

Implementation Planning and Mitigative Measures



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IMPLEMENTATION PLANNING

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3 After the approval of this general management plan, the park staff would complete other
4 more detailed studies before specific actions would be implemented. These studies would
5 investigate the baseline condition of resources and visitor use in the park as required by
6 NPS management policies and fulfill the requirements of the National Environmental
7 Policy Act, National Historic Preservation Act, and other relevant laws and policies.
8 These would inform the detailed site-specific improvement plans that would be prepared
9 for different parts of the park. Where appropriate, these studies and plans would be
10 completed with substantial public involvement and environmental compliance. The
11 additional studies and improvement plans could include the following:

12

13 Detailed Site Improvement Plans

- 14 • Stinson Beach
- 15 • Muir Woods
- 16 • Muir Woods Off-site Welcome Center
- 17 • Lower Redwood Creek
- 18 • Tennessee Valley
- 19 • Fort Cronkhite/ Rodeo Valley
- 20 • Alcatraz
- 21 • Ocean Beach
- 22 • Fort Funston
- 23 • Picardo Ranch
- 24 • Rancho Corral de Tierra

25

26 Natural Resources

- 27 • Resource Stewardship Strategy
- 28 • Ocean stewardship action plan
- 29 • Vegetation management plans, including exotic species
- 30 • Forest inventories and condition assessments
- 31 • Water resources availability studies
- 32 • Earth materials management plans
- 33 • Geotechnical evaluations of shorelines
- 34 • Field surveys for presence of threatened and endangered species
- 35 • Regional studies of wildlife species of special interest
- 36 • Pest control and eradication plans

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- 1 **Cultural Resources**
- 2 • Resource Stewardship Strategy
- 3 • Historic Resource Studies
- 4 • Archaeological surveys and investigations
- 5 • Cultural Landscape Inventories and Reports
- 6 • Historic Structures Reports
- 7 • Historic American Buildings Survey records
- 8 • Fortification preservation and management plans
- 9 • Lighthouse preservation and management plans
- 10 • Updates to National Historic Landmark nominations
- 11 • Determinations of Eligibility for the National Register
- 12 • Updates to National Register nominations
- 13
- 14 **Visitor Use**
- 15 • Educational and interpretive program plans
- 16 • Visitor satisfaction surveys
- 17 • Trails development and management plans
- 18 • Social trail inventories and management plans
- 19 • Transportation and transit plans
- 20 • Equestrian facilities management plans
- 21
- 22 **General**
- 23 • Climate change action plan
- 24 • Land protection plan
- 25 • Business plans
- 26 • Visual impact assessments
- 27 • Topographic surveys

MITIGATIVE MEASURES

2

3 Congress charged the National Park Service with managing the lands under its
4 stewardship “in such manner and by such means as will leave them unimpaired for the
5 enjoyment of future generations” (NPS Organic Act, 16 USC 1). As a result, NPS staff
6 routinely evaluate and implement mitigative measures whenever conditions occur that
7 could adversely affect the sustainability of national park system resources.

8 To ensure that implementation of the action alternatives leaves natural and cultural
9 resources unimpaired and provides quality visitor experiences, a consistent set of
10 mitigative measures would be applied to actions proposed in this plan. The National Park
11 Service would prepare implementation plans with appropriate environmental compliance
12 [i.e., those required by the National Environmental Policy Act (NEPA) and the National
13 Historic Preservation Act (NHPA), as amended, and other relevant legislation] for these
14 future actions. These implementation plans would include more-detailed mitigative
15 measures for specific projects. As part of the environmental compliance, the National
16 Park Service would avoid, minimize, and mitigate adverse impacts when practicable. The
17 implementation of a compliance-monitoring program would be within the parameters of
18 NEPA and NHPA compliance documents, U.S. Army Corps of Engineers Section 404
19 permits, and other compliance requirements. The compliance-monitoring program would
20 oversee these mitigative measures and would include reporting protocols.

21 The following mitigative measures and best management practices would be applied to
22 avoid or minimize potential impacts from implementation of the action alternatives
23 included in this general management plan.

24

25

26 NATURAL RESOURCES

27 General

28 The park and monument resources, including air, water, soils, vegetation, and wildlife,
29 would be periodically inventoried and monitored to provide information needed to avoid
30 or minimize impacts of future development. Any museum collections related to natural
31 resources generated by such activities would be managed according to NPS policies.

32 Whenever possible, new facilities would be built in previously disturbed areas or in care-
33 fully selected sites with as small a construction footprint as possible and with sustainable
34 design. During design and construction periods, NPS natural and cultural resource staff
35 would identify areas to be avoided and would monitor activities.

36 Fencing or other means would be used to protect sensitive resources adjacent to
37 construction areas.

38 Construction materials would be kept in work areas, especially if the construction takes
39 place near streams, springs, natural drainages, or other water bodies.

1 Visitors would be informed of the importance of protecting the natural resources and
2 leaving these undisturbed for the enjoyment of future generations.

3

4 **Air Quality**

5 A dust abatement program would be implemented. Standard dust abatement measures
6 could include watering or otherwise stabilizing soils, covering haul trucks, employing
7 speed limits on unpaved roads, minimizing vegetation clearing, and revegetating after
8 construction.

9

10 **Lightscape**

11 Mitigative measures to preserve natural ambient lightscares would include the following:

- 12 • Limiting the use of artificial outdoor lighting to that which is necessary for basic
13 safety requirements.
- 14 • Shielding all outdoor lighting to the maximum extent possible, keeping light on
15 the intended subject and out of the night sky to the greatest degree possible.
- 16 • Working with park partners and visitors on education and best management
17 practices to minimize their impacts on lightscares.

18

19 **Nonnative Species**

20 Special attention would be devoted to preventing the spread of exotic and invasive plants.
21 Standard measures could include the following elements: ensure that construction-related
22 equipment arrives at the work site free of mud or seed-bearing material, certify all seeds
23 and straw material as weed-free, identify areas of nonnative plants before construction,
24 treat exotic plants or exotic infested topsoil before construction (e.g., topsoil segregation,
25 storage, herbicide treatment), and revegetate areas with appropriate native species.

26

27 **Scenic Resources**

28 Mitigative measures that would be used to minimize visual intrusions could include the
29 following:

- 30 • Where appropriate, facilities such as boardwalks and fences would be used to
31 route people away from sensitive natural and cultural resources while still
32 permitting access to important viewpoints.
- 33 • Facilities would be designed, sited, and constructed to avoid or minimize visual
34 intrusion into the natural environment or landscape.
- 35 • Vegetative screening would be provided, where appropriate.

36

37

1 **Soils**

2 New facilities would be built on soils suitable for development. Soil erosion would be
3 minimized by limiting the time soil is left exposed and by applying other erosion control
4 measures such as erosion matting, silt fencing, and sedimentation basins in construction
5 areas to reduce erosion, surface scouring, and discharge to water bodies. Once work was
6 completed, construction areas would be revegetated with native plants in a timely period.

7 To minimize soil erosion on new trails, best management practices for trail construction
8 would be used. Examples of best management practices could include installing water
9 bars, check dams, and retaining walls; contouring to avoid erosion; and minimizing soil
10 disturbance.

11

12 **Soundscape**

13 Mitigative measures to preserve natural ambient soundscapes would include:

- 14 • Facilities would be located and designed to minimize objectionable noise.
- 15 • Standard noise abatement measures would be followed during construction,
16 including: a schedule that minimizes impacts on adjacent noise-sensitive
17 resources, the use of the best available noise control techniques wherever
18 feasible, the use of hydraulically or electrically powered tools when feasible, and
19 the location of stationary noise sources as far from sensitive resources as
20 possible.

21

22 **Threatened and Endangered Species and Species of Concern**

23 Conservation measures would occur during normal operations as well as before, during,
24 and after construction to minimize long-term, immediate impacts on rare species, and
25 threatened and endangered species where they are identified in the two parks. These
26 measures would vary by specific project and the affected area of the two parks. Many of
27 the measures listed above for vegetation and wildlife would also benefit rare, threatened,
28 and endangered species by helping to preserve habitat. Conservation measures specific to
29 rare, threatened, and endangered species would include the following actions:

- 30 • Surveys would be conducted for special status species, including rare, threatened,
31 and endangered species, before deciding to take any action that might cause
32 harm. In consultation with the U.S. Fish and Wildlife Service and National
33 Marine Fisheries Service, appropriate measures would be taken to protect any
34 sensitive species, whether identified through surveys or presumed to occur. Any
35 actions expected to impact threatened and endangered species would be subject
36 to consultation with the U.S. Fish and Wildlife Service, leading to the
37 development of necessary protective measures.
- 38 • If breeding or nesting areas for threatened and endangered species were observed
39 in the park or monument, these areas would be protected from human
40 disturbance.
- 41 • New facilities and management actions would be located and designed to avoid
42 adverse effects on rare, threatened, and endangered species. If avoidance of
43 adverse effects on rare, threatened, and endangered species were infeasible,

- 1 appropriate conservation measures would be taken in consultation with the
2 appropriate resource agencies.
- 3 • Restoration or monitoring plans would be developed as warranted. Plans should
4 include methods for implementation, performance standards, monitoring criteria,
5 and adaptive management techniques.
- 6
- 7 Measures would be taken to reduce adverse effects of nonnative plants and wildlife on
8 rare, threatened, and endangered species.
- 9

10 **Vegetation**

11 Areas used by visitors (e.g., trails) would be monitored for signs of native vegetation
12 disturbance. Public education, revegetation of disturbed areas with native plants, erosion
13 control measures, and barriers would be used to control potential impacts on plants from
14 trail erosion or social trailing.

15 Proposed sites for new trails and other facilities would be surveyed for sensitive species
16 before construction. If sensitive species were present, new developments would be
17 relocated to avoid impacts.

18 Revegetation plans would be developed for disturbed areas. Revegetation plans should
19 specify such features as seed/plant source, seed/plant mixes, soil preparation, fertilizers,
20 and mulching. Salvage vegetation, rather than new planting or seeding, would be used to
21 the greatest extent possible. To maintain genetic integrity, native plants that grow in the
22 project area or the region would be used in restoration efforts, whenever possible. Use of
23 nonnative species or genetic materials would be considered only where deemed necessary
24 to maintain a cultural landscape or to prevent severe resource damage, and would be
25 approved by the NPS resource management staff. Restoration activities would be
26 instituted immediately after construction was completed. Monitoring would occur to
27 ensure that revegetation was successful, plantings were maintained, and unsuccessful
28 plant materials were replaced.

29

30 **Water Resources**

31 To prevent water pollution during construction, erosion control measures would be used,
32 discharges to water bodies would be minimized, and construction equipment would be
33 regularly inspected for leaks of petroleum and other chemicals.

34 Best management practices, such as the use of silt fences, would be followed to ensure
35 that construction-related effects were minimal and to prevent long-term impacts on water
36 quality, wetlands, and aquatic species.

37 Caution would be exercised to protect water resources from activities with the potential
38 to damage water resources, including damage caused by construction equipment, erosion,
39 and siltation. Measures would be taken to keep fill material from escaping work areas,
40 especially near streams, springs, natural drainages, and wetlands.

41 For new facilities, and to the extent practicable for existing facilities, stormwater manage-
42 ment measures would be implemented to reduce nonpoint source pollution discharge

1 from parking lots and other impervious surfaces. Such actions could include use of
2 oil/sediment separators, street sweeping, infiltration beds, permeable surfaces, and
3 vegetated or natural filters to trap or filter stormwater runoff. As directed by the Clean
4 Water Act, all projects disturbing more than five acres require a storm water discharge
5 permit and specific mitigative measures would be developed as needed.

6 The NPS spill prevention and pollution control program for hazardous materials would be
7 followed and updated on a regular basis. Standard measures could include (1) procedures
8 for hazardous materials storage and handling, spill containment, cleanup, and reporting,
9 and (2) limitation of refueling and other hazardous activities to upland/nonsensitive sites.

10 Wetlands would be avoided if possible, and protection measures would be applied during
11 construction. Wetlands would be delineated by qualified NPS staff or certified wetland
12 specialists and clearly marked before construction work. Construction activities would be
13 performed in a cautious manner to prevent damage caused by equipment, erosion,
14 siltation, or other construction-related effects.

15

16 **Wildlife**

17 To the extent possible, new or rehabilitated facilities would be sited to avoid sensitive
18 wildlife habitats, including feeding and resting areas, major travel corridors, nesting
19 areas, and other sensitive habitats.

20 Construction activities would be timed to avoid sensitive periods, such as nesting or
21 spawning seasons. Ongoing visitor use and NPS operational activities could be restricted
22 if their potential level of damage or disturbance warranted doing so.

23 Measures would be taken to reduce the potential for wildlife to get food from humans.
24 Wildlife-proof garbage containers would be required in developed areas (including visitor
25 centers, picnic areas, trails, and interpretive waysides). Signs would continue to educate
26 visitors about the need to refrain from feeding wildlife.

27 Other visitor impacts on wildlife would be addressed through such techniques as visitor
28 education programs, restrictions on visitor activities, and ranger patrols.

29

30

31 **CULTURAL RESOURCES**

32 All projects with the potential to affect historic properties and cultural landscapes would
33 be carried out in compliance with Section 106 of the National Historic Preservation Act,
34 as amended, to ensure that the effects are adequately addressed. All reasonable measures
35 would be taken to avoid, minimize, or mitigate adverse effects in consultation with the
36 California state historic preservation office and, as necessary, the Advisory Council on
37 Historic Preservation and other concerned parties, including American Indian tribal
38 officials. In addition to adhering to the legal and policy requirements for cultural
39 resources protection and preservation, the National Park Service would also undertake the
40 measures listed below to further protect the park and monument resources.

- 1 All areas selected for construction (including any trail improvements) would be surveyed
2 to ensure that cultural resources (i.e., archeological, historic, ethnographic, and cultural
3 landscape resources) in the area of potential effects are adequately identified and
4 protected by avoidance or, if necessary, mitigation.
- 5 Compliance with the Native American Graves Protection and Repatriation Act of 1990
6 would occur in the unlikely event that human remains believed to be Native American
7 were discovered inadvertently during construction. Prompt notification and consultation
8 with the tribes traditionally associated with Golden Gate National Recreation Area and
9 Muir Woods National Monument would occur in accordance with the act. If such human
10 remains were believed to be non-Indian, standard reporting procedures to the proper
11 authorities would be followed, as would all applicable federal, state, and local laws.
- 12 Archeological documentation would be done in accordance with the *Secretary of the*
13 *Interior's Standards for Archeology and Historic Preservation* (1983, as amended and
14 annotated).
- 15 If during construction, previously unknown archeological resources were discovered, all
16 work in the immediate vicinity of the discovery would be halted until the resources could
17 be identified and documented and, if the resources could not be preserved *in situ*, an
18 appropriate mitigative strategy would be developed in consultation with the state historic
19 preservation officer and, if necessary, associated Indian tribes.
- 20 The National Park Service would consult with tribal officials before taking actions that
21 could affect ethnographic resources. The National Park Service would continue to abide
22 by existing cooperative agreements and would pursue additional agreements with
23 culturally affiliated tribes to avoid resource impacts, allow access for traditional gathering
24 and other approved activities, and minimize potential use conflicts in culturally sensitive
25 areas. The National Park Service would develop and accomplish their programs in a
26 manner respectful of the beliefs, traditions, and other cultural values of the affiliated
27 tribes.
- 28 Further background research, resource inventories, and National Register of Historic
29 Places evaluation of historic properties would be carried out where management
30 information is lacking. The surveys and research necessary to determine the eligibility of
31 a structure, district, or landscape for listing in the national register are a prerequisite for
32 understanding the resource's significance, as well as the basis of informed decision-
33 making in the future regarding how the resource should be managed. The results of these
34 efforts would be incorporated into site-specific planning and compliance documents.
- 35 No property listed in or eligible for listing in the National Register of Historic Places
36 would be removed or allowed to decay naturally ("molder") without prior review by NPS
37 cultural resource specialists and consultation with the state historic preservation office,
38 and, if necessary, associated American Indian tribal officials. Before such a property is
39 removed or allowed to molder, appropriate documentation recording the property would
40 be prepared in accordance with Section 110 (b) of the National Historic Preservation Act,
41 as amended, and the documentation submitted, as appropriate, to the Historic American
42 Buildings Survey/Historic American Engineering Record/ Historic American Landscapes
43 Survey program and associated American Indian tribal officials.
- 44 Prior to demolition of any structure listed in or eligible for listing in the national register,
45 a survey for archeological resources in the general vicinity of the affected structure would

1 be conducted. The excavation, recordation, and mapping of any significant cultural
2 remains, if present, would be completed prior to demolition, to ensure that important
3 archeological data that otherwise would be lost is recovered and documented.

4 To appropriately preserve and protect national register listed or national register-eligible
5 historic structures, all stabilization, preservation, rehabilitation, and restoration efforts
6 would be undertaken in accordance with the *Secretary of the Interior's Standards for the*
7 *Treatment of Historic Properties* (1995). Any materials removed during rehabilitation
8 efforts would be evaluated to determine their value to the park's museum collections
9 and/or for their comparative use in future preservation work at the sites.

10 Design guidelines for new construction would be prepared by the National Park Service
11 and would be reviewed for compatibility with the cultural landscape or historic setting
12 and for compliance with the *Secretary of the Interior's Standards for the Treatment of*
13 *Historic Properties*. Additional coordination and consultation would be carried out with
14 the California state historic preservation office, the Advisory Council on Historic
15 Preservation, and, if necessary, American Indian tribal officials to assess and mitigate any
16 adverse effects of new construction on designated or potential national historic landmark
17 districts. All new buildings, additions, and landscape features would be designed and
18 sited to harmonize with their historic settings.

19 Visitors would be educated on the importance of protecting the historic properties of the
20 park and monument and leaving these undisturbed for the enjoyment of future visitors.

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23 **VISITOR SAFETY AND EXPERIENCES**

24 Measures to reduce adverse effects of construction on visitor safety and experience would
25 be implemented, including project scheduling and best management practices.

26 Visitor safety concerns would be integrated into NPS educational programs. Directional
27 signs would continue to orient visitors, and education programs would continue to
28 promote understanding among visitors.

29 Every reasonable effort would be made to make the facilities, programs, and services of
30 the National Park Service and its park partners accessible to and usable by all people,
31 including those who are disabled. This policy is based on the commitment to provide
32 access to the widest cross section of the public and to ensure compliance with the intent
33 of the Architectural Barriers Act (42 USC 4151 et seq.) and the Rehabilitation Act (29
34 USC 701 et seq.). Specific guidance for implementing these two laws is found in the
35 secretary of the interior's regulations regarding "Nondiscrimination in Federally Assisted
36 Programs" (43 CFR 17). Special, separate, or alternative facilities, programs, or services
37 would be provided only when existing ones cannot reasonably be made accessible. The
38 determination of what is reasonable would be made after consultation with disabled
39 persons or their representatives.

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41

1 **PARK OPERATIONS**

2 In order to provide facilities that are functional, code compliant, and sustainable, the
3 following strategies would be used:

- 4 • Energy efficient strategies would be applied to new and rehabilitated structures
5 through the establishment of performance standards to address the building
6 envelope, mechanical systems, electrical systems, and lighting systems.
- 7 • Water conservation strategies for use in buildings and for irrigation would be
8 implemented through performance standards designed to meet or exceed
9 requirements of the Energy Policy Act and [REDACTED].
- 10 • Alternative strategies for energy production would be evaluated and incorporated
11 into the final design as appropriate, including photovoltaic systems for generating
12 peak electrical energy demand. Photovoltaic systems, if determined to be feasible
13 based on further evaluation, would be subject to design review and establishment
14 of design guidelines to ensure compatibility with natural or historic settings.
15 Guidelines would identify appropriate locations, such as flat plate modules on
16 rear roofs of historic structures or parking carports and/or pole-mounted tracking
17 arrays located in visually unobtrusive locations within the developed footprint of
18 the site.

19
20
21 **SOCIAL AND ECONOMIC ENVIRONMENT**

22 During the future planning and implementation of the approved management plan for the
23 two parks, NPS staff would work with local communities and county governments to
24 further identify potential impacts and mitigative measures that would best serve the
25 interests and concerns of both the National Park Service and the local communities.
26 Partnerships would be pursued to improve the quality and diversity of community
27 amenities and services.

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29
30 **TRANSPORTATION**

31 To determine the success of measures implemented to encourage alternative modes of
32 travel, the National Park Service would periodically collect data on traffic volumes and
33 vehicle occupancy; use of transit services; and amount of pedestrian and bicyclist use to,
34 from, and within the park and monument. Based on this data, the National Park Service
35 would expand or modify existing facilities and services for alternative transportation
36 modes or implement other measures to increase the use of those modes.

37