested that this road also be repaired. The National Park Service and Federal Highway Administration are planning repairs and improvements to this road. But this project is too early in the planning phase to be evaluated in this assessment. The public will have an opportunity to provide input on the Sir Francis Drake Boulevard road project in the near future.

Exclude Livestock

One scoping comment suggested excluding cattle from most of Chimney Rock Road by relocating cattle guards and adding fence along the north side of the road. Livestock grazing in Point Reyes National Seashore is managed under special use permits. This option was dismissed because reconfiguring cattle grazing allotments is outside the scope of this project.

Realign Chimney Rock Road to Avoid Wetlands

The planning team considered a design that eliminated the underdrain and shifted a section

of the Chimney Rock Road north away from affected wetlands. However, this design was rejected because it wouldn't completely avoid the adjacent wetlands and would require a substantial reshaping of the road prism that would disturb a much larger area of roadside vegetation compared to the proposed action. The proposed new underdrain along Chimney Rock Road is considered critical for eliminating problems caused by water saturation of the road base and maintaining the long-term stability of the road surface. The National Park Service and Federal Highway Administration compared mapped wetlands to the proposed road designs and determined that the wetlands delineated and mapped in 2013 were avoided to the extent possible.

COMPARATIVE SUMMARY OF THE IMPACTS OF THE ALTERNATIVES

Table 1 summarizes the impacts that would potentially occur under the no action alternative and proposed action alternative. A detailed analysis is found in the Environmental Consequences Chapter.

TABLE 1. COMPARATIVE SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS

Impact Topic	No Action Alternative	Proposed Action Alternative
Vegetation	The no action alternative would have long-term, negligible to minor adverse impacts on vegetation near the project roads. Road maintenance, roadside vegetation management, and cattle grazing under the no action alternative would have negligible to minor cumulative adverse effects on roadside vegetation.	The proposed action would cause a minor short-term adverse impact on 4.10 acres of roadside native vegetation and long-term loss of up to 0.36 acres of existing roadside vegetation. Reducing the South Beach parking footprint would restore up to 0.94 acres of native vegetation. Road maintenance, roadside vegetation management, and cattle grazing plus the action alternative would cause minor long-term and short-term cumulative adverse effects on roadside vegetation.
Wetlands	The no action alternative would have long-term, negligible to minor adverse impacts on wetlands near the project roads. Road maintenance, roadside vegetation management, and cattle grazing under the no action alternative would have negligible to minor cumulative adverse effects on wetlands.	The proposed action would cause a minor short-term adverse impact on 0.322 acres of wetland and long-term loss of up to 0.072 acres of existing wetlands. Road maintenance, roadside vegetation management, and cattle grazing plus the action alternative would cause minor long-term and short-term cumulative adverse effects on wetlands.
Special Status Species		
Rare Plants	The no action alternative would have **no effect** on the federally endangered beach layia (*Layia carnosa*) and clover lupine (*Lupinus* tidestromii). Road maintenance activities would cause short-term, negligible to minor adverse impacts on some other rare plants. Cattle grazing, mowing, plus road maintenance and repair under the no action alternative would cause negligible to minor cumulative impacts on rare plants.	The proposed action alternative **is not likely to adversely affect** endangered beach layia (Layia carnosa) and endangered clover lupine (Lupinus tidestromii) based on discountable and negligible effects and measures to avoid disturbing their potential habitat near North Beach and South Beach parking areas. The proposed action may have short-term and long-term negligible to minor impacts on the state listed Point Reyes blennosperma and Point Reyes meadowform and other plants listed as rare by the California Native Plant Society. Cattle grazing, mowing, and routine road maintenance plus the proposed action would cause negligible to minor cumulative effects on rare plants.
Mytrle's Silverspot Butterfly	The no action alternative is **not likely to adversely affect** Mrytle's silverspot buttefly based on negligible effects. Cattle grazing, mowing, and routine road maintenance would add negligible cumulative effects on Myrtle's silverspot butterfly.	The proposed action alternative is **not likely to adversely affect** Myrtle's silverspot butterfly based on negligible effects. Repair and installation of culverts and drainage ditches would temporarily disturb small areas of roadside vegetation where butterflies do not occur. Where butterflies are present, road surface repairs and paving would be done during the non-breeding season. Cattle grazing, mowing, and routine road maintenance plus the proposed action would cause negligible cumulative effects on this butterfly.
California Red-legged Frog	The no action alternative **is not likely to adversely affect** California red-legged frog based on negligible effects. Past, present, and future road maintenance, roadside vegetation management, and cattle grazing under the no action alternative would have negligible cumulative effects.	The proposed action alternative **is not likely to adversely affect** the California red-legged frog or designated critical habitat, based on discountable and negligible effects. Project activities would not directly affect California red-legged frog breeding habitat. Replacement and repair of culverts would temporarily disturb an insignificant amount of potential non-

Impact Topic	No Action Alternative	Proposed Action Alternative
		breeding dispersal habitat. Mitigation measures would be carried out to protect red-legged frogs and their habitat. Replacing two culverts with wider concrete box culverts on Limantour Road may improve aquatic organism passage having a beneficial effect. Routine road maintenance, roadside vegetation management, and cattle grazing plus the proposed action alternative would cause negligible cumulative effects on California red-legged frogs.
Western Snowy Plover	Routine road maintenance and repair activities at North Beach and South Beach under the no action alternative are **not likely to adversely affect** western snowy plovers. The effects of past road and parking area maintenance added to the no action alternative would cause negligible cumulative impacts.	The proposed action alternative is **not likely to adversely affect** western snowy plover or designated critical habitat based on short-term negligible effects and mitigation to avoid working near potential nesting areas during the breeding season. Removal of a portion of the paved South Beach parking area may improve habitat having a long-term beneficial effect. The cumulative effects of routine road and parking maintenance, plus the proposed action would cause negligible cumulative effects on western snowy plovers.
Northern Spotted Owl	Continued road maintenance and repair activities under the no action alternative **are not likely to adversely affect** northern spotted owls. Cattle grazing, roadside vegetation management, plus road maintenance and repair under the no action alternative would cause negligible cumulative impacts on rare plants.	The proposed action is **not likely to adversely affect** northern spotted owls, based on discountable and short-term negligible effects. Proposed mitigation including delaying construction work during the owls breeding season and restoring vegetation disturbed by construction would minimize or avoid impacts to northern spotted owls. The cumulative effects of cattle grazing, routine road maintenance, roadside vegetation management, plus the proposed action would cause negligible cumulative effects on northern spotted owls.
Visitor Experience and Safety	Under the no action alternative, current road and parking area deficiencies would continue to constitute a short- and long-term minor to moderate adverse impact to visitor experience and safety. Routine road maintenance is not sufficient to fix existing road and parking area deficiencies that could result in severe road hazards and closures. Thus, the overall cumulative impact of the no action alternative would be long-term and adverse to visitor experience and safety.	Construction activities under the proposed action alternative would cause noise, traffic delays, and temporary road and parking area closures resulting in short-term minor adverse impacts. Upon completion of the preferred alternative, the improved road and parking conditions would have long-term beneficial effects on visitor experience and safety. Cumulative impacts, in conjunction with the preferred alternative, would also have long-term beneficial impacts.
Historic Resources	Under the no action alternative, current road and parking area deficiencies would continue to constitute a short- and long-term minor to moderate adverse impact to historic properties. Routine road maintenance is not sufficient to fix existing road and parking area deficiencies that could result in severe road hazards and closures. Cattle grazing, roadside vegetation management, plus road maintenance and repair under the no action alternative would cause negligible cumulative impacts on historic properties. Thus, the overall cumulative impact of the no action alternative would be long-term and adverse to historic properties.	Under the Proposed Action-Alternative the rehabilitation of project road surfaces, shoulders, and parking areas would correct the current structural deficiencies of Lighthouse Road and Chimney Rock Road. Therefore, the overall cumulative impact of the Proposed Action–Alternative would be local, long-term and beneficial to historic properties.

CHAPTER 3: AFFECTED ENVIRONMENT

LOCAL SETTING

Point Reyes National Seashore is situated where continental and oceanic plates collide, creating the unique geological formations of the San Andreas Fault. The national seashore's dynamic geologic foundations produce exceptional biodiversity where marine, estuarine, freshwater, and terrestrial ecosystems overlap. The national seashore lies within an area recognized as a center of biodiversity. The park hosts more than 800 native plants, over 490 resident and migratory birds, rare amphibians, and a unique assemblage of mammals.

VEGETATION

The project areas run through numerous plant communities (see Figure 8: Plant Communities Map). The first mile of the Limantour project area runs through valley bottom lands comprised of non-native perennial grasslands dominated by velvetgrass (*Holcus lanatus*) and tall fescue (*Festuca arundinacea*), with scattered coast live oak (*Quercus agrifolia*) stands and riparian forest dominated by arroyo willow (*Salix lasiolepis*), Pacific willow (*Salix lasiandra*), and red alder (*Alnus rubra*). Over the next three miles the road climbs up and along the heavily forested (and formerly logged) Inverness Ridge, which is dominated by douglas fir (*Psuedotsuga menziesii*) forest with a high cover of California bay (*Umbellularia californica*), and sword fern (*Polystichum munitum*) in the understory. The road briefly passes through some very thick monotypic, fire sprouted, 18-year old stands of Bishop Pine (*Pinus muricata*) before descending through two miles of coastal scrub dominated by blue blossom (*Ceanothus thyrsiflorus*), coyotebrush (*Baccharis pilularis*), and poison oak (*Toxicodendron diversilobum*). The last mile of road runs through non-native perennial grasslands dominated by tall fescue and velvetgrass.

The Lighthouse Road project runs through coastal prairie, coastal dune, and coastal scrub habitat, while the Chimney Rock Road project runs entirely through coastal prairie. The coastal prairie habitat along the Lighthouse and Chimney Rock Roads is a combination of native perennial grasses dominated by hairgrass (*Deschampsia caespitosa* ssp. *holciformis*), non-native annual and perennial grasses, in particular ripgut brome (*Bromus diandrus*), brome fescue (*Festuca* or *Vulpia bromoides*), and perennial ryegrass (*Lolium perenne*/*Festuca perennis*), and numerous perennial and annual forbs. The coastal scrub habitat is characterized by patches of coyote brush and yellow bush lupine (*Lupinus arboreus*) interspersed in coastal prairie, and the coastal dunes are comprised of patches of non-native iceplant (*Carpobrotus edulis* and *chilensis*) or numerous native dune species interspersed with non-native grasses and open sand (NPS 2013).

California rare plants are known to occur near vegetated areas potentially affected by Limantour, Chimney Rock, and Lighthouse road projects, including at least 16 species listed as rare by the California Native Plant Society (see Appendix F: Species List), and one listed as rare - Point Reyes blennosperma (*Blennosperma nanum* var. *robustum*) - and one listed as endangered - Point Reyes meadowfoam (*Limnanthes douglasii* ssp. *sulphurea*) - by the State of California.

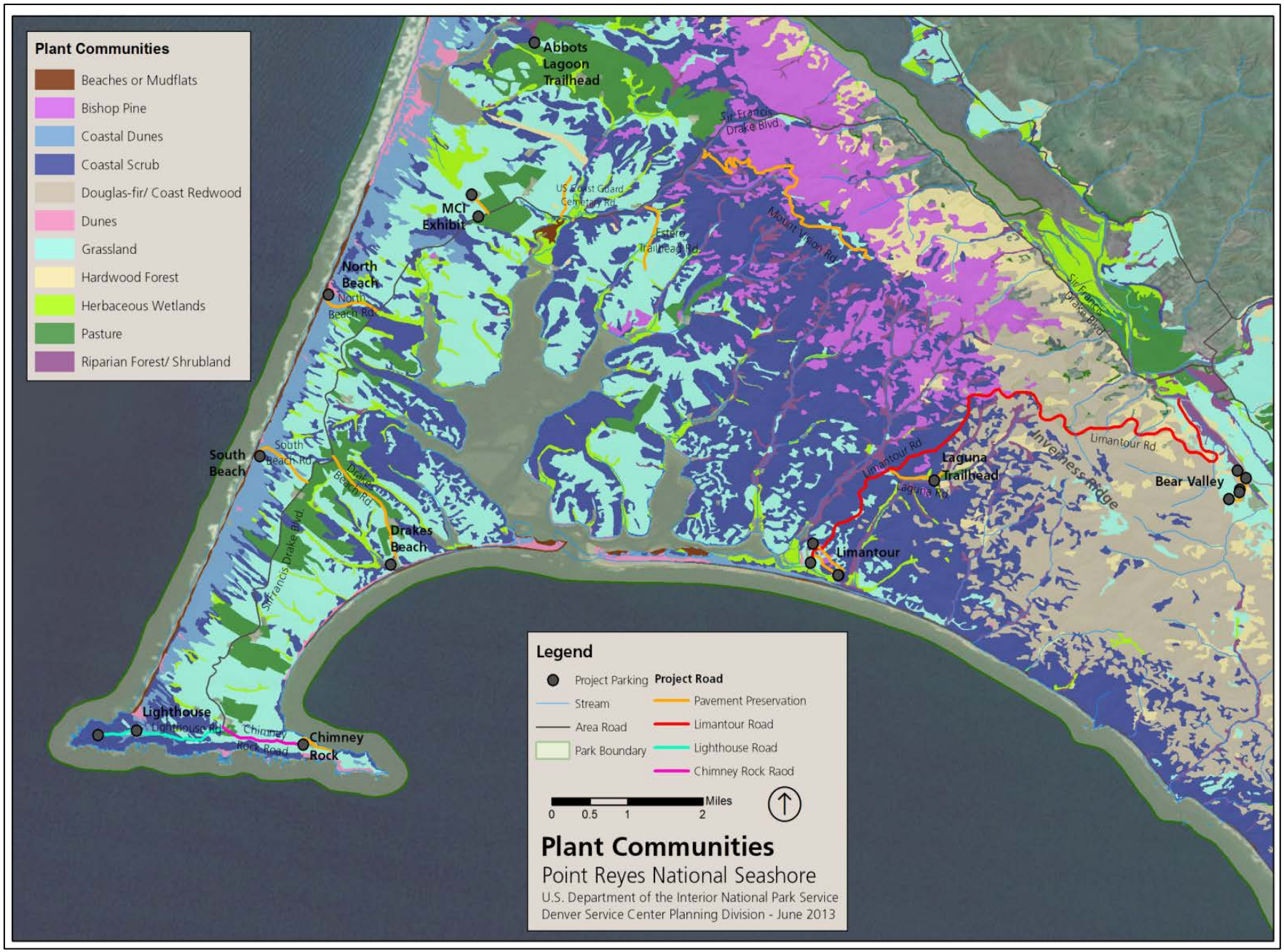


Figure 8. Plant Communities

WETLANDS

The National Park Service delineated wetlands along Limantour, Chimney Rock, and Lighthouse roads. The details and results of this study were reported in *Delineation of Potential Jurisdictional Wetlands and "Other Waters", Limantour, Lighthouse, and Chimney Rock Road, and Pavement Preservation Program* (NPS 2013). For the Limantour, Lighthouse, and Chimney Rock road projects, the delineation study areas included the roadway, road shoulders, and ditches and culverts to be cleaned, repaired or replaced. Wetlands at sites potentially affected by ditch and culvert work were surveyed. Wetlands adjacent to road sections where only paving and pavement repair is proposed were not surveyed. All construction activities for the pavement preservation project would be limited to treating the paved road and parking area surfaces and not affect wetlands. Therefore wetlands were not delineated for the pavement preservation project. The following is a brief summary of results from the wetland delineation report.

Wetlands and waters in the Limantour Road project area flow into either Bear Valley Creek, a tributary to Lagunitas Creek, or towards Laguna or Muddy Hollow Creeks, tributaries to the Estero de Limantour. Wetlands and waters in the Lighthouse and Chimney Rock Road project areas flow into the coastal zone of the Pacific Ocean. The wetlands affected by the proposed action serve a variety ecological functions; including maintenance and moderation of seasonal stream flows, maintenance of hydrophytic plants, production of organic matter, and habitat for wildlife.

Potential jurisdictional non-tidal wetlands and other waters were identified within both the Limantour Road and Chimney Rock Road project areas. No wetlands or waters were identified within the Lighthouse Road project area. Within the Limantour Road project area, 24 potentially jurisdictional features were delineated (see table 2), with 14 features on tributaries of Bear Valley Creek, 5 on tributaries of Lagunitas Creek, 4 draining to Muddy Hollow Creek, and one draining directly into the Estero de Limantour. Total acreage of Potential Jurisdictional Wetlands and "Other Waters" within the Limantour Road Project Area is 0.417 acre. Three features were delineated within the Chimney Rock Road Project Area (see table 2), all draining towards a short drainage which runs directly into the Pacific Ocean. Total acreage for Potential Jurisdictional Wetlands and "other waters" within the Chimney Rock Road Project Area was 0.300 acre. Total potentially jurisdictional acreage for all projects within the program is 0.717 acre.

Table 2. Delineated Features within the Study Area (modified from NPS 2013)

Feature Code	Road Location Feet	Type[a]	Cowardin Class[b]	Area (sqft)	Area (acres)	Meets USACE Criteria?
Limantour Road Project						
LIM A	12+55	RPW	PEM/FOD	789.2	0.018	Yes
LIM B	26+77 - 30+25	RPW	PFOE	651.5	0.015	Yes
LIM C	26+77 - 30+25	Abt Wet	PFOE	812.3	0.019	Yes
LIM D	30+25 - 31+53	RPW	PEM/UBE	256.3	0.006	Yes
LIM E	30+25 - 31+53	RPW	PFOD	76.2	0.002	Yes
LIM F	30+25 - 31+53	RPW	PUBE	524.5	0.012	Yes
LIM G	30+25 - 45+62	Abt Wet	PEMB	647.5	0.015	Yes
LIM H	45+62	Abt Wet	PEMB	1,105.1	0.025	Yes
LIM I	55+62	RPW	PEM/UBF	1,453.8	0.033	Yes
LIM J	60+09	RPW	PFOF	1,455.4	0.033	Yes
LIM K	86+50	RPW	PEM/UBE	1,394.1	0.032	Yes
LIM L	86+50	Abt Wet	PFOB	477.3	0.011	Yes
LIM M	114+60	RPW	PEM/UBC	795.1	0.018	Yes
LIM N	115+40	Abt Water	PFOC	474.6	0.011	Yes
LIM O	142+22	RPW	PEME	1,054.5	0.024	Yes
LIM P	142+22	Abt Wet	PEM/FOE	2,060.3	0.047	Yes
LIM Q	142+22	Abt Wet	PEMB	344.7	0.008	Yes
LIM R	165+00	RPW	PFOC	1,039.5	0.024	Yes
LIM S	187+68	Abt Wet	PEME	453.5	0.010	Yes
LIM T	321+22	Abt Wet	PEMB	59.6	0.001	Yes
LIM U	350+00	Adj Wet	PEMB	948.0	0.022	Yes
LIM V	370+60	Adj Wet	PEMB	434.4	0.010	Yes
LIM W	372+26	Adj Wet	PEMB	766.3	0.018	Yes
LIM X	405+20	Abt Wet	PEM/SSB	102.8	0.002	Yes
			TOTAL	**18,176.5**	**0.416**	
Chimney Rock Road Project						
CHRO A	501+24	RPW, NTWet	PEME	303.5	0.007	Yes
CHRO B	501+24 - 502+40	Abt Wet	PEME	1310.7	0.030	Yes
CHRO C	523+20 - 535+00	Adj Wet	PEMB	11,441.8	0.263	Yes
			TOTAL	**13,056.0**	**0.300**	

[a] **RPW** = Relatively Permanent Water - Tributaries that flow year round or have continuous flow at least seasonally, and that flow directly or indirectly into a traditional navigable waters; **Abt Wet** = Abutting Wetland - A wetland abuts a tributary if it is not separated from the tributary by uplands, a berm, dike, or similar feature; **Adj Wet** = Adjacent Wetland - Wetlands separated from other waters of the United States by man-made dikes or barriers, natural river berms, beach dunes and the like.

[b] **PEM/FOD** = palustrine emergent/forested, seasonally flooded/well drained; **PEM/FOE** = palustrine emergent/forested, seasonally flooded and saturated; PEM/SSB = palustrine emergent/scrub shrub, saturated; **PEM/UBC** = palustrine emergent/unconsolidated bottom, seasonally flooded; **PEM/UBE** = palustrine emergent/unconsolidated bottom, seasonally flooded and saturated; **PEM/UBF** = palustrine emergent/unconsolidated bottom, semi-permanently flooded; **PEMB** = palustrine emergent, saturated; **PEME** = palustrine emergent, sesaonally flooded and saturated; **PFOB** = palustrine emergent/forested, saturated; **PFOC** = palustrine emergent/forested, sesaonally flooded; **PFOD** = palustrine emergent/forested, sesaonally flooded/well drained; **PFOE** = palustrine emergent/forested, sesaonally flooded; **PFOF** = palustrine emergent/forested, semi-permanently flooded; **PUBE** = palustrine unconsolidated bottom, seasonally flooded and saturated.

SPECIAL STATUS SPECIES

The Special Status Species sections in the Affected Environment and Environmental Consequences sections of this environmental assessment contain information on those federally listed species potentially affected by the proposed action. This Environmental Assessment serves as the Biological Assessment for the road projects.

A species lists from the Fish and Wildlife Service and California (FWS 2013; CNDDB 2013) with all federally and state listed species within Drakes Bay, Inverness, Tomales, and Bolinas quadrangles that cover the project area in Marin County, California were reviewed to determine which species had a potential to occur within the analysis area. The species lists identified 4 species of invertebrates, 7 fish, 1 amphibian, 4 turtles, 8 birds, 6 mammals, and 12 plants. Plus there is designated critical habitat for five species in the national seashore (see Figure 9: Critical Habitat map). Many of these species do not occupy habitat like that in and around the project road corridors and so are not discussed in this document. See Appendix F: Species List for a very brief summary of federally and state listed species, designated critical habitat, species' habitat requirements, and known occurrence information of species that are known or may occur in the analysis area.

There are six federally listed threatened or endangered species and two state listed with the potential to occur (i.e., habitat is present) in or near the road project areas (see Appendix F: Species List). Plus the project areas are near designated critical habitat for California red-legged frog and western snowy plover (See Critical Habitat map). These eight species are addressed below. The remaining 34 species without potential to occur are not analyzed further. The proposed action would have **no effect** on any of these other species.

Rare Plants

Rare plant distribution data has been collected in Point Reyes National Seashore and recorded in GIS format for listed and non-listed plant species. The National Park Service, California Native Plant Society, Calflora (2013), and California Natural Diversity Database (CNDDB 2013) maintain GIS databases for these species. This includes the 21 plant species listed in Appendix F: Species List.

After reviewing these GIS databases, Point Reyes rare plant survey reports (Coppoletta and Skaer 2004, NPS 2009), and consulting with park ecologists it was determined that two federal and California listed endangered plants, beach layia (*Layia carnosa*) and clover lupine (*Lupinus tidestromii*), could potentially occur near the North Beach, and South Beach roads and parking areas to be paved. Part of the South Beach paking area would be removed and vegetation restored. The beach layia occurs in coastal dune open areas. It can also occur in other open areas, such as along trails and roads (USFWS 1998). The clover lupine is found within coastal foredunes in the Point Reyes dune system. They occur on partially stabilized coast dunes up to 25 feet high.

NPS rare plant survey data indicates that two state listed species the rare Point Reyes blennosperma (*Blennosperma nanum* var. *robustum*) and the endangered Point Reyes meadowfoam (*Limnanthes douglasii* ssp. *sulphurea*) are found near Lighthouse and Chimney Rock Roads. These two plants are typically found in coastal prairie, north coastal scrub, and wetland-riparian communities.

Besides these two state listed plants, at least 17 other rare plants listed as rare by the California Native Plant Society (see Appendix F: Species List) are known to occur near vegetated areas potentially affected by Limantour, Chimney Rock, and Lighthouse road projects.

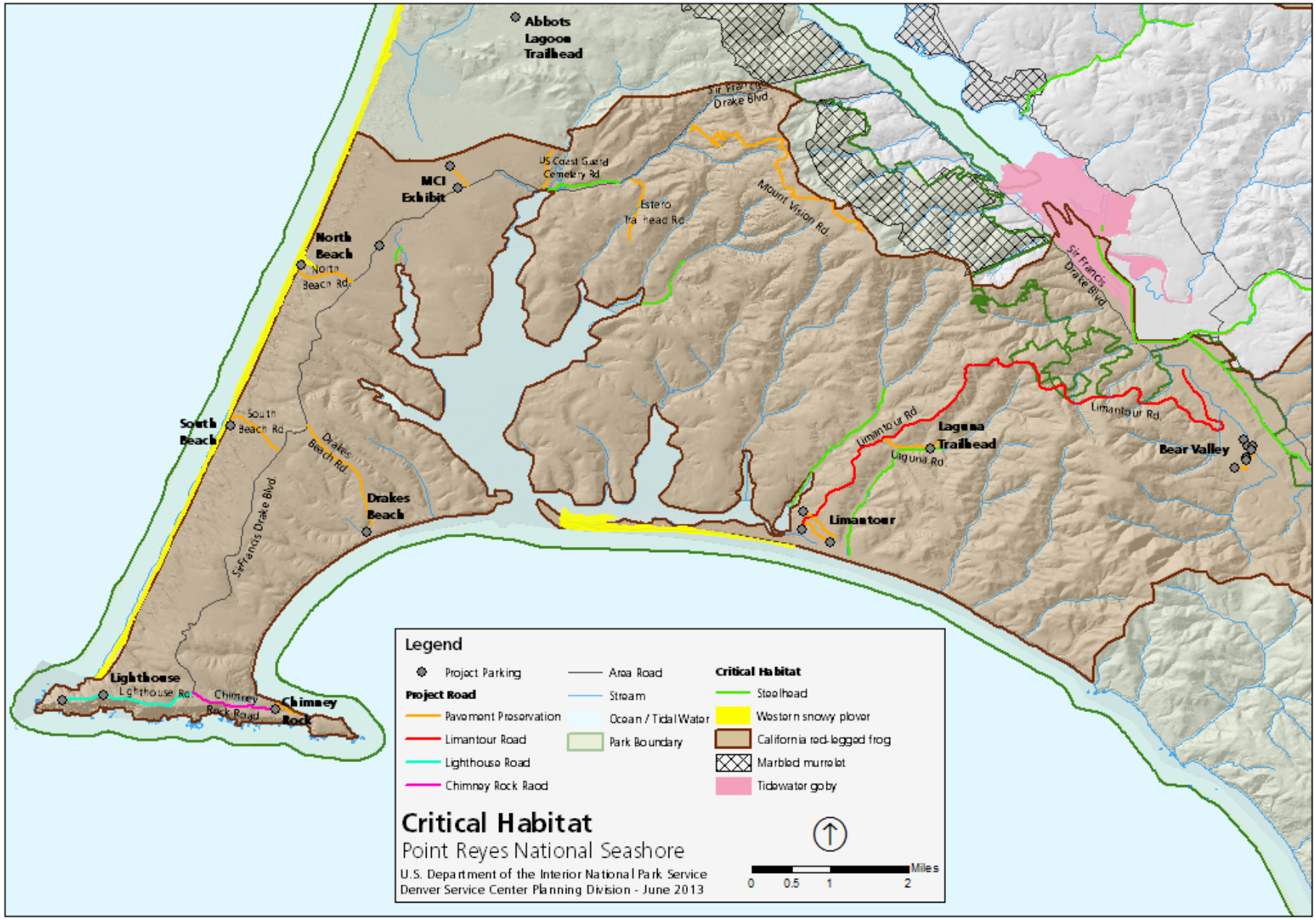


Figure 9. Critical Habitat

Myrtle's Silverspot Butterfly

Typical habitat supporting the endangered Myrtle's silverspot butterfly (*Speyeria zerene myrtleae*) and its host plant are coastal dunes, coastal scrub, or coastal prairie at elevations below (1,000 feet) and as far as 3 miles inland (USFWS 1998). The adult butterflies prefer areas protected from onshore winds, but can be observed in exposed areas when calm (USFWS 2009).

Critical factors in Myrtle's silverspot butterfly distribution include presence of the larval host plant, *Viola adunca* (western dog violet), and availability of nectar sources for adults. This western dog violet serves as the only known larval food plant for Myrtle's silverspot butterfly, while a variety of other flowering plants serve as nectar sources for the adult.

The Myrtle's silverspot butterfly has a single reproductive event per year. Adult Myrtle's silverspot butterflies emerge from their pupae between mid-June and mid-July and live up to five weeks. The total flight period, however, lasts for two to three months since adult emergence is staggered. Females oviposit single eggs solely on the dried leaves and stems of the host plant, *Viola adunca*. Larvae apparently emerge from eggs a few weeks after oviposition. New larvae migrate a short distance into suitable foliage or leaf litter and spin a silk web where they remain in a suspended and inactive state known as diapause through the fall and winter. In spring, diapause ends and larvae began searching for and feeding on the fresh leaves of the host plant. It is unknown if the Myrtle's silverspot butterfly larvae will feed off other *Viola* species, although related subspecies of *S. zerene* will feed from several closely related violet species. Larvae feed for 7 to 10 weeks and then form a pupal chamber from leaf debris and silk. The pupal stage for the Myrtle's silverspot butterfly lasts for about two weeks (USFWS 2008).

Vegetation along all the project roads and parking areas are maintained by regular mowing that may limit the growth of many flowering plants. The southeast Limantour Road corridor is dominated by non-native perennial grasses. Vegetation along the Lighthouse and Chimney Rock roads is a combination of native perennial grasses, non-native annual and perennial grasses, and numerous perennial and annual forbs. Livestock grazing near these two roads also affects vegetation near these roads. The Calflora (2013) database has records of *Viola adunca* near Lighthouse and Chimney Rock roads. No project specific surveys have been conducted for Myrtle's silverspot butterfly or their host plant, *Viola adunca*. But the presence of *Viola adunca* alone is not considered a reliable predictor of the presence of Myrtle's silverspot butterfly (Launer, et. al. 1992).

The Limantour, Lighthouse, and Chimney Rock project areas are outside areas known to support Myrtle's silverspot butterfly. These roads are outside estimated habitat range boundaries mapped in the national seashore (Adams, et. al. 2009; Launer, et. al. 1992; CNDDB 2013). The estimated habitat range is shown on Figure 10: Mytrle's Silverspot Butterfly Habitat. Extensive observations have found that adults generally stay within protected coastal drainage systems and not on exposed grasslands and wind-swept ridges (Launer, et. al. 1992). Because the project roads are relatively unprotected from wind and are outside the know distribution of Myrtle's silverspot butterfly in the national seashore, it is unlikely that the project road corridors provide suitable butterfly habitat.

California Red-Legged Frog

Researchers have conducted California red-legged (*Rana draytonii*) frog surveys in Point Reyes National Seashore and Golden Gate National Recreation Area since 1993 (Fellers and Guscio 2002; Fellers and Osbourn, 2004; Fellers and Kleeman 2007). Surveys have been

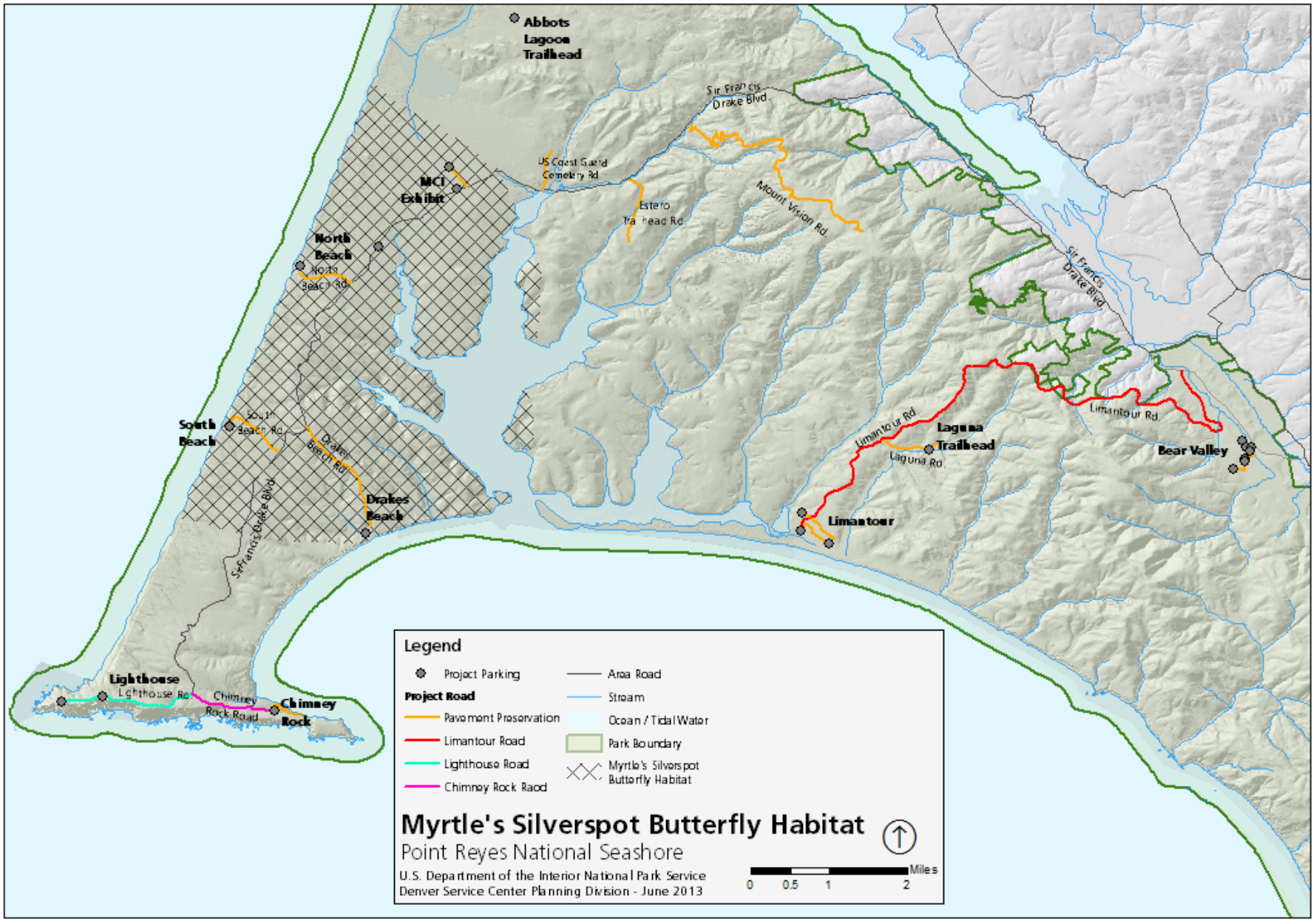


Figure 10. Myrtle's Silverspot Butterfly Habitat

conducted on virtually all sites in the national seashore containing aquatic habitat that might support amphibians. Most of the breeding sites are artificial stock ponds constructed on lands that have been grazed by cattle for 150 years. Sites where California red-legged frogs were found have been mapped in a GIS database (CNDDB 2013). The following three maps (figures 11, 12, and 13) show California red-legged frog sites within one mile of the project roads. Each circle on the map represents an 80 meter buffer around each frog collection site.

Maintaining populations of pond-breeding amphibians, such as California red-legged frog, requires that all essential habitat components be protected. These include (1) breeding habitat, (2) nonbreeding habitat, and (3) migration corridors. In addition, a buffer is needed around all three areas to ensure that outside activities do not degrade any of the three habitat components. For California red-legged frog, nonbreeding habitats must have several characteristics: (1) sufficient moisture to allow amphibians to survive throughout the nonbreeding season (up to 11 months), (2) sufficient cover to moderate temperatures during the warmest and coldest times, and (3) protection (e.g., deep pools in a stream or cover such as root masses or thick vegetation) from predators (Fellars and Kleeman 2007).

A radio-tracking study (Fellers and Kleeman 2007) showed that most frog movement was small scale (less than 100 feet) and considered non-dispersal. Movements of greater than 100 feet occurred mostly during winter rain events; however, some movements did occur when the ponded habitat was almost dry. The majority of frogs dispersed less than 1,640 feet away from breeding habitat, and the maximum dispersal distance recorded was 1.7 miles. The study concluded that most frogs move away from breeding sites, but only a few disperse farther than the nearest non-breeding habitat; and that the distance moved is highly dependent on site conditions and local landscapes.

California red-legged frog breeding season typically runs from November through April, but mating typically occurs in March. They breed in ponds or deep pools in slow-flowing stream reaches with some type of vegetative or other material to attach their egg masses that holds water long enough for tadpoles to complete their metamorphoses into juvenile frogs able to survive outside of water. California red-legged frogs often disperse from their breeding habitat to use various aquatic, riparian, and upland summer habitats during their migrations from one area to another. However, it is also common for individuals to remain in the breeding area on a year-round basis.

Juveniles tend to disperse away from aquatic habitat occupied by adults. Dispersal habitat for juveniles can be almost anything that provides sheltering vegetation or scattered wetlands or streams. This includes forested areas, nonnative grasslands, and even croplands or pasture. Impassible barriers such as heavily traveled roads without underpasses or culverts can limit dispersal. Passable roadways that are heavily used by vehicles may also result in a high rate of mortality for frogs, thereby limiting dispersal capabilities. Juveniles dispersing along riparian corridors may have higher survivorship, as sheltering vegetation and suitable aquatic habitat are both more common in such corridors. Juveniles appear to have less strict requirements for aquatic habitat than adults, and tend to segregate away from adults in water bodies that are shallower or faster moving than those typically used for breeding.

All project roads and parking areas are within the mapped boundaries of designated critical habitat for California red-legged frog. But, “Critical Habitat Areas within the boundaries of the mapped units such as buildings, roads,

parking lots, railroads, canals, levees, airport runways, other paved areas, lawns, and other urban landscaped areas are not critical habitat . . . " (USFWS 2008). Therefore, the majority of the project area is not critical habitat. Exceptions to this include small areas where proposed work on drainage structures (culverts, ditches) and modifying Chimney Rock Road could affect previously undisturbed vegetation and wet areas outside the road corridor. But these small areas do not provide "primary constituent elements" required by this species.

The USFWS (2008) considers the following physical and biological features to be the "primary constituent elements" laid out in the appropriate quantity and spatial arrangement for conservation of the species. These include, but are not limited to: (1) space for individual and population growth and for normal behavior; (2) food, water, air, light, minerals, or other nutritional or physiological requirements; (3) cover or shelter; (4) sites for breeding, reproduction, and rearing (or development) of offspring; and (5) habitats that are protected from disturbance or are representative of the historical geographical and ecological distributions of a species.

Western Snowy Plover

The U. S. Fish and Wildlife Service designated two coastal areas in Point Reyes National Seashore as critical habitat for western snowy plover (*Charadrius alexandrinus nivosus*). The Point Reyes subunit (CA 10A) occupies most of the west-facing beaches between Point Reyes and Tomales Point. This subunit currently supports both nesting and wintering plovers. The Limantour subunit (CA 10B) is a 2.25 mile sand spit at the north end of Drakes Bay (see Figure 9: Critical Habitat Map). This subunit can support both nesting and wintering plovers, although nesting hasn't been documented since 2000 (USFWS 2012).

Both units consist primarily of dune-backed beaches. The primary constituent elements for these units includes; sparsely vegetated sandy beach above and below high-tide for nesting and foraging, wind-blown sand dunes for nesting and predator avoidance, and tide-cast debris attracting small invertebrates for foraging. Control of nonnative vegetation and minimizing human-caused disturbances are needed to ensure suitability of these two subunits of designated critical habitat for western snowy plover (USFWS 2012).

The Pacific coast population of the western snowy plover breeds primarily above the high tide line on coastal beaches, sand spits, dune-backed beaches, sparsely-vegetated dunes, beaches at creek and river mouths, and salt pans at lagoons and estuaries. The beaches and spits that are sparsely covered with vegetation allow chicks protected access to the shore and allow plovers to see approaching predators. In winter, they are found on beaches used for nesting, as well as on beaches where they do not nest, in salt ponds, and estuarine sand and mud flats. Typically, plovers will lay 2–3 clutches per year; both male and female will incubate the 1–5 eggs laid; and once the eggs hatch, the male will stay with the hatchlings for roughly 28 days until the chicks are fledged, protecting them from predators and guiding them to places to eat insects (USFWS 2007).

Western snowy plovers forage on invertebrates in wet sand and amongst surf-cast kelp within the intertidal zone, in dry sand areas above high tide, on salt pans, on spoil sites, and along edges of salt marches, salt ponds, and lagoons. They sometimes probe for prey in the sand and pick insects from low growing plants (USFWS 2007). Since 1995, Point Reyes National Seashore and Point Reyes Bird Observatory Conservation Science (PRBO) have been implementing a recovery project for the breeding Western Snowy Plover population within the national seashore.

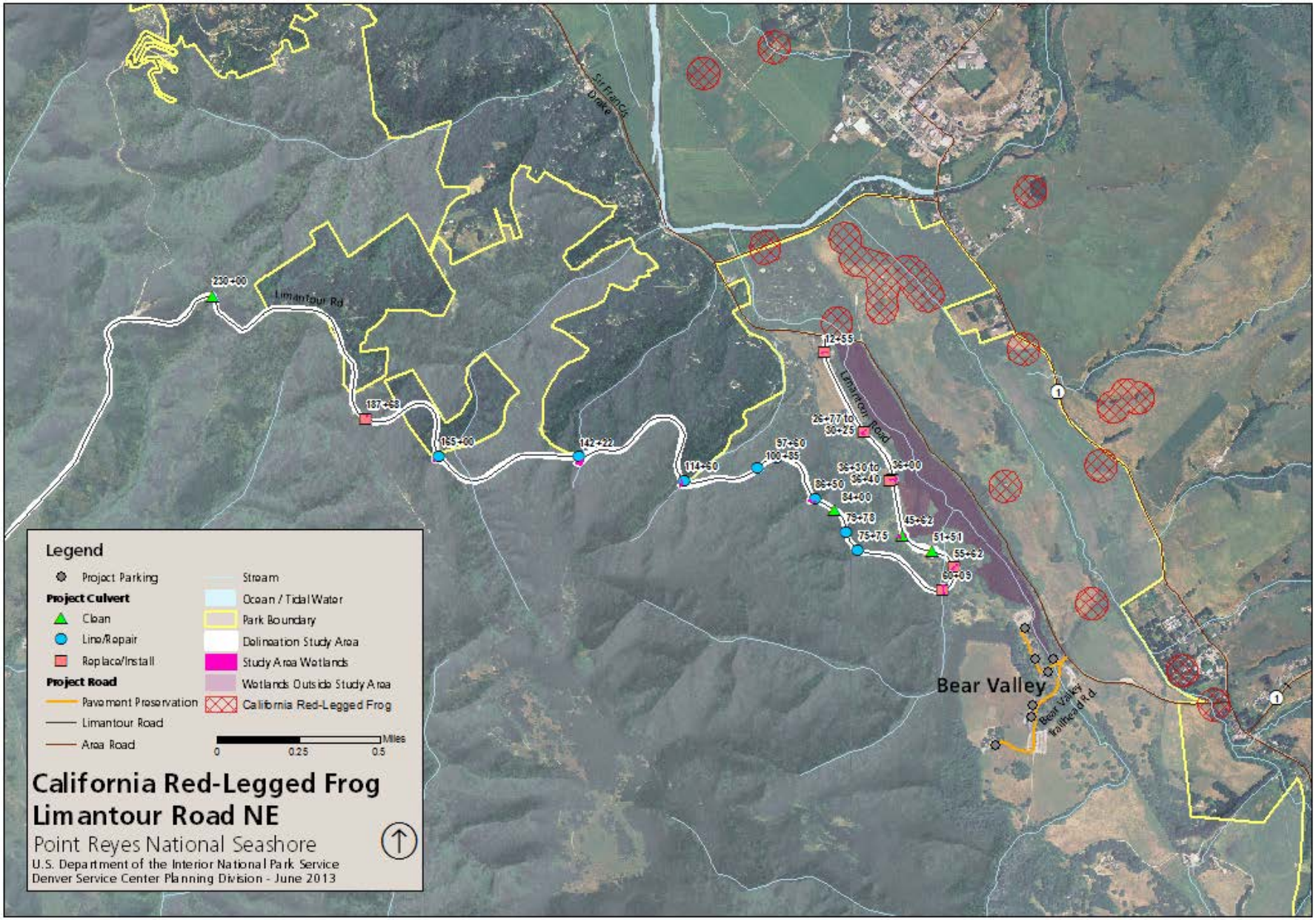


Figure 11. California Red-Legged Frog Map, Limantour Road NE

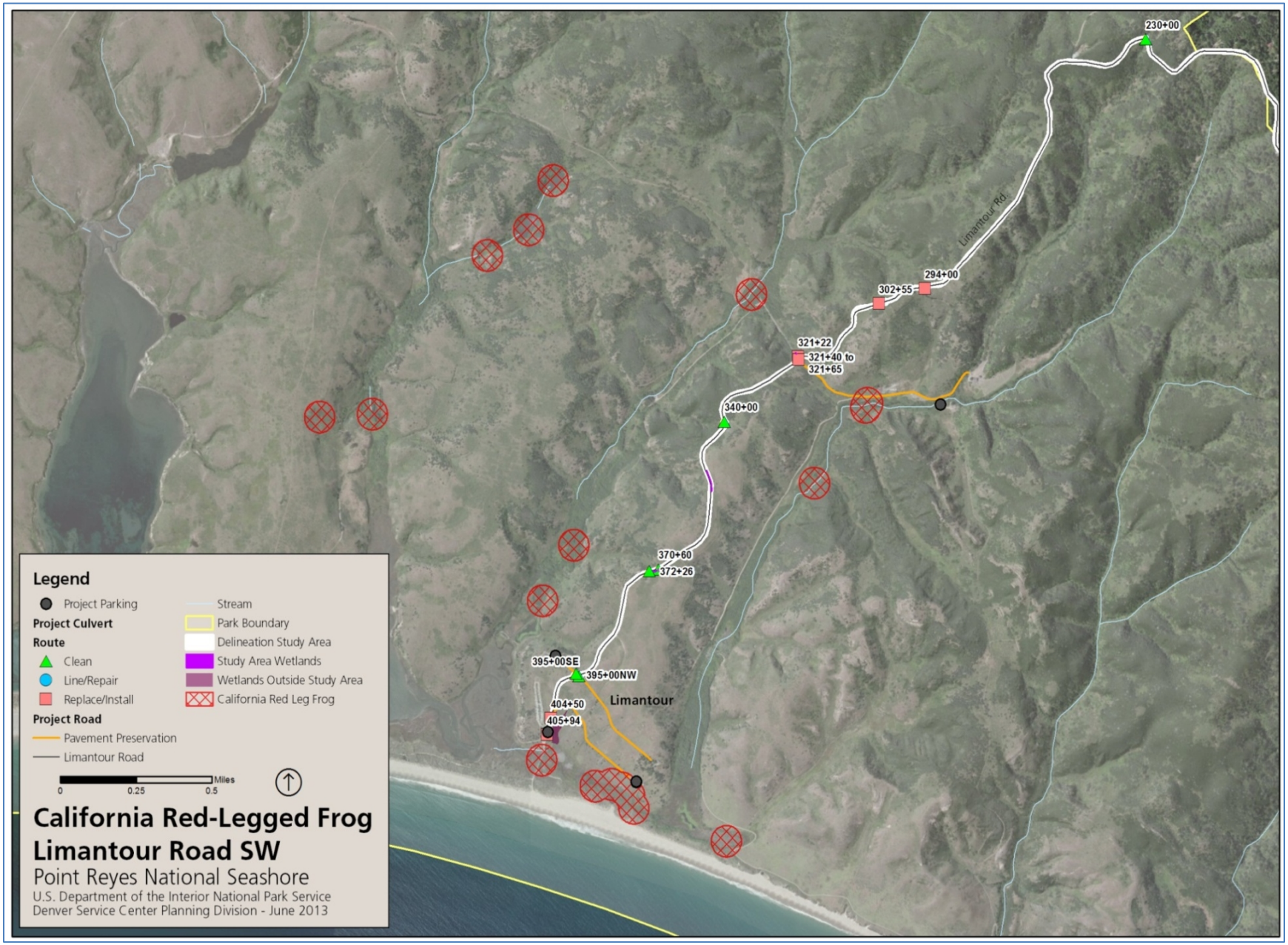


Figure 12. California Red-Legged Frog Map, Limantour SW

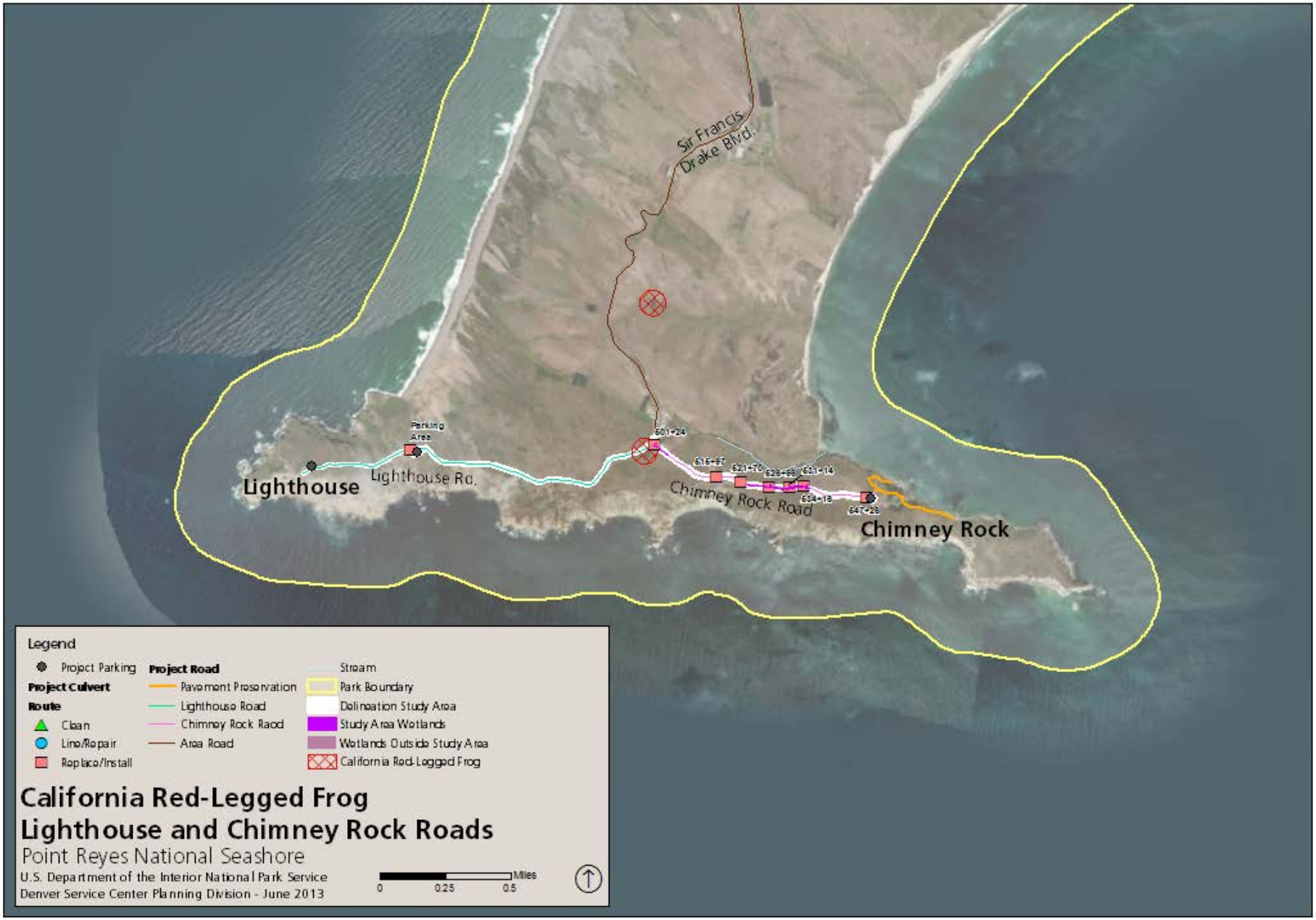


Figure 13. California Red-Legged Frog Map, Lighthouse and Chimney Rock Roads

Each year snowy plovers are monitored during the breeding season - March through September. Every week, PRBO biologists systematically search Point Reyes Beach and Limantour Spit for nests and watch potential nesting adults from concealed positions. Nests are checked frequently to determine the exact hatching date and the chicks are monitored for another 28 days, at which time they are considered fledged (NPS 2012b, 2012c).

PRBO and Point Reyes National Seashore have experimented with a variety of management measures that would help the plovers reproduce successfully, including erecting fencing around nests, creating seasonal closures around nesting habitat and removing invasive plants. These exclosures allow plovers to enter and leave while keeping out predators. To reduce human disturbance of plovers, the park uses educational signs and brochures to teach the public about the vulnerability of nesting snowy plovers and to alert visitors to seasonal closures and pet restrictions in plover habitat. On weekends, when recreation is most intense, park employees and several volunteers are present on beaches and at trailheads to educate visitors (NPS 2007).

Northern Spotted Owl

Marin County is the southern extent of the range of the Northern spotted owl (*Strix occidentalis caurina*). In this area they inhabit second and old growth Douglas fir (*Pseudotsuga menziesii*), coast redwood (*sequoia sempervirens*), bishop pine (*Pinus muricata*), mixed conifer-hardwood, and evergreen hardwood forests (see Figure 8: Plant Communities Map).

There have been numerous inventories and monitoring studies documenting the presence of northern spotted owls in Marin County, including in Point Reyes National Seashore (Press et al. 2011). The Marin County study area supports the highest density of northern spotted owls within this subspecies' range (Blakesley et al. 2004). The barred owl (*Strix varia*) has been detected in Marin County only since 2002 and may pose a threat to the northern spotted owl through competition and/or interbreeding (Jennings et al. 2011). Monitoring by the National Park Service of the Marin spotted owl population has occurred from 1999 to 2011 (Press et al. 2011). The northern spotted owl study area for the on-going monitoring efforts encompasses northeast section of Limantour Road.

Within the national seashore, the Limantour Road project area between the intersection of Bear Valley Road and Inverness Ridge traverses a forested area provides nesting and roosting habitat for spotted owls. Nest sites have been documented in the vicinity of this road section. The remaining project road sections do not cross owl nesting or roosting habitat.

Spotted owls are mostly nocturnal; although they also forage opportunistically during the day (USFWS 2011). Spotted owls in Marin County feed primarily on dusky-footed woodrats (*Neotoma fuscipes*). Other prey species includes small mammals such as deer mice (*peromyscus maniculatus*), California meadow vole (*Mictrotus califonicus*), and brush rabbit (*syvilagus maniculatus*) as well as a variety of forest-dwelling birds (Press et. al. 2011).

Spotted owl courtship behavior usually begins in February or March, and females typically lay eggs in late March or April. After they leave the nest in late May or June, juvenile spotted owls depend on their parents until they are able to fly and Hunt on their own. Parental care continues after fledging into September (USFWS 2011).

VISITOR EXPERIENCE AND SAFETY

Visitors can tour the Limantour, Lighthouse, and Chimney Rock areas by private automobile. During peak visitation during the whale-watching season on good-weather weekends, the park provides bus service from Drakes Beach directly to the Lighthouse and Chimney Rock areas. To ensure the safety of bus operators and passengers during peak visitation season, private vehicle access is limited on the narrow and curving roads while the buses are running. Limantour road provides year-round private vehicle access to Point Reyes Hostel, Clem Miller Environmental Education Center, and Limantour Beach.

These roads also provide access to trails leading into the Phillip Burton Wilderness Area, which covers over one-half of the national seashore. This primitive zone is managed in accordance with the mandates of the Wilderness Act. These lands offer the visitor a sense of immersion in nature and a minimum of noise or visual intrusion.

Lighthouse Road and parking area provide visitor access to the historic Point Reyes Lighthouse. Visitor attractions include the visitor center, touring the Lighthouse, and viewing spectacular coastal scenery, wildflowers, seabirds, sea lions, and whales. The lighthouse is favorite spot to see Pacific gray whales as they make their southward and northward migrations along the coast from January to April. On weekends and holidays during whale-watching season, only shuttle busses are permitted on the road.

The Chimney Rock Road and parking area provide access to Chimney Rock and the historic Lifeboat Station. Chimney Rock is especially appealing in winter and spring, when visitors can see sea lions, elephant seals, harbor seals, and seabirds. The historic Lifeboat Station is used as an educational facility for non-profit groups learning about the resources of the natural and cultural resources of Point Reyes.

Visitors may drive almost right up to Drakes Beach, Limantour Beach, and the Great Beach (at the North and South Beach parking lots). Drakes Beach is very popular for its wide stretch of beach backed by dramatic white sandstone cliffs, a small cafe, and a visitor center. Visitors enjoy Great Beach for its large expanse of over 11 miles of undeveloped ocean beach and heavy surf. Limantour Beach is a long, narrow spit of sand, bound between Drakes Bay and an estuary, which is a popular wildlife viewing area.

CULTURAL AND HISTORIC RESOURCES

“Historic properties,” as defined by the implementing regulations of the NHPA (36 CFR 800), are a prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register. This term includes artifacts, records, and the remains that are related to and located within such properties, as well as traditional and culturally significant Native American sites and historic landscapes. The term “eligible for inclusion in the National Register” includes both properties formally determined eligible and all other properties that meet National Register listing criteria.

The significance of historic properties is generally judged against a property's ability to meet, at a minimum, one of the four criteria for inclusion on the National Register (36 CFR 60):

a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
b) that are associated with the lives of persons significant in our past; or

c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
d) that have yielded, or may be likely to yield, information important in prehistory or history.

Properties may be eligible for the National Register for contributions at the national, state, or local level. Ordinarily, properties achieving significance within the last 50 years are not considered eligible unless they are integral parts of historic districts or they are of exceptional importance. Additionally, in order for a structure or building to be listed in the National Register, it must possess integrity to convey its significance (i.e., location, design, setting, workmanship, materials, feeling and association).

The Park conducted an intensive archeological survey along Lighthouse, Limantour, and Chimney Rock roads (Engel 2012). They surveyed the extent of the roadways and parking lots and a ten meter buffer on either side of the roadway, to cover the extent of drainage improvements that would occur along the roadways and areas where construction equipment may be staged during construction.

The background research and intensive surface survey identified three historic properties within the APE, the Shafter/ Howard Tenant Ranches Historic District, the Point Reyes Peninsula Indigenous Archaeological District, and the Point Reyes Lighthouse Station Historic Site. Additionally, two unevaluated cultural resources, CA-MRN-393 and CA-MRN-66IH, occur within the project's APE. CA-MRN-661H was originally identified in 2002 as the subsurface remnants of an historic redwood corduroy road along Lighthouse Road. The road is associated with the construction of the lighthouse in the 1870' and probably provided a stable base for the transport of supplies and materials over the sand dunes and drifts that occur along this stretch of Lighthouse Road. The National Park Service considers CA-MRN-393 and CA-MRN-661H eligible for purposes of this project.

Chimney Rock Road is a contributor to the Shafter/ Howard Tenant Ranches Historic District and the Lighthouse Road is a contributor to the Point Reyes Lighthouse Station Historic Site, however these aspects of the project involve repair and resurfacing of roads in-kind, and these treatments including staging areas would not exceed the depth of existing disturbance for most of the project area. Grading of adequate ditches on Chimney Rock Road would disturb the ground up to a 4 foot depth. The landslide repair at Limantour Road would be excavated down approximately 25 feet. Limantour Road and the South Beach Parking lot are not associated with the aforementioned historic properties and are not over 50 years old.

The project also proposes widening Chimney Rock Road by one foot, paving three of the existing pullouts, and placing aggregate on the remaining existing pullouts. These actions would have an effect on the Shafter/Howard Tenant Ranches Historic District since Chimney Rock Road is a contributor, however the proposed treatments would not result in an adverse effect. Chimney Rock Road is significant as part of the circulation network of an historic ranch as it retains original alignment and relationship to other buildings and structures associated with the ranch, It also maintains its historic character as a single lane, rural road, Although widening the road by one foot is

proposed and the existing pullouts would be formalized, these treatments would not affect the aspects of integrity that make the road a contributor to the historic district.

Although most of the project entails surface treatments where physical impacts would be limited to previously disturbed areas, modifications to drainage features along the roads and the widening of Chimney Rock Road may impact previously undisturbed areas, thereby potentially affecting archeological resources in these areas. Four archaeological resources were identified; CA-MRN-661H, CA-MRN-277, CA-MRN-278, and CA_MRN-378. To avoid an adverse effect to any of these resources these sites would be avoided by all construction activities and temporary fencing would be installed along the roadside to ensure no construction activity or staging of equipment would occur within the site boundaries and an archeological monitor would be on site during construction in these areas.

In the unlikely event that possible human remains, Native American artifacts, or concentrations of historic artifacts likely over 50 years of age are discovered, work in the immediate area must cease and the Park's Cultural Resources Division must be notified for an evaluation of the discovery.

The proposed surface treatments to the roadways, parking lots and the removal of a section of the South Beach parking lot does not have potential to affect the identified historic properties.

Assessment of Adverse Effects: There would be "No Adverse Effect" (36 CFR 800.5). The proposed project would have no adverse effect on the Shafter/ Howard Tenant Ranches Historic District, the Point Reyes Peninsula Indigenous Archaeological District, the Point Reyes Lighthouse Station Historic Site, CA-MRN-393, or CA-MRN-661H. The Park began consultation with the CA State Historic Preservation Officer (SHPO) and park affiliated tribes on November 8, 2012. The SHPO (August 7, 2013), the California Sacred Sites Protection Committee of the Federated Indians of Graton Ranchera (October 10, 2012), concurred that the project proposed constitutes an undertaking and concurred with the National Park Service finding of “no adverse effect. SHPO also agreed that the APE is sufficient to take effects into account. The SHPO also does not object to assuming eligibility for the two unevaluated sites and finds identification and evaluations efforts to be sufficient.” (see Appendix B: Agency Correspondence).

CHAPTER 4: ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This section describes the potential environmental consequences associated with the two alternatives. The methodologies and assumptions for assessing environmental consequences are discussed, including consideration of context, intensity, and duration of impacts; cumulative impacts; and measures to mitigate impacts. Subsequent subsections in this section are organized by impact topic, first for the no action alternative and then for the action alternative.

General Methodology for Analyzing Impacts

Overall, the National Park Service based these impact analyses and conclusions on the review of existing literature and Point Reyes National Seashore studies, information provided by experts at the seashore and in other agencies, professional judgments and national seashore staff insights, and public input.

Definitions

Potential impacts (direct, indirect, and cumulative effects) are described in terms of type (beneficial or adverse), context (site-specific, local, or even regional), duration (short-term, long-term, or permanent), and intensity (negligible, minor, moderate, or major). The following definitions are applied throughout this document.

Direct effect – an effect that is caused by an action and occurs at the same time and in the same place.

Indirect effect – an effect that is caused by an action that is later in time or farther removed in distance, but is still reasonably foreseeable.

Cumulative Impacts – "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 CFR 1508.7).

Short-term Impacts – Temporary effects that occur during active construction and reclamation activities.

Long-term Impacts – Effects that occur during and after construction and related activities are completed.

Cumulative Impact Scenario

Cumulative impacts were determined by combining the impacts of the alternatives with other past, present, and reasonably foreseeable future actions. Road maintenance and livestock grazing are ongoing or reasonably foreseeable activities that could potentially result in cumulative impacts when added to the no-action and proposed action activities. No state, private and tribal activities are expected to occur within the analysis area that would cause cumulative effects.

Road maintenance and livestock grazing are currently occurring within the affected road corridors. These activities have directly and indirectly affected resources by potential habitat alterations such as removal or modifying native vegetation, increased fragmentation, increased noise and other human disturbance. Road maintenance activities also have indirect effects on visitor experience and road safety. A description of these management activities within the affected road corridors follows.

Road Maintenance. Point Reyes National Seashore has approximately 73 miles of paved public roadway. These infrastructure assets are maintained at least semiannually, annually and

biennially. During periods of frequent storm events they receive weekly and daily maintenance. Road maintenance activities include:

Drainage Management - Maintaining drainage on seahore roads is critical to preventing road damage. Maintaining ditches ensures delivery of storm runoff to culverts. This consists of removing the shoulder's accumulated dirt, vegetation and debris (usually down to mineral soil), hauling off the spoils, and reshaping the ditch and shoulder to provide efficient drainage. "Ditch pulling" occurs typically every other year.

Maintaining culverts allows reliable transfer of water from the road surface to disperse away from the road's prism. Removal of debris and alluvium from inlets and outlets is usually performed with hand tools (shovels, picks, etc.) but often requires the use of heavy equipment (backhoes, excavators, loaders, etc.). Culverts and inlets are often cleaned on a daily basis during particularly wet winter seasons. At the very least culverts are cleaned four times a year.

Hazardous Vegetation Management – The National Park Service manages vegetation near the project roads to reduce hazardous fuel accumulations (NPS 2004) and allow for safe sight line distances and vehicular clearance. Road shoulders are typically mowed every three to four weeks during the vegetative growth period. The park uses a rotary mower mounted on a tractor, typically making 2- five foot swaths. Grass and brush is maintained to a maximum height of 8 inches.

Road right-of-ways and shoulders are maintained for clearance by removal of encroaching trees, limbs and branches by chainsaw, heavy equipment (loaders, backhoes), and wood chippers. Typical vertical clearance is maintained to 14'-16' while horizontal clearance extends into the established 10' mow-line. Chipped debris is typically jetted onto or over road shoulder for on-site disposal. Roads are usually brushed every three years with dense sections receiving maintenance yearly.

All treatments of roadside fuels are carried out in accordance with the approved Fire Management Plan for Point Reyes National Seashore and North District of Golden Gate National Recreation Area (NPS 2004) and terms and conditions stipulated in the Biological Opinion (USFWS 2004) for the Fire Management Plan.

Road Surface Maintenance - The National Park Service preserves pavement from elements to greatly extend the road life cycle. Road surfaces are swept with a diesel powered rotary bristle machine. The sweeper cleans the surface of leaves, needles, branches, sand, dirt, and debris. Material is deposited onto road shoulder, usually being picked up during ditching activities. All park roads are typically swept three times per year, sometimes weekly during an eventful winter season.

Cracks in asphalt road surface are cleaned and sealed with a hot bituminous rubberized sealant. Crack sealing typically is performed on a two to three year cycle.

Repair of Recent Road Failures – Recently, culvert 76+10 collapsed causing the road surface to slump resulting in the road being closed for several days and reduced to one lane for several months.

Livestock Grazing. The National Park Service permits livestock grazing in the western portion of Point Reyes National Seashore. Ranching began at Point Reyes when Mexican land grantees introduced the first cattle to the area in the mid-1800s. Dairying soon became

the dominant agricultural land use in Point Reyes and Marin County.

In 2001, the National Park Service consulted with the US Fish and Wildlife Service to prepare a Biological Assessment to review the proposed renewal of livestock grazing permits for areas managed by Point Reyes National Seashore. The Biological Assessment described the potential effects of cattle grazing on special-status plant and animal species. The assessment concluded that most of the special-status animals are not subject to impacts by grazing, while some plant species that occur in grasslands, are. The Biological Assessment recognized the compatibility of grazing with preservation of many special-status species.

IMPACTS ON VEGETATION

Guiding Regulations and Policies

NPS policy is to protect the components and processes of naturally occurring biotic communities including the natural abundance, diversity, and ecological integrity of plants and animals. In accordance with NPS pest *Management Policies 2006*, Point Reyes National Seashore uses an Integrated Pest Management (IPM) approach to control exotic invasive plants.

NEPA Impact Threshold Definitions for Vegetation

Negligible – No native vegetation would be affected or some individual native plants could be affected as a result of the alternative, but there would be no effect on native species population size, integrity, or continuity. The effects would be on a small scale.

Minor – The alternative would affect some individual native plants and would also affect a relatively limited portion of the plant community, but the viability of the plant community would not be affected and would recover naturally.

Moderate – The alternative would affect some individual native plants and would also cause a localized change in the plant community (e.g., abundance, distribution, quantity, or quality) possibly over a relatively large area.

Major – The alternative would have a considerable permanent and noticeable effect on native plant populations, the plant community, and affect a relatively large area of the national seashore.

No Action Alternative

Under the no action alternative, the project roads and parking areas would continue to be maintained by asphalt patching, removing traffic hazards as they occur, and repairing culverts and ditches as necessary to allow safe roadway travel and parking. Most work on road surface and shoulders would not directly modify roadside native vegetation. Repair of damaged culverts and ditches along Limantour and Chimney Rock roads would have the greatest potential to directly modify roadside vegetation. Deterioration of culverts and ditches requiring repairs would likely become more frequent over the long-term increasing the potential for vegetation impacts. Best Management Practices for controlling invasive plants and protecting vegetation would continue to be applied during road maintenance and repair activities to minimize impacts on vegetation. The no action alternative would cause long-term, negligible to minor, adverse impacts on roadside native vegetation.

Proposed Action Alternative

The replacement and repair of culverts, cleaning of ditches, installation of underdrains, and minor road and parking area realignments would impact a total of 1.91 acres of native vegetation near Limantour Road, 2.26 acres near Chimney Rock Road and parking area, and 0.28 acres near Lighthouse Road and parking area. These totals include both upland and wetland vegetation. Pavement Preservation projects would not adversely affect roadside vegetation. Construction activities to remove part of the South Beach lot would be confined to the existing parking area footprint and not disturb any adjacent vegetation.

The impacts to at least 1.81 acres of vegetation near Limantour Road, 2.11 acres near Chimney Rock Road and parking area, and 0.18 acres near Lighthouse Road and parking area would be temporary and minor because the native vegetation would be restored shortly after construction was completed. To improve line of sight at the Laguna Road intersection, a few roadside trees next to Limantour Road would be removed. Vegetation restoration would be accelerated by contouring to blend with surrounding topography. Topsoil previously stockpiled from the disturbed areas would then be evenly spread over the contoured area. If seeding is needed, then only NPS approved seed mix would be used. Livestock may be blocked from entering these areas until after revegetation is complete. Best Management Practices for controlling invasive plants and protecting vegetation would be applied. A monitoring program would be carried out to evaluate the success of these reclamation treatments over time and would identify problems that require remedial measures. Remedial measures could include additional planting and other soil treatments. The restored native vegetation would be nearly the same as the existing roadside vegetation.

The Limantour Road Project would cause minor long-term loss of up to 0.10 acres of vegetation, the Chimney Rock Road Project would cause a minor long-term loss of up to 0.15 acres of vegetation, and the Lighthouse Road Project would cause a minor long-term loss of up to 0.11 acres adjacent to the parking area. The proposed reduction of the South Beach parking footprint could result in up to 0.94 acres of coastal dune vegetation being reclaimed.

Clearing existing vegetation could lead to increasing populations of exotic invasive plants in three ways: (1) removal of established native plants that compete with weeds, (2) exposing mineral soil as a substrate for weed germination, and (3) dispersal of existing or new weed seed or plants by earth moving activities. Noxious weeds have the ability to dominate or disrupt natural communities or restoration projects. They spread rapidly and are very difficult to eradicate from an area once established. The best means of control is to isolate known populations and prevent them from establishing in new areas. Project construction activities resulting in disruption of soils could result in long-term minor impacts from weed invasion. In order to prevent spread of weeds, the mitigation measures discussed under the mitigation section would be implemented for the project.

Cumulative Effects

Actions when added to the no-action or proposed action activities that could have cumulative effects on roadside vegetation include periodic maintenance activities such as shoulder mowing, hazard tree removal, shoulder repair and culvert cleaning. The recent Limantour Road failure and repair at culvert 76+10 caused minor short-term impacts on a small area at the culvert inlet and outlet areas. Livestock trampling and foraging on vegetation along some road sections would have negligible effects on vegetation. Livestock grazing in the

national seashore is and would continue to be managed at levels that minimize vegetation loss and soil erosion.

Conclusion

The **no action alternative** would have long-term, negligible to minor adverse impacts on vegetation near the project roads. Road maintenance, roadside vegetation management, and cattle grazing under the no action alternative would have negligible to minor cumulative adverse effects on roadside vegetation.

The **proposed action** would cause a minor short-term adverse impact on 4.10 acres of roadside native vegetation and long-term loss of up to 0.36 acres of existing roadside vegetation. Reducing the South Beach parking footprint would restore up to 0.94 acres of native vegetation. Road maintenance, roadside vegetation management, and cattle grazing plus the action alternative would cause minor long-term and short-term cumulative adverse effects on roadside vegetation.

IMPACTS ON WETLANDS

Guiding Regulations and Policies

Federal Executive Order 11990: Protection of Wetlands, directs federal agencies to avoid adverse impacts on wetlands. Director's Order 77-1 establishes policies, requirements, and standards for implementing Executive Order 11990. Director's Order 77-1 states that the National Park Service will employ a sequence of avoiding adverse wetland impacts to the extent practicable, minimizing impacts that cannot be avoided, and compensating for remaining unavoidable adverse wetland impacts by restoring degraded wetlands.

Section 404 of the Clean Water Act established a program to regulate the discharge of dredged and fill material into waters of the United States. The Act authorizes the issuance of permits from the U.S. Army Corps of Engineers (USACE) for such discharges. The National Park Service would apply for a permit from the USACE. To grant a permit, the USACE must weigh the need to protect aquatic resources against the benefits of the proposed development. The USACE policy requires applicants to avoid impacts to waters of the U.S. and wetlands to the extent practicable, then minimize the remaining impacts, and finally take measures to compensate for unavoidable impacts. In addition, if the proposed action were implemented, a Construction General Permit issued by the State Water Resources Control Board—including a Storm Water Pollution Prevention Plan—may be obtained prior to construction and would incorporate best management practices to reduce storm water pollution and erosion.

NEPA Impact Threshold Definitions for Wetlands

Negligible – No measurable or perceptible changes in wetland size, integrity or continuity would occur.

Minor – Any impact would be measurable or perceptible but slight. A small change in size, integrity or continuity could occur due to short-term indirect effects such as construction related runoff. However, the overall viability of the resource would not be affected.

Moderate – Any impact would be sufficient to cause a measurable change in the size, integrity or continuity of the wetland or would result in a small, but permanent loss in wetland acreage.

Major – The action would result in a measurable change in all three parameters (size, integrity and continuity) or a permanent loss of large wetland areas. The impact would be substantial and highly noticeable.

No Action Alternative

Under the no action alternative, the project roads and parking areas would continue to be maintained by asphalt patching, removing traffic hazards as they occur, and repairing culverts and ditches as necessary to allow safe roadway travel and parking. Most work on road surface and shoulders would not directly modify wetlands. Sediment transported from damage road sections being repaired may indirectly enter nearby wetlands and streams. Increased erosion would be episodic occurring mainly during larger storm events. Repair of damaged culverts and ditches along Limantour and Chimney Rock roads would have the greatest potential to directly modify wetlands and cause sediment to enter wetlands. Increased sediment loading can reduce the effectiveness of several wetland functions such as water storage and uptake and assimilation of sediment and chemicals. Deterioration of culverts and ditches requiring repairs would likely become more frequent over the long-term increasing the potential for wetland impacts. Best Management Practices for controlling runoff pollution and protecting wetlands would continue to be applied during road maintenance and repair activities to minimize impacts on wetlands. The no action alternative would cause long-term, negligible to minor, adverse impacts on wetlands.

Proposed Action Alternative

The project study areas overlap mapped wetland boundaries (NPS 2013), as defined by the U.S. Army Corps of Engineers (1987) and Cowardin et al. (1979) (see table 3). The replacement and repair of culverts, cleaning of ditches, installation of underdrains, and minor road and parking area realignments would impact a total of 0.198 acres of wetlands near Limantour Road, and 0.197 acres of wetlands near Chimney Rock Road. The Lighthouse Road and Pavement Preservation projects would not adversely affect wetlands.

The impacts to at least 0.158 acres of wetlands near Limantour Road, and 0.164 acres near Chimney Rock road would be temporary and minor because these wetlands would be restored shortly after construction was completed. Wetland restoration would be accelerated by contouring to blend with surrounding topography. Topsoil previously stockpiled from the disturbed areas would then be evenly spread over the contoured area. If seeding is needed, then only NPS approved seed mix would be used. Livestock may be blocked from entering these areas until after revegetation is complete. A monitoring program would be carried out to evaluate the success of these reclamation treatments over time and would identify problems that require remedial measures. Remedial measures could include additional planting and other soil treatments. The restored wetlands would have nearly the same function and value as the existing wetlands.

Under Directors Order 77-1: Wetland Protection, this road rehabilitation project falls under the excepted action 4.2.1.g “Maintenance, Repair, or Renovation.” This exception allows for minor (0.1 acre or less) in the structure’s configuration or fill footprint in wetlands. The Limantour Road Project would cause minor long-term loss of up to 0.039 wetland acres and the Chimney Rock Road would cause a minor long-term loss of up to 0.033 wetland acres in the roadside drainage ditch (see table 3). These drainage ditch wetlands have low functional value because of the cumulative effects described below. Under this excepted action a wetland Statement of Findings is required and no requirement to compensate for wetland loss.

Cumulative Effects

Within the project road corridors, roads, parking lots, and livestock grazing are potential sources of non-point water pollutants (NPS 2001). Actions when added to the no-action or proposed action activities that could have cumulative effects on wetlands includes periodic maintenance activities such as shoulder mowing, hazard tree removal, pothole paving, pavement crack sealing, shoulder repair and culvert cleaning, some of which likely resulted in short-term, negligible to minor releases of sediment into wetland areas adjacent to the roadway. In addition, stormwater runoff from the roads has the potential to carry small amounts of contaminants from the road surface such as oil, grit and materials from tire and brake wear into adjacent waters. The recent Limantour Road failure and repair at culvert 76+10 caused minor short-term impacts on small wetland areas at the culvert inlet and outlet areas. Livestock trampling and foraging on vegetation along some road sections, especially wet areas near Chimney Rock Road, would have negligible effects on soil stability. Livestock grazing in the national seashore is and would continue to be managed at levels that minimize wetland soil erosion and sedimentation.

Conclusion

The **no action alternative** would have long-term, negligible to minor adverse impacts on wetlands near the project roads. Road maintenance, roadside vegetation management, and cattle grazing under the no action alternative would have negligible to minor cumulative adverse effects on wetlands.

The **proposed action** would cause a minor short-term adverse impact on 0.322 acres of wetland and long-term loss of up to 0.072 acres of existing wetlands. Road maintenance, roadside vegetation management, and cattle grazing plus the action alternative would cause minor long-term and short-term cumulative adverse effects on wetlands.

TABLE 3. WETLAND IMPACT AREA BY LOCATIONS, TREATMENT AND DURATION.

Feature Code	Culvert ID/Location	Treatment	Impact Duration	Wetland Area[a]	
				Feet²	Acres
Limantour Road					
LIM A	12+55	Replace with Concrete Box Culvert	Permanent	145.6	0.003
			Temporary	465.7	0.011
LIM B/C	26+77 to 30+25	Replace - Culvert	Permanent	246.9	0.006
			Temporary	1393.9	0.032
LIM F LIM F/G	36+00	Replace - Culvert	Permanent	189.0	0.004
			Temporary	535.5	0.012
LIM H	45+62	Cleaned - Culvert	Temporary	138.5	0.003
LIM I	55+62	Replace with Concrete Box Culvert	Permanent	267.3	0.006
			Temporary	826.9	0.019
LIM J	60+09	Replace with Concrete Box Culvert	Permanent	417.5	0.010
			Temporary	982.4	0.023
LIM K	86+50	Lined - Culvert	Temporary	517.7	0.012
LIM M	114+60	Lined - Culvert	Temporary	301.2	0.007
LIM O/P/Q	142+22	Lined - Culvert	Permanent	211.6	0.005
			Temporary	1269.1	0.029
LIM R	165+00	Lined - Culvert	Permanent	224.8	0.005
			Temporary	715.3	0.016
LIM T	321+22	Ditch Clean	Permanent	9.2	0.000
			Temporary	43.8	0.001
LIM X	404+50	Replace - Culvert	Temporary	1.2	0.000
		TOTAL	**Permanent**	**1,711.9**	**0.039**
		TOTAL	**Temporary**	**6,890.1**	**0.158**
		GRAND TOTAL		**8,602.0**	**0.198**
Chimney Rock Road					
CHRO A/B	501+24	Replace - Culvert	Permanent	82.3	0.002
		Replace - Culvert/Clean Ditch	Temporary	1458.0	0.034
CHRO C	523+20 to 526+98	Underdrain	Temporary	1890.0	0.043
CHRO C	526+96	Replace - Culvert	Permanent	23.0	0.001
			Temporary	111.0	0.003
CHRO C	527+10 to 530+96	Underdrain	Temporary	1930.0	0.044
CHRO C	531+14	Replace - Culvert	Permanent	0.0	0.000
			Temporary	171.0	0.004
CHRO C	531+20 to 534+18	Underdrain	Temporary	1480.0	0.034
CHRO C	534+16	Replace - Culvert	Permanent	27.0	0.001
			Temporary	101.0	0.002
CHRO C	523+20 to 532+50	Curb and Gutter	Permanent	1285.0	0.029
		TOTAL	**Permanent**	**1,437.0**	**0.033**
		TOTAL	**Temporary**	**7,141.0**	**0.164**
		GRAND TOTAL		**8,578.0**	**0.197**

[a] Includes mapped wetlands outside the delineation study area

IMPACTS ON SPECIAL STATUS SPECIES

Guiding Regulations and Policies

Federal Endangered Species Act. Under the federal Endangered Species Act (ESA), the Secretary of the Interior and the Secretary of Commerce jointly have the authority to list a species as threatened or endangered (16 USC 1533(c)). Pursuant to the requirements of ESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally-listed threatened or endangered species may be present in the study area and determine whether the proposed project may affect or "take" such species. Taking is defined by ESA [Section 3(19)] to mean "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." An incidental take of a listed species requires consultation with the U.S. Fish and Wildlife Service or National Marine Fisheries Service to determine whether the project is likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC 1536(3)). For this project, as the lead federal agency, the park service has made effects determinations for ESA-listed species with the potential to be present in the action area, as described below.

California Endangered Species Act. Under the California Endangered Species Act (CESA), the California Department of Fish and Wildlife is responsible for maintaining a list of threatened, endangered, and candidate species (California Fish and Game Code Section 2070). The California Department of Fish and Wildlife also tracks species of special concern. "Take" of a species, under CESA, is defined as an activity that would directly or indirectly kill an individual of a species. The CESA definition of take does not include "harm" or "harass," as is included in ESA. As a result, the threshold for a take under CESA may be higher than under ESA because habitat modification is not necessarily considered take under CESA.

California Native Plant Protection Act. The California Native Plant Protection Act (Fish and Game Code Sections 1900–1913), Natural Communities Conservation Planning Act, and CESA provide guidance on the preservation of plant resources. The California Native Plant Society (CNPS) has created six California Rare Plant Ranks (CRPR) in an effort to categorize degrees of concern. As discussed in the Affected Environment section, 17 special status plant species occur in the vicinity of the project area. At least 13 of these plants with a California Rare Plant Rank of 1B are rare throughout their range with the majority of them endemic to California. Most of the plants that are ranked 1B have declined significantly over the last century. All of the plants constituting California Rare Plant Rank 1B meet the definitions of Sections 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and are eligible for state listing.

NPS Management Policies 2006 (4.4.2.3). The National Park Service will inventory, monitor, and manage state and locally listed species in a manner similar to its treatment of federally listed species to the greatest extent possible. In addition, the Service will inventory other native species that are of special management concern to parks (such as rare, declining, sensitive, or unique species and their habitats) and will manage them to maintain their natural distribution and abundance. In keeping with this policy, species listed by the California Native Plant Society are managed by the national seashore as locally listed species.

NEPA Impact Threshold Definitions for Special Status Species

The following definitions apply to all special status species.

Negligible – Neither individuals nor habitat of the species would be measurably affected. Impacts would be discountable, or insignificant.

Minor – Impacts on individuals or habitat would be measurable or perceptible and local, but there would be no mortality to individuals and no long-term impact on the overall distribution, abundance, or viability of the population. If mitigation is needed to reduce and rectify adverse impacts, it would be relatively simple to implement and have a high probability of success.

Moderate – Impacts would be sufficient to cause mortality to individuals and/or a loss of habitat, resulting in a change in the population or subpopulation (e.g., abundance, distribution, quantity, or viability). However, the impact would remain local and temporary. Mitigation would be necessary to reduce and rectify adverse impacts.

Major – There would be mortality to individuals and/or loss of habitat which would result in a long-term or permanent change in the population or subpopulation (e.g., abundance, distribution, quantity, or viability). Mitigation would be necessary to reduce, rectify, and compensate for adverse impacts, and its success could not be guaranteed.

Endangered Species Act Impact Determinations

The following Endangered Species Act definitions apply only to federally listed species. In addition to NEPA impact determinations, this section includes the Nattional Park Service's effects determinations specific to Section 7 of the Endangered Species Act. The following sections define the various impact terminologies for these regulations.

No effect – The project (or action) and its interrelated and interdependent actions would not directly or indirectly affect listed species or destroy or adversely modify designated critical habitat. Formal Section 7 consultation is not required when the no effect conclusion is reached.

Not Likely to Adversely Affect – The project (or action) occurs in suitable habitat or results in indirect impacts on the species, but the impact on the species is likely to be entirely beneficial, discountable, or insignificant. Beneficial effects are contemporaneous positive effects without any adverse effects to the species or habitat. Insignificant effects relate to the size of the impact (and should never reach the scale where take occurs), while discountable effects are those that are extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant impacts; or (2) expect discountable impacts to occur (USFWS 1998).

Likely to Adversely Affect – The project (or action) may cause adverse effects to listed species or critical habitat as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable or insignificant (see the definition of "not likely to adversely affect"). In the event that the overall effect of the proposed action is beneficial to the listed species or critical habitat, but may also cause some adverse effect on individuals of the listed species or segments of the critical habitat, then the determination should be "is likely to adversely affect." Such a determination requires formal section 7 consultation.

RARE PLANTS

Endangered Species Act protection afforded to plants depends on its status (endangered or threatened). The prohibitions apply equally to live or dead plants, their progeny, and parts or products derived from them except that clearly labeled seeds of cultivated origin of threatened plants are exempt. The Act prohibits the removal and reduction of possession of federally listed **endangered** plants or the malicious damage of such plants on areas under federal jurisdiction, or the destruction of listed plants on non-federal areas in violation of state law or regulation. The Act prohibits the removal and reduction of possession of federally listed **threatened** plants from federal property. With limited exceptions, the prohibited activities may not be carried out unless authorized by a permit from the U.S. Fish and Wildlife Service.

No Action Alternative

Under the no action alternative, the existing roadway would not be improved, except for continuation of routine periodic maintenance activities and emergency repairs. These activities, including repairs on or near road shoulders, culverts, and drainage ditches, have minimal potential to disturb rare plant habitat within the road corridors. However, the frequency of road repairs that could affect rare plants over the long-term is expected to increase as the roads continue to deteriorate. Mitigation to avoid or minimize impacts to rare plant habitat would continue to always be carried out. The road maintenance activities would cause short-term, negligible to minor adverse impacts on some rare plant species, such as the state rare Point Reyes blennosperma and the state endangered Point Reyes meadowform. Mitigation measures could be used to largely negate any long-term effects. The no action alternative would not adversely affect the federally endangered beach layia (*Layia carnosa*) and clover lupine (*Lupinus tidestromii*) because no road maintenance activities would be allowed to directly or indirectly disturb habitat for these two plants near the North Beach, and South Beach parking areas.

Proposed Action Alternative

The endangered beach layia (*Layia carnosa*) and endangered clover lupine (*Lupinus tidestromii*) have been reported near North Beach and South Beach parking areas. The proposed paving work at these two parking areas would be confined to the existing paved surfaces and therefore not disturb any adjacent vegetation. Construction activities to remove part of the South Beach lot would also be confined to the existing parking area footprint and not disturb any adjacent habitat.

The state rare Point Reyes blennosperma (*Blennosperma nanum* var. *robustum*) and the state endangered Point Reyes meadowform (*Limnanthes douglasii* ssp. *sulphurea*) may occur near the Lighthouse and Chimney Rock Roads. At least 17 other rare plants listed by the California Native Plant Society could occur within the project road corridors. Proposed paving work on Lighthouse Road would be confined to the existing paved surface and therefore not disturb any adjacent vegetation. However, proposed construction would temporarily disturb up to 0.18 acres of vegetation adjacent to the Lighthouse parking area, up to 2.11 acres of vegetation adjacent to Chimney Rock Road and parking area, and up to 1.81 acres of vegetation adjacent to Limantour Road. The project would cause a long-term loss of a small area (0.36 acres) of roadside vegetation near these three roads. Impacts to state and CNPS listed plants within the construction zone may be unavoidable. However, disturbed areas would be recontoured and replanted immediately after construction allowing for potential rare plant regeneration in the reclaimed areas.

Under the proposed action alternative, protection measures would be required to ensure that federally listed plants are not adversely affected. The National Park Service would examine potential rare plant habitat within construction areas that had not been previously surveyed for the presence of rare plants. Any known occurrences of any federally listed plants within the vicinity of the South Beach and North Beach parking areas would be delineated and protected during construction. The National Park Service would also coordinate with the U.S. Fish and Wildlife Service to determine if other additional protective measures should be employed to protect federally listed plant species.

For other rare plants, protection measures would also include surveying for rare plants within the vicinity of the project areas. Known occurrences of state or locally listed plants would be delineated and protected during construction to the extent practicable. In addition, as described in previous sections, erosion and sediment controls and other best management practices would be utilized during construction to reduce soil erosion and prevent sediment transport from leaving the construction site and entering into nearby vegetated habitat. If state or locally listed plants are found and can't be avoided, then seeds would be collected and plants propagated before revegetating disturbed areas. Revegetated areas with rare plants would be monitored to up to three years and remedial actions taken to ensure that rare plants are reestablished.

Because protective measures would be used during construction, the proposed action is "not likely to adversely affect" the federally listed beach layia and clover lupine. The proposed action may have short-term negligible to minor impacts on the state listed Point Reyes blennosperma, Point Reyes meadowform, and other plants listed as rare by the California Native Plant Society (see Appendix F: Species List).

Cumulative Effects

Actions when added to the no-action or proposed action activities that could have cumulative effects on rare plants includes modification of potential rare plant habitat near the road caused by past and ongoing cleaning and repair of culverts and ditches, roadside mowing, hazard tree removal, and cattle grazing. Livestock have and would continue to graze in areas where rare plants may occur near the project roads. But grazing is not considered a threat to rare plants in the national seashore (NPS 2004). Like cattle grazing, regular roadside mowing helps maintain vegetation height adjacent to the roads at low levels. Where rare plants may occur, roadside mowing is done in the fall after plants have flower and gone to seed or excluded from treatment. Road maintenance activities have not or would not disturb roadside vegetation near federally endangered plant habitat.

Conclusion

The **no action** alternative would have **no effect** on the federally endangered beach layia (*Layia carnosa*) and clover lupine (*Lupinus tidestromii*). Road maintenance activities would cause short-term, negligible to minor adverse impacts on some other rare plants. Cattle grazing, mowing, plus road maintenance and repair under the no action alternative would cause negligible to minor cumulative impacts on rare plants.

The **proposed action** alternative **is not likely to adversely affect** endangered beach layia (*Layia carnosa*) and endangered clover lupine (*Lupinus tidestromii*) based on discountable and negligible effects and measures to avoid disturbing their potential habitat near North Beach and South Beach parking areas. The proposed action may have short-term and long-term negligible to

minor impacts on the state listed Point Reyes blennosperma and Point Reyes meadowform and other plants listed as rare by the California Native Plant Society. Cattle grazing, mowing, and routine road maintenance plus the **proposed action** would cause negligible to minor cumulative effects on rare plants.

MYTLE'S SILVERSPOT BUTTERFLY

No Action Alternative

Under the no action alternative, the existing roadway would not be improved, except for continuation of routine periodic maintenance activities and emergency repairs. These activities, including repairs on or near road shoulders, culverts, and drainage ditches, would have minimal potential to adversely affect Myrtle's silverspot butterflies within the road corridor. The frequency of road repairs that could affect silverspot butterflies over the long-term is expected to increase as the roads continue to deteriorate. Mitigation to avoid or minimize impacts to potential silverspot butterfly habitat would always be carried out. Where butterflies are known to be present, roadside repairs would be done during the non-breeding season. The road maintenance and repair activities under the no action alternative would have negligible effects on the Mrytle's Silverspot butterfly.

Proposed Action Alternative

The rehabilitation of project road surfaces and shoulders would not affect Myrtle's silverpot butterfly habitat because they do not function as butterfly habitat. Replacing, lining, cleaning culverts, adding new drainage features, and cleaning vegetated ditches would temporarily disturbing up to 4.10 acres of roadside vegetation. Disturbed areas would be recontoured and replanted immediately after construction to restore native vegetation to avoid long-term effects. The project would cause a long-term loss of up to 0.36 acres of vegetation along Limantour, Chimney Rock, and Lighthouse roads. However, the proposed reduction of the South Beach parking footprint could result in up to 0.94 acres of vegetation being reclaimed. To minimize the potential for impacts, no construction work would occur during June or July during the adult flight period where Myrtle's silverspot butterflies may occur. Plus, no larval host plants (*Viola adunca*) would be disturbed in areas where the butterfly occurs. *Viola adunca* may be present within disturbed areas along Lighthouse and Chimney Rock roads. However, this area is not considered suitable butterfly habitat and is outside the known distribution of Myrtle's silverspot butterfly. The proposed action would have negligible effects on Myrtle's silverspot butterfly.

Cumulative Effects

Actions when added to the no-action or proposed action activities that could have cumulative effects on Myrtle's silverspot butterflys includes the direct modification potential butterfly habitat caused by past and ongoing cleaning and repair of culverts and ditches, roadside mowing, and cattle grazing. Most of the Myrtle's silverspot butterflies documented at Point Reyes National Seashore have been found in areas that are grazed either by cattle or by tule elk. Butterfly surveys done by national seashore staff in 2003 showed occurrences of Myrtle's silverspot on 13 ranches, all of which support livestock operations. Recent research on Myrtle's silverspot (Adams et al. 2009) documents that Myrtle's silverspot and cattle have co-existed for over a hundred years and that the density of the nectar sources was higher in grazed areas. Biologists recorded more butterflies in grazed dunes and grasslands than in ungrazed plant communities (Adams et al. 2009). These studies have shown that cattle grazing in Point Reyes

National Seashore does not have measurable effects on Myrtle's silverspot butterfly populations. Like cattle grazing, regular roadside mowing maintains vegetation height adjacent to the roads at low levels.

Conclusion

The **no action** alternative **is not likely to adversely affect** Mrytle's silverspot buttefly based on negligible effects. Cattle grazing, mowing, and routine road maintenance would add negligible cumulative effects on Myrtle's silverspot butterfly.

Implementation of the **proposed action** alternative is **not likely to adversely affect** Myrtle's silverspot butterfly based on negligible effects. Repair and installation of culverts and drainage ditches would temporarily disturb small areas of roadside vegetation where butterflies do not occur. Where butterflies are present, road surface repairs and paving would be done during the non-breeding season. Cattle grazing, mowing, and routine road maintenance plus the proposed action would cause negligible cumulative effects on this butterfly.

CALIFORNIA RED-LEGGED FROG

No Action Alternative

Under the no action alternative, the existing roadway would not be improved, except for continuation of routine periodic maintenance activities and emergency repairs. This would include repairs on or near road shoulders, culverts, and drainage ditches. The frequency of road repairs that could adversely affect frogs over the long-term is expected to increase as the roads continue to deteriorate. These activities would occur outside designated critical habitat and not directly disturb any California red-legged frog breeding habitat. Mitigation measures similar to the proposed action would also be carried out to control erosion and sedimentation to avoid adverse effects to critical habitat, including downstream breeding habitat outside the road corridor (see Mitigation section). Mitigation would include limiting culvert and ditch repair work to the non-breeding season to the extent practicable to further minimize potential for indirect effects. Overall, continued road maintenance and repair activities under the no action alternative are not likely to adversely affect California red-legged frogs or their critical habitat.

Proposed Action Alternative

The long-term probability of the survival and recovery of California red-legged frogs is dependent upon the protection of existing breeding habitat and associated uplands the movements of individuals between aquatic patches, and the ability to recolonize newly created or vacated habitats (Fellers and Kleeman 2005). Recolonization, which is vital to the recovery of this subspecies, is dependent upon landscape characteristics, including appropriate distances between suitable breeding and non-breeding aquatic habitat, and limited fragmentation of interconnecting habitat (Vos and Chardon 1998).

California red-legged frogs appear to move readily between ponds and streams during periods when the ground is moist, which is prolonged on the foggy Point Reyes peninsula. The ephemeral streams and wet areas near the project roads can provide dispersal and feeding habitats. Outside of the breeding period, in summer and fall, adult and juvenile red-legged frogs within well-vegetated riparian corridors and areas between breeding ponds are susceptible to crushing or burying from construction. There are no known breeding ponds or streams areas within 100 feet of the project road corridors. However, frogs have been reported within 260 feet of Lighthouse

Road and Chimney Rock Road near culvert 501+24.

Road construction activities, including replacement and cleaning of culverts, cleaning of drainage ditches, installing drainage reshaping cut and fill slopes, would not directly affect red-legged frog breeding ponds or streams. However, these activities would temporarily disturb up to 0.322 acres of roadside wetlands that may provide some non-breeding dispersal habitat. Two culverts (55+62, 60+09) on Limantour Road would be replaced with wider concrete culverts that would decrease concentrated stream flows, resulting in decreased water velocities and bottom scouring in the culvert during peak flows. This could improve passage for frogs dispersing from breeding areas (USFS 2008).

Mitigation measures would be carried out to control erosion and sedimentation to avoid indirect adverse effects to critical habitat, including breeding habitat, outside the road corridor (see Mitigation section). This would include limiting culvert work to the non-breeding season, restoring vegetation on disturbed areas, and monitoring to protect frogs during dispersal periods.

Cumulative Effects

Other actions that could affect California red-legged frogs include periodic maintenance activities such as shoulder mowing, hazard tree trimming and removal, shoulder repair and culvert cleaning, some of which likely resulted in short-term, negligible to minor releases of sediment into wetlands adjacent to the roadway. Livestock trampling and foraging on vegetation along some road sections, especially wet areas near Chimney Rock Road, would continue to have negligible effects on soil stability. Livestock grazing in Point Reyes National Seashore is and would continue to be managed at levels that minimize wetland soil erosion and sedimentation. The U.S. Fish and Service (2006) has recognized that managed livestock grazing at low and moderate levels has a neutral or beneficial effect on California red-legged frog habitat.

Conclusion

The **no action** alternative **is not likely to adversely affect** California red-legged frog based on negligible effects. Past, present, and future road maintenance, roadside vegetation management, and cattle grazing under the no action alternative would have negligible cumulative effects.

The **proposed action** alternative **is not likely to adversely affect** the California red-legged frog or designated critical habitat, based on discountable and negligible effects. Project activities would not directly affect California red-legged frog breeding habitat. Replacement and repair of culverts would temporarily disturb an insignificant amount of potential non-breeding dispersal habitat. Mitigation measures would be carried out to protect red-legged frogs and their habitat. Replacing two culverts with wider concrete box culverts on Limantour Road may improve aquatic organism passage having a beneficial effect. Routine road maintenance, roadside vegetation management, and cattle grazing plus the proposed action alternative would cause negligible cumulative effects on California red-legged frogs.

WESTERN SNOWY PLOVER

No Action Alternative

Under the no action alternative, the existing roadway would not be improved, except for continuation of routine periodic maintenance activities and emergency repairs on road and parking areas, including at North Beach and South Beach. These activities would occur outside designated critical habitat and do not directly disturb any western snowy plover breeding habitat. Mitigation measures similar to the proposed action would also be carried out to avoid impacting nesting birds and their critical habitat (see Mitigation section). Mitigation would include avoiding road and parking area repair work near any nesting sites during the breeding season. Overall, continued road maintenance and repair activities are not likely to adversely affect Western snowy plovers or their critical habitat.

Proposed Action Alternative

The long-term recovery of western snowy plover is dependent upon the protection of existing breeding and feeding habitat. North Beach and South Beach parking areas are near designated critical habitat. Nest sites or activity areas are in the vicinity of these two lots. Construction would not directly disturb any ground cover near the parking areas or the roads leading to the lots. Removal of paved parking surface at South Beach followed by restoration of 0.94 acres would increase native vegetation. But this is a negligible amount of potential foraging habitat compared to the overall plover foraging habitat on the national seashore beaches. Another possible project specific threat is construction activities and associated heavy equipment noise near nesting birds. Construction work would not be allowed at North Beach and South Beach during the plover breeding season, if nesting birds are present. Overall, the proposed action is not likely to adversely affect western snowy plover or critical habitat based on short-term negligible effects and mitigation to avoid working near potential nesting areas during the breeding season.

Cumulative Effects

Routine road and parking area maintenance activities at North Beach and South Beach would continue and only be allowed when snowy plover are not nesting nearby. Therefore, these activities have negligible added effects on western snowy plovers.

Conclusion

Routine road maintenance and repair activities at North Beach and South Beach under the **no action** alternative are **not likely to adversely affect** western snowy plovers. The effects of past road and parking area maintenance added to the no action alternative would cause negligible cumulative impacts.

The **proposed action** alternative is **not likely to adversely affect** western snowy plover or designated critical habitat based on short-term negligible effects and mitigation to avoid working near potential nesting areas during the breeding season. . Removal of a portion of the paved South Beach parking area may improve habitat having a long-term beneficial effect. The cumulative effects of routine road and parking maintenance, plus the proposed action would cause negligible cumulative effects on western snowy plovers.

NORTHERN SPOTTED OWL

No Action Alternative

Under the no action alternative, the existing roadway would not be improved, except for continuation of routine periodic maintenance activities and emergency repairs in the vicinity of owl habitat along Limantour Road northeast of Inverness Ridge. This would include work on or

near road shoulders, culverts, and drainage ditches. This would have a negligible effect on northern spotted owls because the roadside vegetation is not considered important owl foraging habitat and constitutes only a very small amount of potential prey habitat compared to the overall owl foraging habitat in the national seashore. Work on this road section would be avoided during the owl breeding season to avoid impacting any nesting owls. The no action alternative is not likely to adversely affect northern spotted owls based on short-term negligible effects and mitigation to avoid working near potential nesting areas during the owl breeding season.

Proposed Action Alternative

Based on recent northern spotted owl monitoring within the national seashore, nest sites or activity areas are in the vicinity of Limantour Road northeast of Inverness Ridge. The proposed action would temporarily disturb 0.92 acres of vegetation near culverts and drainage ditches that may affect some prey species along this 4.4 mile section of road. An additional 0.1 acres of vegetation would be lost over the long-term. This would be a negligible effect because the roadside vegetation is not considered important owl foraging habitat and constitutes only a very small amount of potential prey habitat compared to the overall owl foraging habitat in the national seashore. The disturbed areas would be restored shortly after construction was completed to minimize any potential impacts on prey species. Another possible project specific threat is construction activities and associated heavy equipment noise near nesting northern spotted owls. Construction work on this road section would not be allowed during the owl breeding season, between February 1 and August 1, to avoid impacting any nesting owls. Overall, the proposed action is not likely to adversely affect northern spotted owls based on short-term negligible effects and mitigation to avoid working near potential nesting areas during the owl breeding season.

Cumulative Effects

Actions when added to the no-action or proposed action activities that could have cumulative effects on northern spotted owls would include the direct long-term modification of potential roadside prey habitat and indirect disturbance of nesting birds caused by cleaning and repair of culverts and ditches, roadside mowing, hazard tree trimming or removal, and cattle grazing. The effects of these activities are negligible because a relatively small area of prey habitat is affected, plus the park service avoids doing road work and mowing near nesting areas during the breeding season.

Conclusion

Continued road maintenance and repair activities under the **no action** alternative are **not likely to adversely affect** northern spotted owls. Cattle grazing, roadside vegetation management, plus road maintenance and repair under the no action alternative would cause negligible cumulative impacts on rare plants.

The proposed action **is not likely to adversely affect** northern spotted owls, based on discountable and short-term negligible effects. Proposed mitigation including delaying construction work during the owls breeding season and restoring vegetation disturbed by construction would minimize or avoid impacts to northern spotted owls. The cumulative effects of cattle grazing, routine road maintenance, roadside vegetation management, plus the proposed action would cause negligible cumulative effects on northern spotted owls.

IMPACTS ON VISITOR EXPERIENCE AND SAFETY

Guiding Regulations and Policies

NPS *Management Policies 2006* directs that park roads will be well constructed, sensitive to natural and cultural resources, reflect the highest principles of park design, and enhance the visitor experience. Park roads are intended to enhance the quality of a visit while providing for safe and efficient travel with minimal or no impacts on natural and cultural resources.

Impact Intensity Level Definitions for Visitor Experience and Safety

Negligible - The visitor experience and safety would not be affected or the effects would be at low levels of detection and would not have an appreciable effect on visitors and safety. The visitor would not likely be aware of the effects associated with the alternative.

Minor - The effect would be detectable, but would not have an appreciable effect on visitor experience and safety. If mitigation were needed, it would be relatively simple and would likely be successful. Some of the visitors would be aware of the effects associated with the alternative, but the effects would be slight and not noticeable by most visitors.

Moderate - The effects would be readily apparent and would result in substantial, noticeable effects to visitor experience and safety on a local scale. Mitigation measures would probably be necessary and would likely be successful. Changes in visitor experience would be readily apparent to most visitors.

Major - The effects would be readily apparent and would result in substantial, noticeable effects to visitor experience or safety on a regional scale. Extensive mitigation measures would be needed, and their success would not be guaranteed. Changes in visitor experience would be readily apparent to all visitors.

No Action Alternative

Under the no action alternative, visitors driving or riding shuttle buses on the project roads and parking areas would experience deteriorating road and parking area conditions that would increase the frequency of hazardous conditions and unexpected national seashore access restrictions and closures. There may be localized flooding due to clogged, undersized or damaged culverts, slope failures, or other damage to the roadway or safety hazards. The National Park Service would respond to future road and parking area needs and conditions without major actions or changes in the present course. The no action alternative does not preclude short-term minor repair or improvement activities. Road and parking area repairs would be expected to become increasingly frequent, resulting in more traffic delays and temporary road and parking closures to some of the most popular sites in the park. These issues constitute a short- long-term, minor to moderate, adverse impact to visitor experience and safety.

Proposed Action Alternative

Resurfacing of roads and parking areas would be phased over a period of up to 12 months. During the construction period, visitors would experience some delays along the project roads. To minimize impacts to visitor driving in the park, the construction contractor would keep one lane of traffic open and limit traffic delays to less than 30-minutes during peak visitation periods. Temporary road and parking area closures for installing culverts or replacing road surfaces would be limited to low visitor use periods. Seashore staff would announce the closure on the park website. Construction traffic and activities would contribute to existing traffic

noise, and may be noticeable to visitors at nearby attractions, hiking trails, and wilderness area. This would cause a temporary negligible effect on the visitor experience. Staging areas would be located outside of high visitor use areas so reduced aesthetics should not be a concern from staging activities. Overall, impacts to visitor experience during construction would be short-term minor and adverse.

The project road corridors would receive minimal alterations, including paving three existing gravel pullouts (1,860 ft^2), adding a curb and gutter on Chimney Rock Road, and the repair or replacement of culverts. These alterations would have a negligible effect on the overall views of the traveling public. Removing 0.9 acres of pavement at South Beach parking area and restoring the site with native vegetation would have a positive effect on views near this parking area. The proposed project would have negligible long-term effects on the overall scenic viewscapes for which Point Reyes National Seashore is renowned.

Upon completion of the preferred alternative, the improved road and parking surfaces, widened intersection approaches, paved turnouts, added signage, and repaired road drainage features would all improve driving conditions and road safety resulting in long-term beneficial impacts.

Cumulative Effects

Routine maintenance for continuing road and parking safety would help reduce and delay the potential for minor road and parking failures. Future routine maintenance of the rehabilitated roads and parking would ensure that road and parking areas would remain safe for visitors driving in the national seashore.

Conclusion

Under the **no action** alternative, current road and parking area deficiencies would continue to constitute a short- and long-term minor to moderate adverse impact to visitor experience and safety. Routine road maintenance is not sufficient to fix existing road and parking area deficiencies that could result in severe road hazards and closures. Thus, the overall cumulative impact of the no action alternative would be long-term and adverse to visitor experience and safety.

Construction activities under the **proposed action** alternative would cause noise, traffic delays, and temporary road and parking area closures resulting in short-term minor adverse impacts. Upon completion of the preferred alternative, the improved road and parking conditions would have long-term beneficial effects on visitor experience and safety. Cumulative impacts, in conjunction with the preferred alternative, would also have long-term beneficial impacts.

IMPACTS ON HISTORIC PROPERTIES

Guiding Regulations and Policies

The 1916 Organic Act directs the Park Service to "conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

The Antiquities Act of 1906 provided for protection of historic, prehistoric, and scientific features on federal lands and authorized the President to proclaim national monuments; authorized scientific investigation of antiquities on federal lands subject to permit and regulations.

Section 106 of the NHPA of 1966, as amended (16 USC 470 et seq.) and its implementing regulations under 36 CFR 800 require all federal agencies to consider effects of federal actions on cultural properties eligible for or listed in the National Register. In order for an archeological site to be listed in the National Register, it must be associated with an important historic event or person(s), embody distinctive characteristics or qualities of workmanship, or have the potential to provide information important to history or prehistory.

Archaeological Resources Protection Act of 1979, as amended defined archeological resources as any material remains of past human life or activities that are of archeological interest and at least 100 years old and required development plans for surveying public lands for archeological resources.

Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 assigns ownership or control of Native American human remains, funerary objects, sacred objects and objects of cultural patrimony that are excavated or discovered on federal lands or tribal lands after passage of the act to lineal descendants or affiliated Indian Tribes or Native Hawaiian organizations

Applicable agency policies relevant to cultural resources include Chapter 5 of NPS Management Policies and DO–28: Cultural Resource Management, as well as other related policy directives such as the NPS Museum Handbook (2005), Interpretation and Visitor Services Guidelines (1986), and The Secretary of the Interior's Standards for the Treatment of Historic Properties (1992).

Impact Intensity Level Definitions for Historic Properties

Negligible – The impact is at the lowest levels of detection with neither adverse nor beneficial consequences. The determination of effect for section 106 would be no adverse effect.

Minor – The alteration of a feature(s) would not diminish the overall integrity of the resource. The determination of effect for section 106 would be no adverse effect.

Moderate – The alteration of a feature(s) would diminish the overall integrity of the resource. The determination of effect for section 106 would be adverse effect. A PA is executed among the NPS and applicable state or tribal historic preservation officer and, if necessary, the advisory council in accordance with 36 CFR 800.6(b). Measures identified in the PA to minimize or mitigate adverse effects reduce the intensity of impacts under NEPA.

Major – The alteration of a feature(s) would diminish the overall integrity of the resource. The determination of effect for section 106 would be adverse effect. Measures to minimize or mitigate adverse effects cannot be agreed

upon between the NPS and applicable state or tribal historic preservation officer and/or advisory council, and they are unable to negotiate and execute a PA in accordance with 36 CFR 800.6(b).

No Action Alternative

Under the no action alternative, the existing roadway would not be improved, except for continuation of routine periodic maintenance activities and emergency repairs. These activities, including repairs on or near road shoulders, culverts, and drainage ditches, have minimal potential to impact historic properties.

Maintenance activities would temporarily introduce visual, audio, and atmospheric elements into the setting of the identified historic properties; however, these intrusions would be short-term, lasting only as long as construction and repairs. Routine road maintenance and repair would continue, but important historic properties would not be stabilized or rehabilitated. Continued deterioration of Lighthouse Road and Chimney Rock Road, contributors to the Shafter/ Howard Tenant Ranches Historic District, the Point Reyes Peninsula Indigenous Archaeological District, and the Point Reyes Lighthouse Station Historic Site, from structural deficiencies could lead to adverse effects to these historic properties.

Damage to contributing elements is difficult to predict, but could range from minor to moderate depending on the scale of the structural failure. Structural failures that lead to temporary road closure and associated repairs would affect the land use, topography, vegetation, audio and visual effects, and circulation patterns within the historic district. Effects on historic properties are anticipated to be local, long-term, negligible to minor based on the current level of maintenance; however, should there be a failure to a structural feature, effects on historic properties would be local, long-term, and minor to moderate depending on the severity of the failure.

Section 106 Assessment of Effect. For purposes of Section 106, the determination of effect for routine maintenance would be no adverse effect and the effect from structural failure would be adverse effect.

Cumulative Effects. Under the **no action** alternative, current road and parking area deficiencies would result in local, long-term, and minor to moderate adverse impact on historic properties. Routine road maintenance is not sufficient to fix existing road and parking area deficiencies that could result in severe road hazards and closures.

Cattle grazing, roadside vegetation management, plus road maintenance and repair under the no action alternative would cause negligible cumulative impacts on historic properties.

Conclusion. Under the **no action** alternative, current road and parking area deficiencies would continue to constitute a short- and long-term minor to moderate adverse impact to historic properties. Routine road maintenance is not sufficient to fix existing road and parking area deficiencies that could result in severe road hazards and closures. Cattle grazing, roadside vegetation management, plus road maintenance and repair under the no action alternative would cause negligible cumulative impacts on historic properties.

Thus, the overall cumulative impact of the **no action** alternative would be long-term and adverse to historic properties.

Proposed Action Alternative

Under the proposed action alternative the rehabilitation of project road surfaces, shoulders, and parking areas would be phased

shoulders, and parking areas would be phased over a period of up to 12 months. Proposed road rehabilitation work would be conducted in a manner to preserve the integrity of design characteristics and craftsmanship of structural features. Road rehabilitation would be conducted in accordance with the Secretary of the Interior's Standards for Treatment of Historic Properties with Guidelines for Treatments of Cultural Landscapes (1966), including reuse of original material, repairing and replacing features in-kind, and using compatible designs when adding new designs.

On Lighthouse Road the existing horizontal and vertical alignment would be modified at the roundabout leading to the 38-space parking area to meet Architectural Barriers Act Accessibility standards and to accommodate shuttle busses. An area surrounding the parking area extending up to 20-feet beyond the existing pavement edge would be modified. These actions would result in local, long-term, negligible, and adverse impacts to Lighthouse Road

On Chimney Rock Road the existing road surface would be removed and roadway re-graded to create a consistent 12-foot wide one-lane road. A new asphalt concrete surface applied to the road and 20-space parking area, and restriped. Existing cattle guards would be cleaned. At existing wide spots in the road, eight pullouts would be reconstructed with three paved with asphalt concrete and five surfaced with aggregate. A curb with narrow paved gutter would be added to the south side of the road where it is needed to minimize the reshaping of the cut-slopes. Some reshaping of the cut-slopes would be necessary to establish sufficient shoulder and drainage ditch width and could impact existing vegetation along some sections of the road corridor. These actions would result in local, long-term, negligible, and adverse impacts to Chimney Rock Road

Rehabilitation of Lighthouse Road and Chimney Rock Road, would correct structural deficiencies of these historic properties and result in local, long-term, minor, beneficial impacts on historic properties.

Construction activities would temporarily introduce visual, audio, and atmospheric elements into the setting of the identified historic properties; however, these intrusions would be short-term, lasting only as long as construction and repairs.

The proposed surface treatments to the roadways, parking lots and the removal of a section of the South Beach parking lot does not have potential to affect the identified historic properties.

Section 106 Assessment of Effect. There would be "No Adverse Effect" (36 CFR 800.5). The proposed project would have no adverse effect on the Shafter/ Howard Tenant Ranches Historic District, the Point Reyes Peninsula Indigenous Archaeological District, the Point Reyes Lighthouse Station Historic Site, CA-MRN-393, or CA-MRN-661H. The Park began consultation with the CA State Historic Preservation Officer (SHPO) and park affiliated tribes on November 8, 2012. The SHPO (August 7, 2013), the California Sacred Sites Protection Committee of the Federated Indians of Graton Ranchera (October 10, 2012), concurred that the project proposed constitutes an undertaking and concurred with the National Park Service finding of "no adverse effect. SHPO also agreed that the APE is sufficient to take effects into account. The SHPO also does not object to assuming eligibility for the two unevaluated sites and finds identification and evaluations efforts to be sufficient." (see Appendix B: Agency Correspondence).

There would be local long-term negligible to minor impacts on historic properties and long-term, minor beneficial impacts from proposed road rehabilitation. For purposes of Section 106, the determination of effect would be no adverse effect.

Cumulative Effects. Under the proposed action alternative rehabilitation of the current road and parking area deficiencies would result in local, long-term, minor, beneficial impacts on historic properties.

Cattle grazing, roadside vegetation management, plus road rehabilitation under the action alternative would cause negligible cumulative impacts on historic properties.

Conclusion. Under the proposed action alternative the rehabilitation of project road surfaces, shoulders, and parking areas would correct the current structural deficiencies of Lighthouse Road and Chimney Rock Road.

Therefore, the overall cumulative impact of the proposed action alternative would be local, long- term and beneficial to historic properties.

CHAPTER 5: CONSULTATION, COORDINATION, AND PREPARERS

PROJECT SCOPING HISTORY

Public scoping comments were used to assist the park in developing a range of reasonable and feasible project alternatives that meet the purpose and need, including a no action alternative, and then analyzing the environmental impacts of each alternative in the environmental assessment. A 30-day public scoping period for the Point Reyes National Seashore Road Improvement and Maintenance projects was conducted from July 30, 2013 through August 31, 2013. Public scoping notices announcing the project were mailed and posted on the NPS Planning, Environment, and Public Comment system at http://parkplanning.nps.gov/poreroadsea on July 30, 2013. Notices were also published in local newspapers, including Marin News (8/11/2013) and Pacific Sun (8/12/2013).

Comments were invited for submission by mail and on-line through the Planning, Environment, and Public Comment system. During the scoping period, 12 comment letters were received.

AGENCY CONSULTATION

Federal Highway Administration

The National Park Service has been coordinating with the Federal Highway Administration during the planning for the four separate road projects addressed in the Environmental Assessment. The Federal Highway Administration is developing the engineering plans with National Park Service staff.

U.S. Army Corps of Engineers

The National Park Service is coordinating with the U.S. Army Corps of Engineers regarding wetland permitting for the Limantour Road and Chimney Rock Road repair projects. The National Park Service would submit a Clean Water Act section 404 wetland fill permit application to the U.S. Army Corps of Engineers for these road projects because planned construction activities would affect waters of the U.S. The U.S. Army Corps of Engineers has previously consulted with the U.S. Fish and Wildlife Service on issuance of permits under section 404 for projects that may affect the California red-legged frog within selected drainages in California, including areas within Point Reyes National Seashore. This programmatic consultation resulted in a Biological Opinion (USFWS 1999) that evaluated the effects of certain activities such as culvert repair and replacement (See Appendix E: Programmatic Biological Opinions).

U.S. Fish and Wildlife Service

The Endangered Species Act of 1973, as amended (16 USC 1531 et seq.) requires all federal agencies to consult with the U.S. Fish and Wildlife Service to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitat. The National Park Service began informal consultation on this project with the U.S. Fish and Wildlife Service on January 8, 2013. The National Park Service obtained a list of federally listed endangered and threatened species that may be present near the project roads from the U.S. Fish and Wildlife Service (see Appendix B: Agency Correspondence). The list was used as the basis for the special status species analysis in this environmental assessment.

This EA will serve as the biological assessment (BA) for the proposed action. Based on the analysis in this EA/BA, the National Park Service has determined that the proposed action is not likely to adversely affect federally listed species

or critical habitat within the project areas. The National Park Service will submit this EA/BA to the U.S. Fish and Wildlife Service with a request for their review and concurrence with this determination.

California State Historic Preservation Officer

Consultation with the State Historic Preservation Officer (SHPO) and tribes was initiated on November 8, 2012. The SHPO and the Federated Indians of Graton Ranchera concurred with the National Park Service finding of "no adverse effect" (see Appendix B: Agency Correspondence).

California State Clearinghouse

The California State Clearinghouse functions as the "State Single Point of Contact" for coordinating state and local review of federal environmental documents. The purpose of the process is to afford state and local participation in federal activities occurring within California. The National Park Service submitted an initial scoping letter describing the project to the State Clearinghouse. Their response indicated that "no state agencies submitted comments" (see Appendix B: Agency Correspondence). State agencies will have an opportunity to review and comment on this Environmental Assessment.

California Coastal Commission

The Coastal Zone Management Act (CZMA) of 1972, as amended, provides for management of the nation's coastal resources. Within the national seashore, the California Coastal Commission has authority for implementation of the CZMA. The National Park Service has been consulting with the commission about this project since January 2014.

This EA will serve as the coastal consistency determination for the proposed action. Based on the analysis in this EA, the National Park Service has determined that the proposed action is consistent to the maximum extent practicable with the California Coastal Management Program. The National park Service will submit his EA to the California Coastal Commission with a request for their review and concurrence with this determination.

San Francisco Bay Regional Water Quality Control Board

Stormwater discharges from construction activities that disturb one or more acres are regulated within the Clean Water Act under the National Pollutant Discharge Elimination System (NPDES) stormwater program. Because the proposed action would disturb more than one acre of soil, the Federal Highway Administration would obtain a "General Permit for Discharges of Storm Water Associated with Construction Activity" if required by the Regional Water Quality Control Board.

FUTURE INFORMATION

Updated information about various aspects of the Road Improvement and Maintenance Projects will be available on the Point Reyes National Seashore web site (http://parkplanning.nps.gov/prnsroadea).

There will be a 30-day public comment period on this environmental assessment. Readers are encouraged to submit comments electronically through the NPS Planning, Environment and Public Comment system. A link to the comment site can be found on the project web site, above.

Written comments regarding this document may also be mailed to: PORE Roads EA c/o Superintendent, Point Reyes National Seashore, 1 Bear Valley Road, Point Reyes Station, CA 94956

PREPARERS AND REVIEWERS

The preparers of this document are:

Denver Service Center

Dennis Brookie, Project Manager

Steven Culver, Natural Resources Specialist

Richard Boston, Cultural Resources Specialist

Chris Enyedy, Natural Resources Specialist - Permitting

Point Reyes National Seashore, Pacific West Region, and Federal Highway Administration staff provided invaluable assistance in the development and technical review of this environmental assessment. Staff that provided information include:

Point Reyes National Seashore

Dawn Adams, Biologist (currently at Denali National Park and Preserve)

David Brouilette, Chief of Maintenance

Jeffrey Jewhurst, Roads Supervisor

Brannon Ketcham, Hydrologist

Amelia Ryan, Wetland Ecologist

Lorraine Parsons, Wetland Ecologist

Wendy Poinsot, Fire Program Manager

Dave Press, Wildlife Ecologist

Gordon White, Chief of Cultural Resources

Pacific West Region

Sarah Raube, Landscape Architect

Justin DeSantis, Transportation Program Manager

Federal Highway Administration

Nathan Allen, Project Manager/Construction Operations Engineer

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APPENDIXES