Final Environmental Impact Statement
Marin Headlands and Fort Baker
Transportation Infrastructure and Management Plan

GOLDEN GATE NATIONAL RECREATION AREA

Marin County, California

Lead Agency: National Park Service, U.S. Department of the Interior

The *Marin Headlands and Fort Baker Transportation Infrastructure and Management Plan Final Environmental Impact Statement* presents and analyzes alternatives to provide improved access to and within the Marin Headlands and Fort Baker for a variety of users, and seeks to initiate these improvements in a way that minimizes impacts to the rich natural diversity and cultural resources of the Marin Headlands and Fort Baker. This document describes and analyzes four alternatives for transportation infrastructure and management in the Marin Headlands and Fort Baker:

- Alternative 1, the No-Action Alternative, would provide no change from the existing management direction for transportation infrastructure and management in the Marin Headlands and Fort Baker.
- Alternative 3, the Preferred Alternative, would provide enhanced multi-modal access to the Marin Headlands and Fort Baker. Roadway infrastructure would be rehabilitated or reconstructed without altering the historic character, and parking facilities would be improved. Additional transit options would be provided to and within the Marin Headlands and Fort Baker to improve access to the area. Pedestrian and bicycle access would be improved by closing and rerouting existing trails and constructing new trails.
- Alternative 2 would provide basic multi-modal access to the Marin Headlands and Fort Baker. Roadway infrastructure would be rehabilitated within the existing roadway width; parking facilities would be improved; transit service to the Marin Headlands would be expanded on weekends; and minor pedestrian and bicycle facility enhancements would be implemented to improve access to the park.
- Alternative 4 would provide maximum multi-modal access to the Marin Headlands and Fort Baker. Roadway infrastructure would be reconstructed throughout the study area, and parking facilities would be improved. Transit options would be similar to those provided in the Preferred Alternative, with the addition of connections to regional transit centers outside the park. More extensive pedestrian and bicycle facility enhancements would be implemented, including closing and rerouting existing trails, constructing new trails, and widening nearly all major roads to allow bicycle lane construction.

Based on issues identified during the public and agency scoping process, the impact analysis focuses on transportation, natural resources (including geology, paleontology, soils, and seismicity; water resources, biological resources, and air quality), cultural resources, visitor use and experience (including visual and aesthetic resources; recreation and visitor enjoyment; noise; and human health, safety, and the environment), the social and economic environment, and park operations and management.

Decision Process: The National Park Service will execute a Record of Decision (ROD) no sooner than 30 days following publication by the Environmental Protection Agency of the Notice of Availability of the Final Environmental Impact Statement. The Final EIS will be available for public inspection as follows: online at http://parkplanning.nps.gov/goga; in the Office of the Superintendent (Bldg. 201 Fort Mason, San Francisco, CA); at local public libraries (San Francisco Public Library - Main Branch, Marin County Free Library, Mill Valley Public Library, Point Reyes Station Library, and Sausalito Library), or by requesting a copy (contact Steve Ortega at 415-561-2841, or e-mail at goga_planning@nps.gov). Written inquiries can also be sent to:

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SUMMARY

INTRODUCTION

This *Final Environmental Impact Statement* presents four alternative transportation management concepts and related infrastructure improvements for the Marin Headlands and Fort Baker in Golden Gate National Recreation Area. Environmental impacts of the alternatives are analyzed in accordance with the requirements of the National Environmental Policy Act, National Park Service *Director's Order #12: Conservation Planning, Environmental Impact Analysis and Decision-making,* and NPS *Management Policies 2006.*

The Marin Headlands and Fort Baker are in the San Francisco Bay area at the north end of the Golden Gate Bridge, across the bay from San Francisco. The Marin Headlands span the southern tip of the Marin Peninsula, from U.S. Highway 101 to the western coastline, a 2,500-acre area. Fort Baker is a 335-acre site directly adjacent to the Headlands on the east side of U.S. 101. Both sites are within Marin County. The city limits of Sausalito meet the northern boundary of Fort Baker, and San Rafael is about 10 miles to the north. The study area for this project is defined as the historic U.S. Army Forts Baker, Barry, and Cronkhite, and the corridors of roads and trails that connect the three forts to the U.S. Highway 101 corridor and the Golden Gate Bridge. Forts Baker, Barry, and Cronkhite are listed on the National Register of Historic Places as a historic district.

PROJECT PURPOSE AND NEED

Purpose of the Plan

The purpose of the plan is to provide improved access to and within the Marin Headlands and Fort Baker for a variety of users, and to initiate these improvements in a way that minimizes impacts to the rich natural and cultural resources of the Marin Headlands and Fort Baker study area.

Need for the Plan

Roadways and Vehicular Circulation. The current road network was not constructed to accommodate present traffic volumes and the diverse types of traffic that now use the roads. The transportation infrastructure is in poor condition, the asphalt paving is 30 years old or more, and culverts are undersized, plugged, and collapsed.

Parking Conditions. Locations in the park lack sufficient parking to accommodate all users, while other locations have a surplus of available parking. Poorly designed parking areas result in congestion and pedestrian and bicycle safety concerns, and parking often occurs in areas that have not been developed to support parking uses, resulting in adverse impacts on resources.

Bicycle and Pedestrian Access. Visitors wishing to access the study area by bicycle or on foot find that roads and trails are inadequate. Trail conditions and connectivity from U.S. 101 and local roads to park destinations need to be improved to create an attractive and viable alternative to auto access.

Transit Service. Limited transit service is provided to the study area, making it difficult to access the Marin Headlands and Fort Baker except by driving.

Wayfinding. A lack of both directional signs and appropriate street signs in the study area make it difficult to quickly find destinations within the study area.

Natural and Cultural Resources Protection. Trails, roadways, and parking areas have caused various resource impacts. Some poorly designed or undesignated parking areas take up more space than necessary, and many are located in valuable wetland or riparian resources and habitat, which are further impacted by runoff from roadways and parking areas. Pedestrians take shortcuts to reach destinations without formal trails, contributing to natural resource degradation. Although the road system is largely intact and much of it remains as the Army built it over 50 years ago, there have been limited resources for its upkeep and rehabilitation. Consequently, this historic resource is deteriorating.

Forts Baker, Barry, and Cronkhite comprise a historic district that is listed on the National Register of Historic Places for its high-quality examples of military coastal fortifications and support facilities, including historic architecture and roads. In addition, some of these historic resources may also

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contribute to a seacoast fortification national historic landmark, the highest form of historic resource designation provided by federal law. Although the road system is largely intact and much of it remains as the Army built it over 50 years ago, the road and trail system in the study area has suffered from little investment and rehabilitation; therefore, this historic resource is deteriorating.

Plan Goals and Objectives

This project would provide infrastructure and access improvements in the park to meet the following plan goals:

- Promote public transit, pedestrian, and bicycle travel to and within the park to improve visitor experience and enhance environmental quality.
- Rehabilitate the Marin Headlands and Fort Baker road and trail infrastructure in a manner that protects resources and improves safety and circulation.
- Reduce traffic congestion and improve safety at key park locations and connecting roads.

THE ALTERNATIVES

This environmental impact statement describes and analyzes four alternatives for transportation infrastructure and management in the Marin Headlands and Fort Baker — a no-action alternative, which would provide no change from the existing management direction, and three action alternatives, which would propose a range of improvements to the transportation system and infrastructure.

- **Alternative 1 — No-Action Alternative.** Alternative 1 would include only those actions necessary to continue park operations and management. Transportation improvements and transportation demand management programs specified in the *Fort Baker Plan Final Environmental Impact Statement* and resulting *Record of Decision* would be implemented (see "Actions Common to All Alternatives"). Analysis of the No-Action Alternative provides a baseline from which to compare the other alternatives.
- **Alternative 3 — Preferred Alternative: Enhanced Multi-Modal Access.** Roadways would be rehabilitated or reconstructed/widened without altering their character-defining features, and parking facilities would be improved. A greater number of transit options would be provided to and within the study area. Parking fees would be collected to fund improved transit services. Extensive pedestrian facility enhancements would be implemented, including closing and rerouting existing trails and constructing new trails. Bicycle facilities would be improved with a few new paths and bike lanes. Car-free days would be implemented on a trial basis for a maximum of seven days per year. Alternative 3 is the proposed action because it would improve safety and circulation within the study area, alleviate traffic congestion at key locations, reduce impacts to resources in some locations, and enhance visitor experience.
- **Alternative 2 — Basic Multi-Modal Access.** Roadways would be rehabilitated within the existing roadway width; parking facilities would be improved; transit service would be expanded to the Marin Headlands on weekends; and minor pedestrian and bicycle facility enhancements would be implemented. No parking fees would be collected.
- **Alternative 4 — Maximum Multi-Modal Access.** Roadways would be reconstructed and widened for bicycle lanes in various locations throughout the study area, and parking facilities would be improved. Transit options would be similar to those provided in Alternative 3, with the addition of connections to regional transit centers outside the park. Extensive pedestrian and bicycle facility enhancements would be made, including closing and rerouting existing trails, and constructing new trails plus bicycle lanes on nearly all major roads. Parking fees would be collected to fund improved transit services. Car-free days would be implemented on a trial basis for a maximum of seven days per year.

Actions Common to All Alternatives

Certain actions would be taken under all alternatives, including the No-Action Alternative, because they were approved through separate planning efforts that were completed before the current

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transportation management plan was undertaken. These actions are described briefly below.

The *Fort Baker Plan Final Environmental Impact Statement* and the resulting *Record of Decision* provide for the reuse of Fort Baker, which was previously owned by the U.S. Army and is now part of the national park system. The plan will preserve historic structures and natural features in Fort Baker through the establishment of compatible uses, the rehabilitation or restoration of certain areas, and other site improvements.

The proposed Fort Baker retreat and conference center is required to operate a shuttle or assist in the operation of a shuttle as part of the *Fort Baker Plan*. While shuttle operations have not been determined at this time, the shuttle service will transport conference center visitors to and from the center, parking areas, and sites in Fort Baker and Sausalito. The shuttle service will also provide airport connections for conference center patrons and could provide transit to other local attractions outside the study area. The shuttle will accommodate bicycles to help alleviate bicycle/vehicle conflicts on narrow roadways in Sausalito near Fort Baker.

Also, as part of the *Fort Baker Plan,* the National Park Service has implemented a transportation demand program in the study area to reduce the number of single-occupancy vehicle trips in the area. The program is composed of six elements that focus on the use of existing transportation infrastructure and voluntary participation of the employees, volunteers, and visitors of the organizations located in the study area.

"Special Park Use Guidelines" for Fort Baker guide special event parking and traffic management. Special events occurring at Fort Baker will abide by the provisions of the transportation demand management (TDM) program.

The Marine Mammal Center is currently being upgraded and expanded, in accordance with the *Marine Mammal Center Site and Facilities Improvements Project Environmental Assessment* and the subsequent "Finding of No Significant Impact." As part of this undertaking, parking for the center is being modified.

Elements Common to All Action Alternatives

The following elements would be common to Alternatives 2, 3, and 4 (except where noted):

- Roadway and vehicular circulation improvements would include rehabilitation or reconstruction (including widening) of existing roadways and operational changes to improve safety and circulation, alleviate traffic congestion, and reduce resource impacts.
- Parking management improvements would include organizing and delineating parking areas, closing some parking areas, and relocating some parking areas to improve visitor experience, accessibility, and safety; to alleviate congestion; and to reduce resource impacts.
- Bicycle and pedestrian improvements would include changes to the existing trail system to improve bicycle and pedestrian travel options and connections within the park, to improve the quality of the visitor experience, to improve safety, and to reduce resource impacts. The intent would be to improve the facilities so that more visitors would choose to access the study area by these modes of transportation instead of automobiles.
- Resource protection elements include both natural and cultural resource actions related to transportation elements in this plan.
- For Alternatives 3 and 4, transit service improvements would include increased transit options to and within the park, including increased service times and frequency, plus more direct access to specific areas. These improvements would be tied to projected revenue expected to be generated by parking fees under Alternatives 3 and 4.
- For Alternatives 3 and 4, the establishment of car-free zones on specified days and during special events throughout the year would provide visitors the opportunity to experience large sections of the study area in a natural setting with reduced automobile traffic and would educate visitors on alternative modes of transportation for access to and within the study area under Alternatives 3 and 4 only.

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ENVIRONMENTAL CONSEQUENCES

Impact topics for the environmental analysis were determined based on applicable laws, regulations and policies, along with comments from park staff and the public, including other governmental agencies. Impacts are generally described below. The impacts of Alternatives 2, 3, and 4 are compared to what would happen under the No-Action Alternative (Alternative 1).

No resources or values in Golden Gate National Recreation Area would be impaired by any alternative, no impacts were found to be unacceptable, and all proposed uses are deemed to be appropriate. Although Alternative 4 would cause a long-term, major, adverse effect to historic resources in the Marin Headlands due to widespread changes to the scale of the historic district's circulation system, the park's Division of Cultural Resources has determined that these impacts would not impair the park's cultural resources.

Impacts on Transportation

Proposed transportation improvements would address existing transportation issues to varying degrees. Overall, Alternatives 2, 3, and 4 would improve roadway and trail facilities and transit services, thereby improving safety and access by all transportation modes. This would also improve access for a broad variety of users, one of the purposes of this plan.

Transit. Alternative 1 would continue to provide limited transit service to the Marin Headlands and Fort Baker, while Alternatives 2, 3, and 4 would improve transit service at various levels. Compared to Alternative 1, all of the action alternatives would have a beneficial impact on transit service by increasing the size of the current transit market; improving transit service levels, intermodal connections, and accessibility; and adding to transit capacity. These long-term, beneficial impacts would range from negligible to major for the various alternatives. The potential disruption of transit service due to construction activities would result in short-term, minor, adverse impacts.

Traffic. *Traffic Volumes* — Traffic volumes in Marin Headlands and Fort Baker would not change under Alternative 1. With the increased availability of transit and the implementation of a program to restrict the use of vehicles on a few select days, traffic could be reduced under Alternatives 3 and 4 compared to Alternative 1, resulting in long-term, negligible, beneficial impacts. Because Alternative 2 would include limited transit improvements and no parking fee program, this alternative would have no noticeable impact on reducing traffic to or within the park. Alternative 2, with a one-way road system, would also have long-term, minor to major, adverse impacts due to increased traffic volumes on some roads because of out-of-direction travel. However, one-way operation would have a long-term, minor, beneficial impact along Danes Drive and Bunker Road because of lower traffic volumes. Construction activities would have short-term, negligible to moderate, adverse impacts to traffic volumes along specific roadway segments.

Level of Service — Improvements to major intersections under Alternatives 2, 3, and 4 would result in long-term, minor, beneficial impacts to traffic operations by improving the level of service.

Vehicular Safety — There would be no improvements to roadways under Alternative 1, so there would be no change to vehicular safety. For Alternatives 2, 3, and 4, the increase in safety compared to Alternative 1 would be commensurate with the number of safety improvements. The overall effect of these safety improvements would be to address existing vehicular safety issues throughout the study area, including locations where high accident rates have been reported. Improvements under Alternative 2 would have long-term, moderate, beneficial impacts compared to Alternative 1; while additional safety improvements under Alternatives 3 and 4 would have long-term, major, beneficial impacts.

Parking — Current parking conditions would continue under Alternative 1, resulting in inefficient use and potential safety issues, with ongoing impacts on resources due to parking in nondesignated areas. All of the action alternatives would reduce the number of overall parking spaces, eliminating spaces or lots in underutilized locations or areas where resources have been degraded. These reductions would have long-term, beneficial impacts for park resources and safety, but overall long-term, minor, adverse impacts on the total parking supply. During construction some parking spaces could be inaccessible, resulting in short-term, minor, adverse impacts.

Nonmotorized Use and Access. *Bicycles and Pedestrian Access* — Improvements to trails and bicycle facilities would vary by alternative. Improving access by providing new or improved connections would result in long-term, beneficial impacts that would be minor under Alternatives 1 and 2 and major under Alternative 3. Alternative 4 would include less investment in off-road bike paths than Alternative 3, resulting in long-term, moderate to major, beneficial impacts. Bicycle and pedestrian access under Alternatives 3 and 4 could be disrupted by construction activities, resulting in a short-term, minor, adverse impact.

Bicycle and Pedestrian Safety — Alternatives 1 and 2 would have an overall long-term, minor, beneficial impact on bicycle and pedestrian safety by providing sidewalks and trails in some locations or improving existing trails. Alternative 3 would have a long-term, major, beneficial impact by providing additional improvements, such as new off-street bike paths and signage or widening existing roads to safely accommodate bicyclists and pedestrians in the shoulder area. Alternative 4 would include less investment in off-road pedestrian infrastructure than Alternative 3, resulting in long-term, moderate to major, beneficial impacts.

Wayfinding — There would be no change in the ease of finding one's way in the park under Alternative 1. Improvements to transit stops, including benches and signs, would increase the visibility of transit services in the park under Alternatives 2, 3, and 4. In the long term these improvements would have minor, beneficial impacts on wayfinding. However, implementing a one-way circulation concept in Alternative 2 could result in temporary confusion for drivers entering and exiting the park, resulting in short-term, minor, adverse impacts on wayfinding.

Car-Free Days — Car-free days tested under Alternatives 3 and 4 would result in substantial changes in private vehicle access to portions of the Marin Headlands where implemented on a trial basis for a maximum of seven days per year, resulting in long-term, major, adverse impacts on private vehicle access on these days. However, expanded shuttle service, along with the absence of vehicles on certain roads, would result in long-term, major, beneficial impacts on the ability to access park destinations by alternative modes on these days.

Impacts on Natural Resources

Geology, Paleontology, Soils, and Seismicity. *Geology and Paleontology* — No rock cuts would be required under Alternative 1, so there would be no impacts to geologic or paleontological resources under this alternative. Under Alternatives 3 and 4 additional excavation of existing rock cuts would be required in certain areas to provide safe sight distance and accommodate a wider roadway, resulting in long-term, moderate, adverse impacts. Under Alternative 3 realigning a section of one-way West Conzelman Road away from the erosional head cut would result in a long-term, negligible, adverse impact because rock cuts would be required.

Soils — Soil erosion on the road and trail system would continue to cause long-term, moderate, adverse impacts under Alternative 1. Under the Alternatives 2, 3, and 4 the potential effects to soils would be limited to those sites where work would occur off the existing road bench. Addressing known sites of significant soil erosion would have long-term, moderate, beneficial impacts under Alternatives 3 and 4 due to greatly reducing the amount of erosion. Under Alternative 2 fewer actions would be taken to deal with erosion problems, resulting in long-term, minor, beneficial impacts.

Coastal Resources. There would be no impacts to coastal resources, including shorelines in the study area of the Pacific Ocean, Golden Gate Channel, and San Francisco Bay, under Alternative 1. Elements of Alternatives 2 and 4 would directly improve the quality of coastal resources within the Marin Headlands and Fort Baker by reducing erosion, which would result in long-term, minor, beneficial impacts on coastal resources. Alternative 3 would have additional beneficial effects as a result of actions to reduce erosion and restore natural shoreline processes. Impacts would be long-term, minor, and beneficial.

Water Resources. *Groundwater* — Alternative 1 would have no effect on groundwater. Drainage of the wet section along the Rodeo Valley trail under Alternatives 2, 3, and 4 would have long-term, negligible or less, adverse impacts on groundwater levels.

Water Quality — Due to ongoing erosion at various locations throughout the Marin Headlands, Alternative 1 would result in long-term, moderate

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adverse impacts to water quality. Under Alternatives 2, 3, and 4, improvements to roadways, parking areas, trails and bicycle facilities, and natural resources would vary. Improvements under Alternatives 3 and 4 would result in long-term, minor to moderate, beneficial impacts to water quality because of erosion control and a reduction in vehicle-generated pollutants that could drain into waterbodies. Alternative 2 would address fewer severe erosion sites, or address them in less effective ways, so impacts would be long-term, minor, and beneficial at locations where some improvements were undertaken and moderate and adverse at locations where erosion problems would continue. Construction activities could cause short-term, moderate, adverse impacts to surface water quality, but the use of best management practices would reduce this likelihood.

Floodplains and Flooding — There would be no improvements in any floodplains under Alternative 1 and no change in surface water run-off. Under Alternatives 3 and 4 trail and bridge construction across the Rodeo Creek floodplain adjacent to the Capehart housing area and adjacent to Smith Road would result in long-term, negligible, adverse impacts to this floodplain. Long-term, adverse impacts on localized flooding under Alternatives 2, 3, and 4 would range from negligible to minor due to possible increased surface runoff rates and volumes. Potential reductions in the occurrence of localized flooding would result in negligible, beneficial impacts.

Biological Resources. *Biological Habitats and Vegetation* — There would be no impacts to plant community size, continuity, or integrity under Alternative 1, nor would there be any change in the number of native and nonnative trees in the park. Under Alternatives 2, 3, and 4 impacts to plant communities would be long-term, minor, and beneficial since impacts would be restricted primarily to already disturbed areas, and restoration efforts would result in a higher quality community for native plant and wildlife species.

The overall impact of removing invasive, nonnative tree species under Alternatives 2, 3, and 4 would be long-term, minor, and beneficial because the potential for these species to further spread through the study area would be reduced, and they would be replaced by native vegetation communities. The potential spread of invasive weeds under Alternative 1 would result in long-term, negligible to minor, adverse impacts because no additional efforts would be taken to remove or control these species. Efforts under Alternatives 2, 3, and 4 to remove and control invasive, nonnative species would result in long-term, moderate, beneficial impacts. Non-native tree removal within areas directly adjacent to habitat for the federally endangered mission blue butterfly (e.g., the slopes of Hawk Hill, etc.) and within predicted mission blue butterfly habitat (e.g. the southern and western slope below Conzelman Road, etc.), together with other restoration activities, would result in long-term, major, beneficial impacts. Non-native trees would be replaced with a mosaic coastal scrub and prairie habitats.

Construction activities could result in short-term, negligible to minor, adverse impacts from the spread of invasive nonnative plants and the potential introduction of new invasive weeds from construction equipment. However, the use of best management practices and mitigation measures would reduce this likelihood.

Wetlands — There would be no impact to wetlands under Alternative 1. Any loss of wetlands from construction activities under Alternatives 2, 3, and 4 would result in long-term, minor, adverse impacts because of the limited distribution of these habitats. However, the restoration and enhancement of wetlands under the action alternatives would more than offset any losses sustained due to construction, with overall long-term, moderate, beneficial impacts. For example, project design elements related to removal of the Rodeo Beach unpaved parking lot, such as control of invasive weeds and removal of natural hydrology in these areas, would greatly increase the value and area of emergent wetlands in these areas.

Wildlife and Aquatic Life — There would be no impacts to wildlife and aquatic life under Alternative 1. Under Alternatives 2, 3, and 4 small amounts of wildlife habitat would be permanently removed, resulting in localized effects on habitat connectivity. However, these adverse effects would be offset by net increases in habitat due to revegetation efforts. The overall connectivity and integrity of wildlife habitat within the study area would not be diminished and could improve over the long-term. Effects to individual animals could occur, but would primarily be restricted to con-

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struction areas. The overall long-term impacts on common wildlife under the action alternatives would be minor and beneficial. Short-term, minor, adverse impacts would occur during construction.

Special Status Plant Species — There would be no impacts to special status plant species under Alternative 1. Overall long-term effects would be minor and adverse under Alternatives 2 and 3, and moderate and adverse under Alternative 4. New trail construction through previously undisturbed habitats would have a much greater potential to impact special status plant species. Construction activities could result in short-term, negligible to minor, adverse impacts from temporary disturbance.

Special Status Wildlife Species — There would be no impacts to special status wildlife species under Alternative 1. Under Alternative 2, there would be no long-term impacts to the species listed below (except for the mission blue butterfly and bats) because no actions would occur within suitable habitat for these species. Long-term impacts to the mission blue butterfly would be minor and beneficial under Alternative 2 because no Coastal Trail restoration projects would be proposed. Under Alternative 2 impacts to bats could be long-term, moderate, and adverse due the possible removal of trees throughout the study area if they provided roosting habitat and loss of individuals. The primary location for impacts would be the Marin roads and trails maintenance yard. Pre-construction surveys to identify any such trees, however, would lessen the potential for impacts.

Additional impacts to specific special status wildlife species under Alternatives 3 and 4 are described below.

- *Mission Blue Butterfly* — Although short-term, major, adverse impacts could result from roadway improvements and specific project elements, these impacts would be reduced with mitigation. Alternatives 3 and 4 overall would have long-term, major, beneficial impacts on the mission blue butterfly from the closure and active restoration of habitat areas and compensation measures.
- *Tidewater Goby* —Major, adverse impacts, including habitat degradation and potential loss of individuals, could result during removal of fill in Rodeo Lagoon under Alternatives 3 and 4, and widening the Rodeo Lagoon bridge under Alternative 4. These impacts would be reduced with mitigation. Overall long-term effects would be major and beneficial because habitat would be reestablished once fill had been removed from the lagoon, and mitigation measures would be taken.
- *Steelhead* — Habitat degradation and potential loss of individuals could result during removal of fill in Rodeo Lagoon under Alternatives 3 and 4, and widening the Rodeo Lagoon bridge under Alternative 4. These impacts would be reduced with mitigation. Overall long-term impacts would be major and beneficial for Alternatives 3 and 4 because habitat would be reestablished once fill had been removed from the lagoon, and mitigation measures would be taken.
- *California Red-legged Frog* — Moderate, adverse impacts, including the loss of individuals and critical habitat, could result from constructing the new Rodeo Creek crossings and removing the existing crossings under Alternatives 3 and 4, and from widening the Rodeo Lagoon bridge under Alternative 4. These impacts would be reduced with mitigation. Overall long-term impacts would be major and beneficial under Alternative 3 and moderate beneficial under Alternative 4 because willow riparian habitat would be restored along Rodeo Creek and riparian and/or emergent wetland habitat would be created along Rodeo Lake and Lagoon.
- *California Brown Pelican* — Constructing a fence at the southern end of Rodeo Beach and removing fill in Rodeo Lagoon could result in short-term, minor, adverse impacts, including disturbance of individuals. Additional impacts could result from installing sand matting along Rodeo Beach under Alternative 4. These impacts would be reduced with mitigation. Overall long-term impacts would be minor and beneficial because of reduced human disturbance and mitigation measures.
- *Western Snowy Plover* — Constructing a fence at the southern end of Rodeo Beach could result in short-term, minor, adverse impacts, including disturbance of individuals. Additional impacts could result from installing sand matting along Rodeo

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Beach under Alternative 4. These impacts would be reduced with mitigation. Overall long-term impacts would be minor and beneficial because of reduced human disturbance and mitigation measures.

- *Western Pond Turtle* — The western pond turtle could be affected by the construction of new Rodeo Creek crossings and the removal of existing crossings. Effects would be localized in a very small area and are not anticipated to include loss of individuals. Long-term impacts would be minor and adverse. Short-term habitat disturbance during construction would impact a very a small amount of turtle habitat.
- *Salt Marsh Harvest Mouse* — The majority of impacts to the salt marsh harvest mouse would be long-term, negligible, and adverse as a result of harm or harassment, sedimentation and erosion, and toxic materials. However, effects to the species are considered unlikely as its presence within the project area has not been positively confirmed.
- *Salt Marsh Common Yellowthroat* — Short-term impacts could be moderate and adverse, including loss of habitat, as a result of removing fill from Rodeo Lagoon, constructing new Rodeo Creek crossings and removing existing crossings, and also from widening the Rodeo Creek bridge under Alternative 4. However, these impacts would be reduced with mitigation. Long-term impacts would be moderate and beneficial because willow riparian habitat would be restored along Rodeo Creek and riparian and/or emergent wetland habitat would be created along Rodeo Lake and Lagoon, in addition to mitigation measures.
- *Allen's Hummingbird* — Constructing the new Rodeo Creek crossings and removing the existing crossings would result in long-term, moderate, adverse impacts, including the potential loss of habitat. These impacts would be reduced with mitigation. Overall long-term impacts would be moderate and beneficial because of willow riparian habitat restoration along Rodeo Creek, the creation of riparian and/or emergent wetland habitat along Rodeo Lake and Lagoon, and mitigation measures.
- *Bats* — Some bats could be affected by the removal of trees if they provided roosting habitat, primarily at the Marin roads and trails maintenance yard. Short-term impacts would be considered moderate because they could result in loss of individuals, but the overall size or integrity of a local population would not be permanently affected. These impacts would be reduced with mitigation. Long-term impacts would be moderate and adverse because of the permanent loss of potential roosting habitat.

Air Quality. There would be no effects to the region's air quality under any of the alternatives. Alternative 1 would only include those measures already adopted in approved plans, including those previously evaluated as part of the *Fort Baker Plan;* therefore, no new short- or long-term local air quality impacts would occur. Under Alternatives 2, 3, and 4, local, long-term impacts would primarily be associated with potential increases in mobile-source carbon monoxide concentrations near roadway intersections. Based on the traffic analysis prepared for this project, the action alternatives would result in beneficial impacts on traffic volumes and levels of service in the study area. Therefore, impacts to air quality would likely be long-term, negligible to minor, and beneficial because of reductions in localized carbon monoxide concentrations. Adverse, short-term local air quality impacts would occur during construction and would range from negligible to moderate.

Impacts on Cultural Resources

Alternative 1 would not change the management or treatment of historic roads and associated resources in the Marin Headlands, and the existing appearance and character of these resources would remain the same.

The Preferred Alternative would include a number of minor and moderate adverse effects to specific historic features. Overall, the alterations under this alternative would lessen the vernacular quality of the military circulation network and replace it with a standardized sense of design to the point that this alternative would diminish the integrity of design, setting, and feeling of the historic district. The changes proposed in Alternative 3, as a whole, would represent a long-term, moderate, adverse impact to historic resources.

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Alternative 2 would result in a few minor and moderate adverse effects in connection with alterations to specific historic features of the historic district. While these modifications would replace a measure of the vernacular character of the district's circulation system with an uncharacteristic level of modern roadway standardization, the district's integrity of design, setting, and feeling, while affected, would not be diminished. The changes proposed in Alternative 2, as a whole, would result in long-term, minor, beneficial impacts and localized, minor, adverse impacts to historic resources. Most of the modifications to the historic features would have negligible or beneficial effects.

Alternative 4 would include most of the same actions as Alternative 3, but on a greater scale. With Alternative 4, the district's circulation network would retain integrity of location. However, roadway alterations would lessen the vernacular quality of the military circulation network and replace it with a standardized sense of design to the point that integrity of design, setting, materials, workmanship, feeling, and association would all be diminished to the degree that this alternative would have the most severe impacts of the four alternatives. Alternative 4 would cause long-term, major, adverse effects to historic resources in the study area.

In addition, restoration efforts included as enhancement and mitigation for impacts on wetlands areas or mission blue butterfly habitat under Alternatives 2, 3, and 4 could cause additional impacts on historic and archeological resources. With implementation of cultural landscape mitigation measures, long-term impacts at other resource areas would range from negligible to minor and adverse, to moderate and beneficial.

Impacts on Visitor Use and Experience

Visual and Aesthetic Resources. The analysis of visual resources for the transportation plan was based on three priority sites: Battery Spencer, Hawk Hill, and Fort Cronkhite. Each of these priority sites was evaluated from two or three key observation points, representing the most commonly experienced views of these areas.

Alternative 1 would take no specific actions to remedy traffic and parking problems in the study area, to provide for the restoration of natural and historic resource areas, or to reduce or prevent erosion caused by improper parking along roadways. Consequently, there would be no effect to the visual character of specific sites or the overall study area.

Battery Spencer — Alternatives 2 and 3 would result in long-term, negligible impacts to visual and aesthetic resources due to parking area improvements at Battery Spencer. Additional road widening, rock cuts, and paving at this location under Alternative 4 would result in long-term, moderate, adverse impacts.

Hawk Hill — Bicycle- and parking-related improvements at Hawk Hill, and a large retaining wall constructed along the south side of Conzelman Road to accommodate the wider road under Alternative 3, would result in moderate, adverse impacts to visual and aesthetic resources. Long-term, minor, beneficial visual effects would result under Alternative 2 from the proposed parking changes, since the area would appear more organized. Alternative 4 would widen Conzelman Road by 4 to 6 feet to accommodate an uphill bike lane between McCullough Road and Hawk Hill, and a wider, more organized parking and turnaround area at Hawk Hill. Also, a larger retaining wall would be constructed along the south side of Conzelman Road to accommodate the wider road. Long-term impacts at this location under Alternative 4 would be moderate and adverse.

Fort Cronkhite — Overall long-term benefits of restoring the unpaved Rodeo Beach parking area would effectively balance the adverse visual effect of the other changes under Alternative 3, resulting in long-term, moderate, beneficial visual impacts. The changes proposed under Alternative 2 would result in long-term, minor, beneficial visual effects on Fort Cronkhite because a portion of the unpaved parking area at Rodeo Beach would be removed and partially restored to a riparian corridor. Impacts under Alternative 4 would be similar to Alternative 3, except that Mitchell Road would be widened to accommodate bike lanes in each direction, and long-term impacts would be minor and beneficial.

Other Visual Resource Changes — While Alternatives 3 and 4 propose to rehabilitate and reconstruct roadway infrastructure without altering character-defining features, some changes to the visual landscape would occur, including cuts into hillsides and rock faces, plus construction of retaining and fill walls. In contrast, some elements of these alternatives would restore natural and cultural features

to portions of the study area, thereby improving visual conditions. Overall long-term impacts on visual and aesthetic resources under Alternatives 2, 3, and 4 would be minor and beneficial.

Under Alternative 2 the physical infrastructure would not be substantially altered; instead uses would be limited or reduced to fit within available space. This alternative would limit rehabilitation/ reconstruction efforts to previously disturbed areas whenever possible, and some basic restoration and rehabilitation efforts would restore the character of the natural environment. The overall long-term impacts on visual and aesthetic resources under Alternative 2 would be minor and beneficial.

Construction would result in short-term, minor, adverse impacts at Battery Spencer, Hawk Hill, and Fort Cronkhite, as well as at other locations in the planning area.

Impacts to Recreation and Visitor Enjoyment. Alternative 1 would not change access to park partner activities, variety of park experiences, scenic views, access to aquatic recreation sites, or access to interpretive services.

Short-term disruptions during construction under Alternatives 2 and 3 would result in negligible to minor adverse impacts, and Alternative 4 would result in minor adverse impacts for park partners and at specific viewing areas, as well as negligible adverse impacts to the visitor experience. Additionally, tree removal at Hawk Hill under Alternatives 2, 3 and 4 would result less shaded and wind-protected areas for visitors and programs (e.g., Golden Gate Raptor Observatory, environmental education, etc.). There would be fewer places to find "shelter" on top of Hawk Hill compared with the current tree cover; however, shelter and shade would still be present within the tunnel structures.

Access to Park Partner Activities — Under Alternatives 3 and 4 the implementation of car-free days would result in long-term, moderate, adverse impacts on these specific days because access by private vehicle to park partner activities would be restricted. The park would work with park partners to determine how to provide access to visitors and with recreational groups to determine how to transport gear. During all other times impacts on access would be long-term, minor to moderate, and beneficial. Alternative 2 would not implement car-free days, so long-term impacts would be minor and beneficial because of transit service improvements.

Variety of Park Experiences — Car-free days tested under Alternatives 3 and 4 would result in long-term, moderate to major, beneficial impacts on the variety of park experiences because during these days many more areas of the park could be experienced without interference from vehicular traffic. There would be long-term, minor to moderate, beneficial changes on the variety of park experiences at all other times as a result of trail improvements, reroutes, and multi-use access. Alternative 2 would not introduce new types of park experiences, with long-term, negligible, beneficial impacts.

Scenic Viewing — Under Alternatives 3 and 4 a car-free program on a trial basis for a maximum of seven days each year would result in long-term, moderate, adverse impacts on these specific days because access to scenic views by private vehicle would be restricted. Additional access changes under Alternative 3 would result in long-term, moderate, adverse impacts at Bird Island Overlook and Battery Spencer and negligible beneficial impacts at other viewing areas. Views from Bird Island Overlook to Fort Cronkhite under Alternative 3 would be improved by removing visitor vehicles from the area. Long-term impacts to scenic viewing would be minor and adverse at Slacker Hill, and minor and beneficial at Hawk Hill. Panoramic views would be increased Under Alternatives 2, 3 and 4 following the removal of trees at Hawk Hill.

Alternative 2 would retain existing access to most of the popular scenic viewing areas within the study area, except at Bird Island Overlook. Access to the Battery Spencer and Hawk Hill overlooks would be reduced because of fewer parking spaces. The overall impacts of Alternative 2 would be long-term, moderate, and adverse at Battery Spencer, Hawk Hill, and Bird Island Overlook.

Alternative 4 would retain existing access to most of the popular scenic viewing areas. Access to the Battery Spencer overlook would be reduced because of fewer parking spaces. Access to the Point Bonita Lighthouse would be improved with a new pedestrian connection from Battery Alexander. These access changes would result in long-term, moderate, adverse impacts at Battery Spencer. Long-term, moderate, adverse impacts would also occur at Slacker Hill. Long-term, negligible, bene-

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ficial impacts are expected at other viewing areas. Similar to Alternative 3, views from Bird Island Overlook to Fort Cronkhite under Alternative 4 would be improved with the removal of visitor vehicles from the area.

Access to Aquatic Recreation and Interpretive Sites — Car-free days under Alternatives 3 and 4 would restrict access to aquatic recreation and interpretive sites by private vehicle, resulting in long-term, moderate, adverse impacts, but access would still be possible by shuttle, walking, and biking. The Rodeo Beach unpaved parking lot would be removed. Parking immediately adjacent to Rodeo Beach would be lost, but parking in infill areas at Fort Cronkhite would be added, resulting in a long-term, minor, adverse impact.

Noise. Alternative 1 would include measures to reduce noise as proposed in the *Fort Baker Plan;* therefore, no new short- or long-term noise impacts would occur. Under Alternatives 3 and 4 traffic-generated noise levels would be slightly reduced as a result of alternative modes of access, such as transit, walking, and biking; therefore, noise impacts would be negligible and beneficial. Increases in traffic noise levels under Alternative 2 would be long-term, negligible, and adverse.

Noise associated with the proposed transit facilities, parking lots, and recreational facilities (e.g., use of trails) under Alternatives 2, 3, and 4 could result in long-term, minor, adverse impacts to ambient noise levels. Construction activities would result in localized, short-term, moderate, adverse impacts on the noise environment.

Human Health, Safety, and the Environment. There would be no additional impacts to public health and safety related to security of personal property or seismic or tsunami events under any alternative. Under Alternative 1 there would be no impact from hazardous substances or to personal safety other than those already addressed for transportation. There would be long-term, moderate, adverse impacts to fire, police, and emergency vehicle access in the study area under Alternative 1 due to possible access problems through the Barry-Baker tunnel.

Proposed road, parking, trail, and resource restoration work under Alternatives 2, 3, and 4 could disturb contaminated sites, soils, or substances; however, with the implementation of mitigation measures, resulting impacts would be long-term, negligible, and adverse. Proposed roadway and parking area improvements, along with traffic signals at the Barry-Baker tunnel under Alternatives 3 and 4, would result in long-term, moderate, beneficial impacts with respect to emergency vehicle access. Due to the one-way road system at McCullough Road and the Barry-Baker tunnel under Alternative 2, impacts to emergency vehicle access would be long-term, moderate and adverse. Short-term, minor, adverse impacts to personal safety could occur during construction activities.

Social and Economic Impacts

There would be no change to park visitation patterns, or any effects to local employment or quality of life under Alternative 1. Under Alternatives 2, 3, and 4 changes to visitation patterns could result from improved transit access, with long-term, negligible, beneficial impacts. Long-term impacts on local employment opportunities from new transit service jobs would be negligible and beneficial. Quality of life impacts on local communities under Alternatives 3 and 4 would be negligible to moderate and beneficial in terms of traffic congestion and moderate and beneficial in terms of access to the study area. Under Alternative 2 quality of life impacts would be negligible and beneficial for traffic congestion and minor and beneficial for access to the study area. Construction activities would result in short-term, minor, beneficial impacts to the local economy and employment.

Impacts on Park Operations and Management

Alternative 1 would not affect the park's current staffing requirements, and there would be no new impacts on park operations and management. Existing facilities would continue to deteriorate, placing an increasing burden on park operations to keep facilities open and usable by the public.

Alternatives 2, 3, and 4 would propose extensive improvements to roads, trails, and parking areas. These improvements would be designed to minimize maintenance needs and reduce the current burden on park staff to address ongoing infrastructure problems. However, the addition of new administrative functions associated with transit operations and parking fee collection would result in the potential for slight impacts to current staffing

allocations, with long-term, minor, adverse impacts under Alternatives 3 and 4.

None of the alternatives would change the park's annual operating budget or affect the allocation of current funding sources. The implementation of car-free days under Alternatives 3 and 4 would result in a long-term, minor, adverse impact as a result of potential staffing impacts or costs not accounted for in the project budget. No transportation infrastructure improvements would be implemented until sufficient funding had been allocated. In addition, capital and operating expenses for transit services would be implemented only if they were fully funded through new revenue streams.

KEY ISSUES FOR THE PUBLIC

Refer to Chapter 6 for a discussion of public issues. The main concerns related to car-free days, parking fees, and equestrian and bicycle use of specific trails.

PUBLIC REVIEW PROCESS

This *Final Environmental Impact Statement* will be available for a 30-day public review. The alternatives, the impact analysis, or other features may be changed as a result of comments received during the review. These comments will be taken into consideration, and a record of decision will then be prepared and signed, identifying which alternative has been selected as the final plan. The National Park Service will select the final plan based primarily on advantages with respect to improving access to and within the Marin Headlands and Fort Baker for a variety of users in a way that minimizes impacts to natural and cultural resources. The selected alternative's elements will become the primary component of the Marin Headlands and Fort Baker transportation infrastructure and management plan, which will be implemented by the National Park Service.

Selected management activities and projects would be implemented as funds became available. This document does not constitute a commitment for funding, and future budgets could influence implementation priorities.

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