Determination of No Impairment

Golden Gate National Recreation Area
Vista Grande Drainage Basin Improvement - Fort Funston

Impairment Prohibition

National Park Service *Management Policies 2006* require analysis of potential effects to determine whether or not actions will impair park resources. The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. NPS managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adversely impacting park resources and values.

However, the laws do give the NPS management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purpose of a park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the National Park Service management discretion to allow certain impacts within parks, that discretion is limited by the statutory requirement that the NPS must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible NPS manager, will harm the integrity of park resources or values. An impact to any park resource or vale may, but does not necessarily, constitute and impairment. An impact will be more likely to constitute an impairment to the extent that it affects a resource or value whose conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- Key to the natural or cultural integrity of the park; or
- Identified as a goal in the park's general management plan or other relevant NPS planning documents.

An impact will be less likely to constitute an impairment if it is an unavoidable result of an action necessary to pursue or restore the integrity of park resources or values and it cannot be further mitigated.

Per section 1.4.6 of *Management Policies, 2006*, park resources and values that may be impaired include:

- The park's scenery, natural and historic objects, and wildlife, and the processes and conditions that sustain them, including, to the extent present in the park: the ecological, biological, and physical processes that created the park and continue to act upon it; scenic features; natural visibility, both in daytime and at night; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resources; archeological resources; cultural landscapes; ethnographic resources; historic and prehistoric sites, structures, and objects; museum collections; and native plants and animals;

- Appropriate opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing them;

- The park's role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system; and

- Any additional attributes encompassed by the specific values and purposes for which the park was established.

IMPAIRMENT DETERMINATIONS FOR THE SELECTED ALTERNATIVE

This determination on impairment of the Vista Grande Drainage Basin Improvement Project (Project) has been prepared for the Selected Alternative. An impairment determination is made for all resource impact topics analyzed for the Selected Alternative that affect Fort Funston, part of the Golden Gate National Recreation Area (GGNRA). The following describes this resource or value for which impairment is assessed and the reasons why impairment will not occur. These resources include:

- Air Quality;
- Biological Resources including Habitat and Threatened and Endangered Species;
- Geological and Soil Resources;
- Hydrological and Water Resources;
- Natural Soundscapes;
- Historic Districts, Structures, Cultural Landscapes, and Archeological Resources;

This non-impairment determination does not discuss impacts to aesthetic and transportation resources, visitor experience, socioeconomics, public health and safety, environmental justice, land use, or park operations. This non-impairment determination also does not include discussion of impacts to sustainability, safety and security, and utilities, because these resources have no anticipated impacts to Fort Funston, as documented in the FEIS.

Temporary construction impacts, as well as secondary and cumulative effects of the Selected Alternative, are considered along with permanent impacts to each resource reviewed for potential impairment of Fort Funston and the GGNRA resources.

Fundamental resources and values are those critical to achieving the park's purpose and maintaining its significant. These fundamental resources and values are covered under the impact topics that follow.

Air Quality

Air quality is affected by the rate, amount, and location of pollutant emissions and the meteorological conditions that influence pollutant movement and dispersal. Atmospheric conditions, including wind speed, wind direction, and air temperature, in combination with local surface topography (i.e., geographic features such as mountains, valleys, and San Francisco Bay), determine the effect of air pollutant emissions on local air quality.

The California Clean Air Act of 1988, as amended, sets stricter ambient air quality standards than the federal standards and requires local air districts to promulgate and implement rules and regulations to attain those standards. Under the act, California Ambient Air Quality Standards are set for all pollutants covered under national standards, as well as vinyl chloride, hydrogen sulfide, sulfates, and visibility-reducing particulates. If an area does not meet the California standards, it is designated as a state nonattainment area.

The Project site, including Fort Funston in the GGNRA, is in the San Francisco Bay Area Air Basin, which consists of San Francisco, San Mateo, Santa Clara, Alameda, Contra Costa, Napa, and Marin counties, as well as portions of Sonoma and Solano counties. The San Francisco Bay Area is designated a federal nonattainment area for ozone and a state nonattainment area for ozone and inhalable particulate matter.

The selected action would not have adverse impacts on air quality. The Project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. The primary adverse effects are associated with dust and exhaust emissions during development activities, and possible cumulatively considerable increases in ozone, particulate matter (PM10), or fine particulate matter (PM2.5) from the Fort Funston Site Improvements project. However, the intervening distance and topography would reduce the potential for cumulative effects from construction-related diesel particulate matter (DPM) and PM2.5 emissions even if construction of these two projects were to coincide.

Air quality affects the park's ecological systems and the overall visitor experience, and park managers are committed to protecting air quality in the park. Any amount of pollutants added because of the implementation of the selected action will be negligible compared to existing levels. The Project will not violate any air quality standard or result in a cumulatively considerable net increase of any criteria pollutant for which the Bay Area is in nonattainment under federal or state ambient air quality standards. Overall, the air quality status of the park will be unaffected by the selected action, and therefore, the selected action will not result in impairment of air quality.

Biological Resources

Habitat

The western edge of San Francisco, including Fort Funston and areas surrounding Lake Merced, was in a natural state of sand dunes with a sparse covering of chaparral for most of recorded history. Development in San Francisco has almost entirely removed sand dune habitat within the city boundaries, and thus sand dunes and native sand dune vegetation are restricted to protected areas such as those within Fort Funston (north, east, and south of the Project site) and in the Presidio. Today, native vegetation within the study area is either the result of restoration efforts or consists of remnant naturally occurring native plant communities that have been severely degraded by human disturbance and the introduction of invasive vegetation. Both restored and degraded areas of central dune scrub, a regionally specific designation of the coastal dune scrub vegetation community, are present within the study area at Fort Funston, Lake Merced, and Avalon Canyon access road.

Fort Funston contains several upland plant communities, including developed/landscaped/ruderal, annual grassland, central dune scrub, disturbed dune vegetation, coastal scrub. The larger project site outside of Fort Funston includes the wetland habitats of arroyo willow riparian scrub, freshwater marsh, and open water.

Several types of dune vegetation occur at Fort Funston such as foredune, back dune, central dune scrub, and disturbed dune; however, only central dune scrub and areas of highly disturbed dune scrub occur within the Project site at Fort Funston. Central dune scrub within the study area is known to support 4 species of reptiles, 3 species of small mammals, and a variety of birds. Central dune scrub is considered to be a sensitive natural community due to its limited distribution in the state and the diversity of special-status plant species that often occur there.

Healthy vegetation and wildlife are critical to the natural integrity and public enjoyment of Fort Funston. The implementation of the selected action could have both beneficial and adverse impacts on vegetation and wildlife. The primary beneficial impacts would be related to increases in water volume and open water habitat at Lake Merced. The primary adverse effects of the selected action are disturbances to vegetation and wildlife due to construction activities and new managed lake levels. However, these adverse effects will be small in scale, and mitigation measures will be used to ensure that adverse effects are minimized.

Compensation will be provided for sensitive communities lost due to new lake levels. If it becomes evident that implementation of the selected action has the potential to have major adverse effects and will result in long-term or permanent loss of central dune scrub, thimbleberry, wax myrtle, and canyon live oak scrub, and Vancouver rye grassland associated with Lake Merced, then a resurvey of these sensitive vegetation communities around the Lake Merced shoreline to which a significant impact is predicted to occur (i.e., more than 10 percent loss) shall be performed post-inundation to determine actual percent loss.

Overall, the selected action will not result in impairment of vegetation and wildlife in Fort Funston, though Lake Merced could have adverse impacts related to habitat. The selected action is expected to result in the improvement of habitat conditions as a whole due to the increased water volume and levels. Some adverse effects could occur as the selected action is constructed, but these effects will be reduced by mitigation measures and adaptive management.

Federal and State Threatened and Endangered Species

The vegetation communities described in the previous section also provide important habitat for rare or special status wildlife and plant species (i.e., federal and state listed species, species of special concern, and candidate species) within the lands and waters of Fort Funston and Lake Merced. These special status wildlife species are permanent park residents, seasonal residents, or rely on park land and waters for migration.

Seventeen (17) special-status plant species were determined to be present or have at least a moderate potential to occur in the study area. Numerous populations of two special-status plants, San Francisco spineflower (*Chorizanthe cuspidata var. cuspidata)* and San Francisco wallflower (*Erysimum franciscanum*) were observed during the reconnaissance survey in areas adjacent to the proposed staging area at Fort Funston. While no special-status animal species were observed

during the biological resources reconnaissance survey, several have the potential to occur in the study area. The following special-status animals were determined to have at least a moderate potential to occur in the study area: Western Pond Turtle; Migratory Birds; Special-status birds; Special-status bats.

A review of GIS-based habitat data for *USFWS Critical Habitat for Threatened and Endangered Species* shows that the Project site is not located within designated critical habitat for any listed species.

The protection of threatened and endangered species in the GGNRA is important for sustaining biodiversity and the long-term health of the area's ecological system. Implementation of the selected action will have beneficial and adverse impacts to threatened and endangered species. The primary beneficial impacts are associated with the new lake levels and a sustainable supply of water for Lake Merced.

Adverse effects will occur as a result of the selected action, but they will be minor and localized. The primary adverse effects are associated with construction and from the short-term disruption of water regimes. However, mitigation measures will reduce the extent and intensity of these adverse impacts. Furthermore, the beneficial actions described above under *Habitat* are expected to improve habitat conditions as a whole in the project site. Therefore, the selected action will not result in impairment of federal and state threatened and endangered species.

Geological and Soil Resources

Geologic processes have an influence on all the resources in Fort Funston. The majority of the lands within the park and recreation area are on the North American Tectonic Plate. Faulting and uplift along the margins of these plates have created many of the terrain features in the Bay Area landscape, but these processes have also left unstable slopes (subject to landslides and mass wasting) throughout the area.

The project is predominantly underlain by the Plio-Pleistocene age (approximately 5 million to 10,000 years ago) Merced Formation and late Pleistocene age (up to approximately 125,000 years ago) Colma Formation. The Merced Formation is well exposed on the face of the bluffs at the western edge of Fort Funston.

In the Lake Merced area, the Merced Formation is unconformably overlain by nearly horizontal beds of the Colma Formation. The Merced Formation is characterized as medium- to very fine-grained, poorly indurated to friable sandstone, siltstone, and claystone, with some conglomerate lenses and a few friable beds of white volcanic ash. The Colma Formation is described as poorly consolidated beach, estuarine, eolian, stream, and colluvial deposits that are distributed discontinuously throughout the northern part of the San Francisco Peninsula.

Throughout most of the Project area, Colma Formation deposits are blanketed by Holocene age (11,000 years to present) eolian sand dune deposits. These deposits are transported from prevailing onshore winds and are composed mainly of very fine-to fine-grained, well-sorted sand with occasional organic-rich interbeds. Other identified Holocene deposits throughout the Project

area include artificial fill, landslide deposits, and slope debris observed on the steep bluffs at Fort Funston, artificial fill along the western shores of South Lake and Impound Lake, and wave-deposited beach sand at the base of the bluffs.

The protection of soils and geologic resources and processes is important for sustaining the natural systems in Fort Funston. Implementation of the selected action would have adverse impacts on soils and geologic resources and processes. Some adverse impacts would occur as the selected action is implemented, but they will be minor and localized. The primary adverse impacts are exposure to strong seismic ground shaking and/or seismic-related ground failure; soil erosion, disturbance, and compaction; and exposure to unstable soil. Overall, these adverse effects will be small in scale, and mitigation measures will be used to ensure that adverse effects are minimized. Therefore, the selected action will not result in impairment of soils and geologic resources and processes.

Hydrological and Water Resources

Water resources in Fort Funston include the Pacific Ocean; water resources in the entire project site include springs, lakes (notably Lake Merced), wetlands, and the Pacific Ocean.

Lake Merced, the major surface freshwater feature in the study area, is a naturally occurring lake located approximately 0.25 mile from the Pacific Ocean in the southwestern corner of San Francisco. Storm and authorized non-storm flows within the urban watersheds on the western side of San Francisco, including the Lake Merced urban watershed, flow toward the Pacific Ocean through constructed stormwater conveyance systems. Storm and authorized non-storm flow is conveyed through the project area, including Fort Funston, to the Pacific Ocean via the Vista Grande Canal and Tunnel from a 2.5-square-mile urban drainage area in Daly City and unincorporated San Mateo County to the south of the Lake Merced urban watershed.

The Westside Groundwater Basin underlies the study area and most of western San Francisco, and extends from the western portion of San Francisco south to the eastern portion of San Mateo County. It is bounded to the north by a northwest-trending bedrock ridge through the northeastern part of Golden Gate Park. The San Bruno Mountains bound the basin on the east. The San Andreas Fault and Pacific Ocean form its western boundary and its southern limit is defined by a bedrock high that separates it from the San Mateo Plain Groundwater Basin. The basin opens to the Pacific Ocean on the northwest and San Francisco Bay on the southeast.

The largest and most robust historic water quality data set was compiled by SFPUC as part of routine water quality monitoring in Lake Merced. The SFPUC data includes over 10 years of consistent monitoring, which is collected within Lake Merced over a wide spatial area and monitors a broad range of water quality parameters and constituents at multiple depths throughout the year (quarterly). However, while the quarterly monitoring data collected by SFPUC in Lake Merced provides broad scale historic and baseline water quality conditions and trends, it does not provide detailed seasonal, spatial, and temporal dissolved oxygen (DO) and pH data. DO and pH data is necessary to establish the baseline water quality of the proposed receiving waters (Impound Lake and South Lake) within the context of applicable regulatory considerations (i.e., Lake Merced's listing on the Clean Water Act section 303(d) list for impaired water bodies). In response to the

need for additional data, Daly City designed and implemented a supplemental seasonal monitoring program to document seasonal, spatial and temporal water quality variations in Lake Merced relative to the 303(d) listing.

The protection and restoration of water resources and hydrologic processes in Fort Funston is important for sustaining the natural systems of the area. Implementation of the selected action will have both beneficial and adverse effects on water resources and hydrologic processes. Beneficial effects include a reduction in flood hazard for certain homes in the Vista Grande watershed, a more sustainable supply of water for Lake Merced, and moderate beneficial effects on Dissolved Oxygen (DO) and pH. On the whole, these actions are expected to improve natural hydrologic regimes in the park.

The primary adverse effects are related to the following specific actions: project construction and operation. However, the adverse impacts created by these actions will be minor and localized, and mitigation measures will be used to minimize negative impacts. Therefore, the selected action will not result in the impairment of water resources and hydrologic processes.

Natural Soundscape

Noise can be defined generally as unwanted sound. Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) which is measured in decibels (dB), with zero dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of pain. The existing noise environment in the immediate Project area is dominated by traffic noise generated by John Muir Drive, Highway 35, and Lake Merced Boulevard. Other noise sources in the area include human and wildlife (i.e., birds chirping), activities at the Olympic Club, and distant surf noise.

The nearest noise-sensitive land uses to the Project site are the single-family homes located approximately 1,000 feet south-east from diversion structure and multi-family homes located approximately 100 feet west from the Lake Merced Portal. Other nearby noise-sensitive land uses includes multi- and single-family homes located approximately 2,000 feet east of the Project area, on the east shore of Lake Merced.

The land uses described above also would be sensitive to vibration. No additional vibration-sensitive land uses, such as those employing vibration-sensitive equipment, were identified near the Project construction sites. One building that may be sensitive to vibration damage is located near the proposed tunnel shaft at Fort Funston. The Missile Assembly Building, while not considered historic, is a 1959 masonry building at the southeast corner of the Fort Funston parking lot.

Minimizing noise and vibration impacts and preserving natural soundscapes is critical to the natural integrity and public enjoyment of Fort Funston. The implementation of the selected action could have adverse impacts on park resources related to noise and vibration. The primary adverse effects of the selected action are disturbances due to project construction. However, these adverse effects will be small in scale, and mitigation measures will be used to ensure that adverse effects are minimized. Particular to Fort Funston, the construction contractor will conduct a pre-construction visual survey of the Missile Assembly Building and shall monitor vibration levels

during tunnel construction, especially during impact pile driving at the temporary construction shaft. If construction vibration levels measured at the Missile Assembly Building exceed 0.12 in/sec PPV (90 VdB) or the higher threshold determined in part 1 if applicable, construction shall be halted and other feasible construction methods shall be employed to reduce the vibration levels below the standard threshold.

Overall, the selected action will not result in impairment of sound resources in Fort Funston. Some adverse effects could occur as the selected action is constructed, but these effects will be reduced by mitigation measures and adaptive management.

Historic Districts, Structures, Cultural Landscapes, and Archeological Resources

The planning area covered by the project site includes no archaeological resources within the proposed Project APE; however, 10 archaeological resources, including shipwreck remains, are located within 2 miles of the proposed Project APE. Two historic-period archaeological sites have been identified in the vicinity, but outside of the APE: a glass-filled well and a concrete coal bin foundation. Both of these resources have likely been destroyed by subsequent development since recordation. Eight prehistoric archaeological sites have been previously identified in the Project vicinity; none are located within the proposed Project APE. The eight sites are all localized shell midden sites, some with charcoal, lithic debitage, and faunal remains. The 1882 schooner Neptune wrecked in 1900 approximately 900 feet south of the Ocean Outlet structure (designated CA-SFR-107H).

The Vista Grande Canal and Tunnel is recommended eligible for listing in the National Register under Criterion A (events) and C (architecture/engineering). The Vista Grande Canal was recorded as site CA-SFR-102H, but is not currently listed in, or officially determined eligible for listing in, the California or National Registers by the California OHP.

The Fort Funston National Historic District, although originally determined eligible, was never formally listed in the National Register, and in 2006, the NPS recommended that Fort Funston be removed from the list of National Register eligible properties.

Battery Davis possesses considerable historical significance for being the first 16-inch gun battery undertaken at San Francisco, for being a representative of this mighty climax to coastal guns, and for being the prototype for gun casemates of modern batteries. GGNRA has prepared a draft National Landmark nomination, which includes Battery Davis and the Battery Davis Plotting and Switchboard Room as well as two additional fire control stations.

No designated City Landmarks, Historic Districts, or Conservation Districts are located within the APE for direct or indirect effects.

Implementation of the selected action will have adverse impacts on potential historic districts, structures, cultural landscapes, and archeological resources in Fort Funston. The project would cause a substantial adverse change in the significance of a historical resource because it would demolish the majority of the historic Vista Grande Canal and Tunnel. This adverse change would

be mitigated through the creation of a record of the Vista Grande Canal and Tunnel in accordance with the NPS Historic American Building Survey/Historic American Engineering Record (HABS/HAER) program.

The project could cause other substantial adverse impacts related to the following specific actions: project construction, which could unearth archaeological resources and human remains. However, throughout Fort Funston and Lake Merced, adverse impacts will be minimized through mitigation measures and best management practices for discovery of archaeological resources or human remains.

Therefore, the selected action will not result in impairment of historic districts, structures, cultural landscapes, or archeological resources in the GGNRA or at Lake Merced.

Summary

The National Park Service has determined that implementation of the selected alternative will not constitute an impairment of the resources of values of the GGNRA. This conclusion is based on consideration of the park's purpose and significance, a thorough analysis of the environmental impacts described in the Final Environmental Impact Report/Environmental Impact Statement, comments provided by the consulting agencies and the general public, and the professional judgement of the decision maker guided by the direction of the 2006 NPS Management Policies.