3. Enhancement Alternatives

Details of the Alternatives are discussed in this section. Four Alternatives, including a No Action Alternative, are described for the Project Area, which includes Mountain Lake and surrounding upland areas (Figure 2). The 14.25-acre Project Area includes all of the historic footprint of Mountain Lake east of Park Presidio Boulevard and the adjacent upland areas that have a direct effect on the lake.

3.1 SUMMARY OF PROJECT ELEMENTS

The Alternatives were developed to address the project objectives identified for the Project Area. The Alternatives also take into account the results of public scoping, site analysis, and consultant studies (SFIA, 1998; Horne, 2000).

The actions proposed in the Alternatives would result in improved water quality, enhanced habitat, and a richer visitor experience at Mountain Lake. This is consistent with prior plans for Mountain Lake, which call for the enhancement and protection of the aquatic system and wildlife habitat around the lake (NPS, 1998; NPS, 2000). Additionally, these alternatives specify that improvements to Mountain Lake should provide visitors with safe access to the water for educational and recreational purposes without compromising the lake's natural features and sensitive habitat areas. The Alternatives provide a framework to enhance water quality and the surrounding native plant communities while improving visitor access.

Alternatives 2 and 3 are proposed in phases to limit the visual effects of project-related work, consider financial resources, and address potential site-based jurisdictional constraints (the part of the project that is east of the culvert falls within golf course property). The first phase would occur during the summer, fall and winter of 2001 (July 2001-February 2002). Additional monitoring, weeding, planting, and related follow-up activities are likely to take place after 2002. Future phases are anticipated to occur three to five years after the completion of the first phase.

3.2 PROPOSED ENHANCEMENT ACTIVITIES

Elements of the Alternatives are described in general terms in the following sections. The specific composition of each Alternative is described in Section 3.3. The proposed action is Alternative 2.

3.2.1 DREDGING

Mountain Lake is approximately nine feet deep at the deepest point in the lake. Steep drop-offs occur along the east and west sides of the lake, likely resulting from the addition of Park Presidio fill along the west shore and the removal of rich, organic material from the lake along the east shore. To improve water quality and lake function, dredging is a key element of the enhancement plan. Dredging would remove the top several feet of nutrient-laden sediment from the lake bed, deepen the lake to prevent the rapid invasion of emergent vegetation, increase the volume of water in the lake to dilute nutrients, and prevent rapid heating of the water during hot periods.

The Alternatives include three dredging scenarios, ranging in volume from 6,000 cubic yards (cy) to 14,300 cy. To preserve slope stability and protect existing emergent vegetation, dredging for all alternatives would be confined to the central area of the lake, and would not occur within the following buffers (Figures 6, 7, 8):

- A 110-foot border from the lake's edge would be left undisturbed along the north arm and an 85-foot border would be left undisturbed along the east arm of the lake, to protect existing emergent vegetation.
- A 100-foot margin would be left undisturbed along the western shoreline bordering Park Presidio Boulevard.
- A 50-foot margin would be left between the dredged area and the Presidio's jurisdictional boundary with the City of San Francisco.
- A 50-foot buffer would be maintained to protect east shoreline wetlands

In the center of the lake, between the above-defined borders, lake sediment would be dredged at a 1:3 slope until the desired depth is reached, to avoid slumping of sediment from undredged areas. From that point, the lake bottom would be dredged at a shallow gradient of 1:120 until the center of the lake is reached (Figures 6, 7, 8).

The three approaches to dredging are:

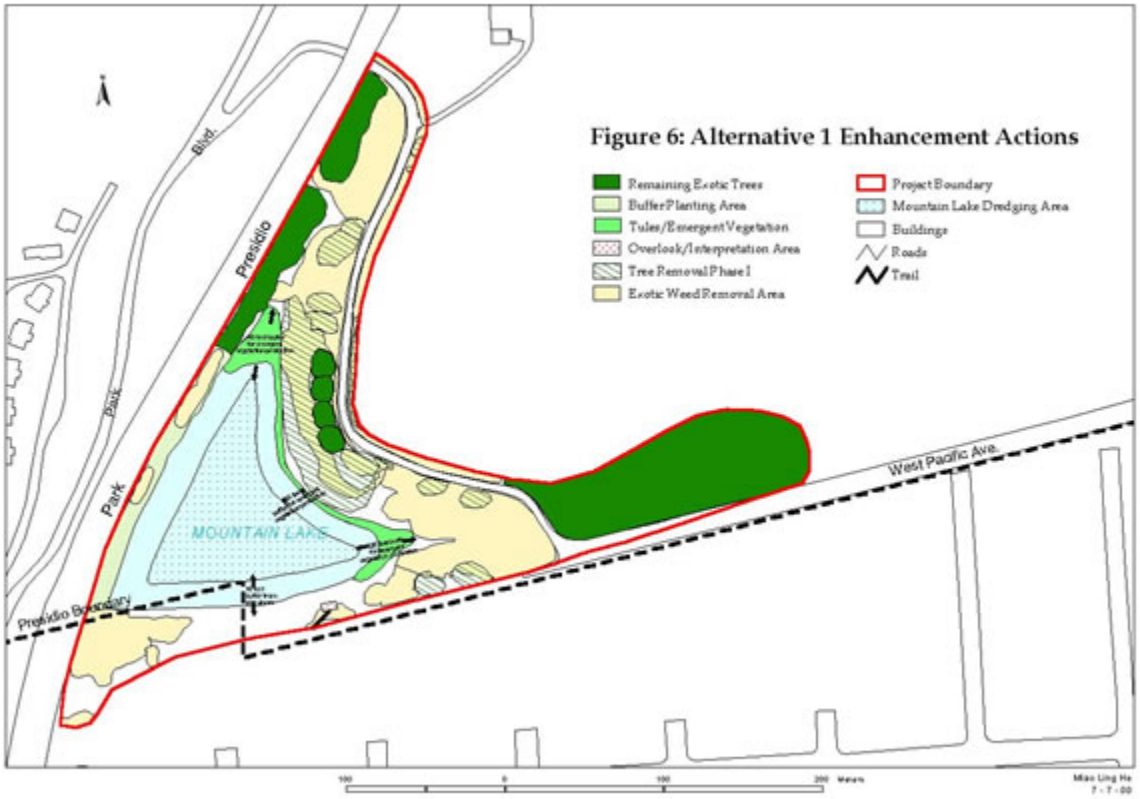

Figure 6: Alternative 1 Enhancement Actions			
	Remaining Exotic Trees		Project Boundary
	Buffer Planting Area		Mountain Lake Dredging Area
	Tules/Emergent Vegetation		Buildings
	Overlook/Interpretation Area		Roads
	Tree Removal Phase 1		Trail
	Exotic Weed Removal Area		

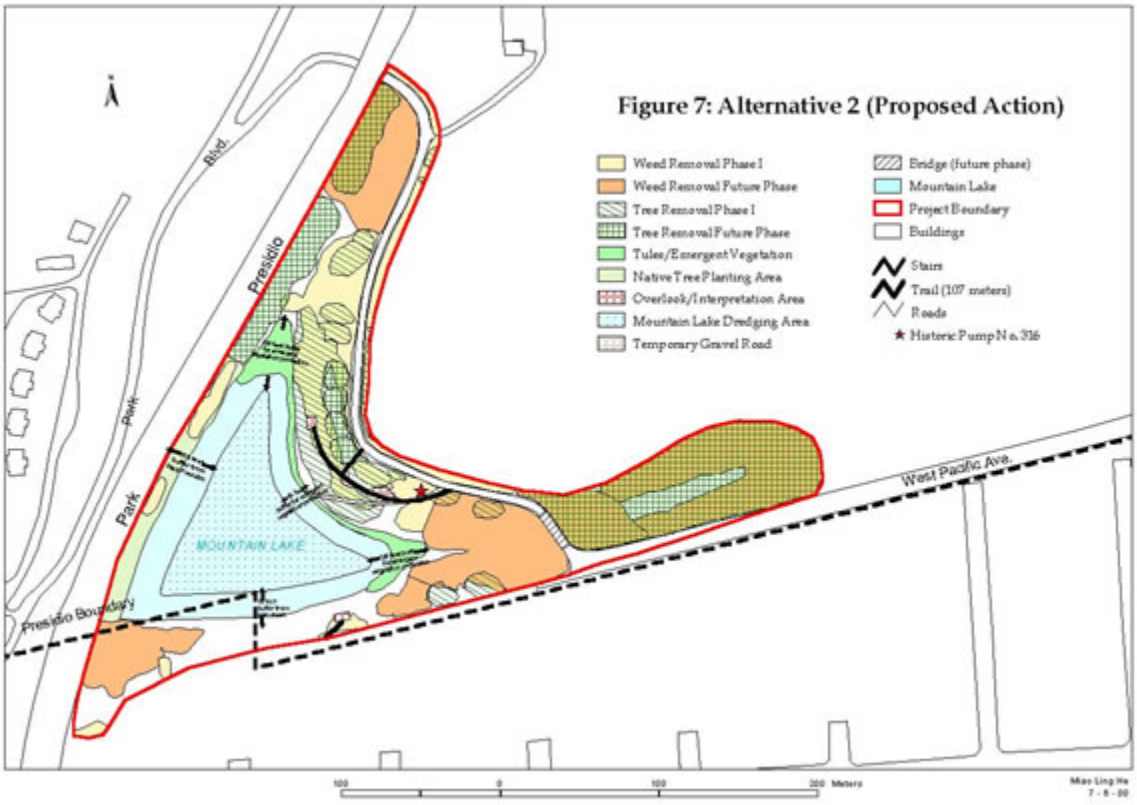

Figure 7: Alternative 2 (Proposed Action)			
	Weed Removal Phase 1		Bridge (future phase)
	Weed Removal Future Phase		Mountain Lake
	Tree Removal Phase 1		Project Boundary
	Tree Removal Future Phase		Buildings
	Tules/Emergent Vegetation		Stairs
	Native Tree Planting Area		Trail (107 meters)
	Overlook/Interpretation Area		Roads
	Mountain Lake Dredging Area		Historic Pump No. 316
	Temporary Gravel Road		

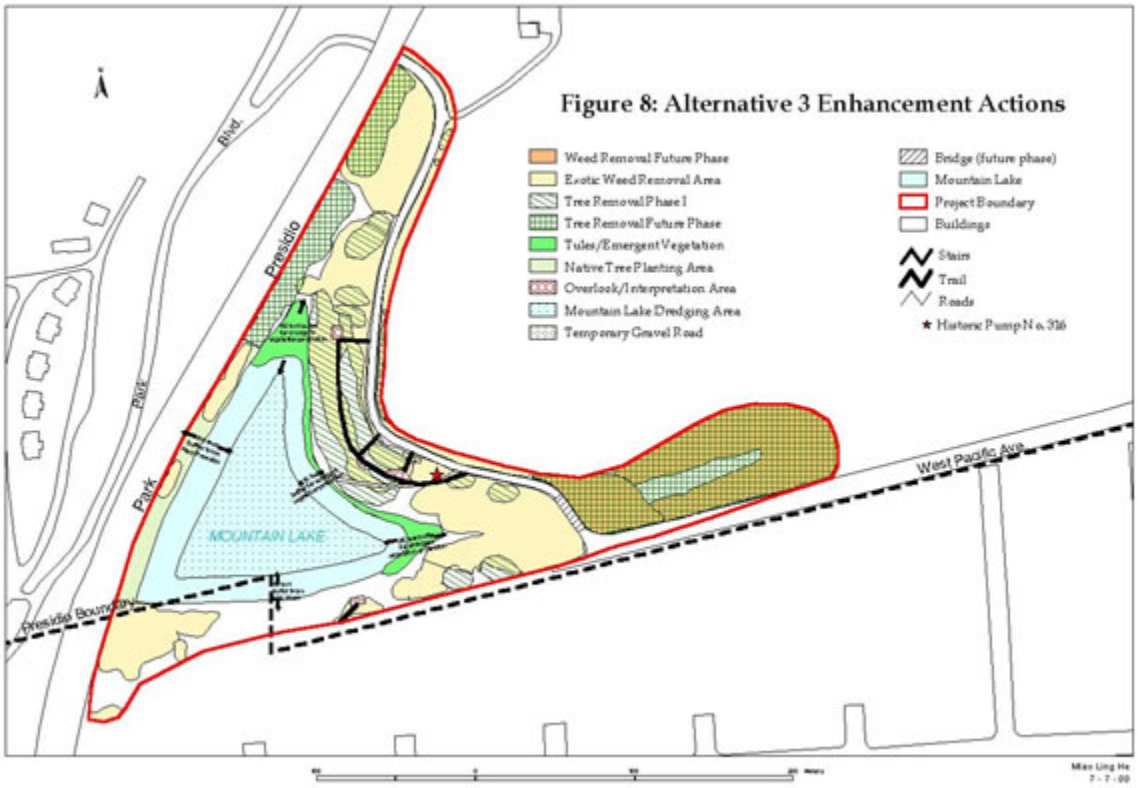

Figure 8: Alternative 3 Enhancement Actions			
	Weed Removal Future Phase		Bridge (future phase)
	Exotic Weed Removal Area		Mountain Lake
	Tree Removal		Project Boundary
	Tree Removal Future Phase		Buildings
	Tules/Emergent Vegetation		Stairs
	Native Tree Planting Area		Trail
	Overlook/Interpretation Area		Roads
	Mountain Lake Dredging Area		Historic Pump No.316
	Temporary Gravel Road		

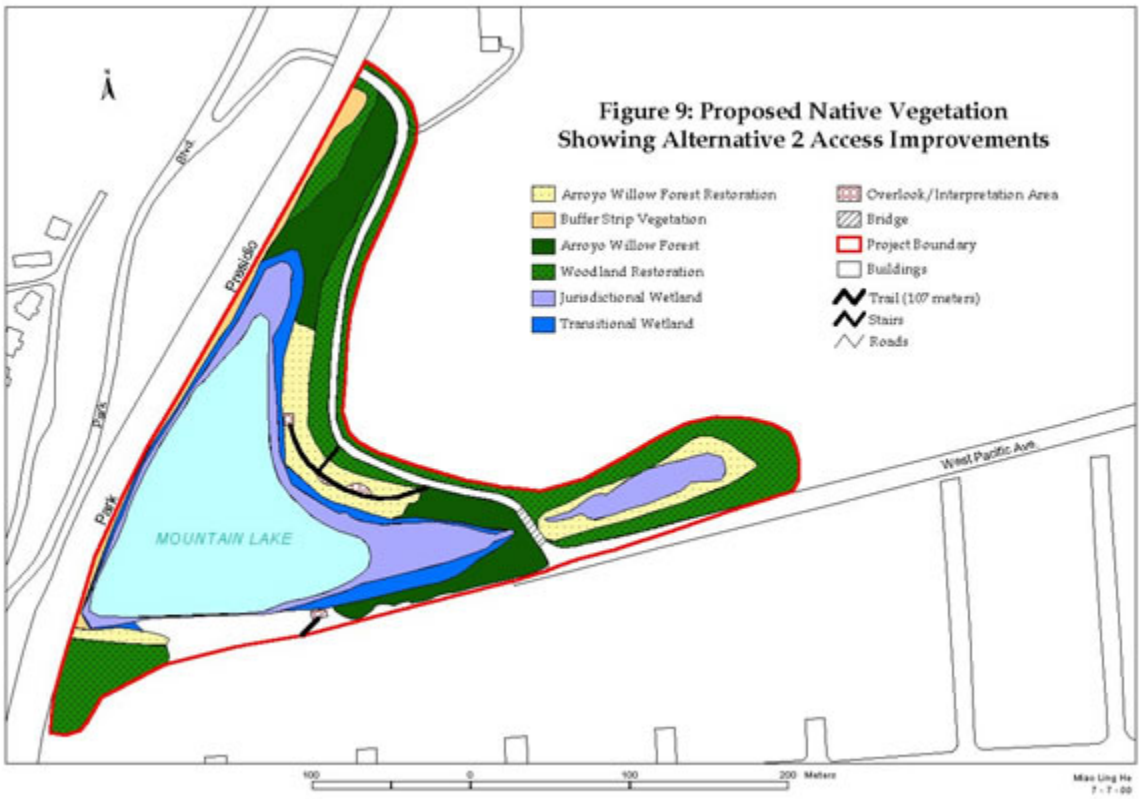

Figure 9: Proposed Native Vegetation Showing Alternative 2 Access Improvements			
	Arroyo Willow Forest Restoration		Overlook/Interpretation Area
	Buffer Strip Vegetation		Bridge
	Arroyo Willow Forest		Project Boundary
	Woodland Restoration		Buildings
	Jurisdictional Wetland		Trail
	Transitional Wetland		Stairs
	Roads		

- Alternative 1 proposes to remove an average of two feet of sediment from the lake or approximately 6,000 cubic yards. Under this proposal, the lake would be dredged from the buffer inward at a 1:3 slope down to a depth of 9 feet, thereafter gently sloping at 1:120 to a maximum depth of approximately 11 feet. This approach would remove the nutrient-rich upper levels of sediment as well as deepen the lake to discourage the rapid filling of the lake with emergent

vegetation. This approach would provide an additional 50 years of lifespan for the lake, calculated using the estimated sedimentation rate of 5 mm/yr (Horne, 2000).

- Alternative 2 proposes to remove an average of four feet of sediment from the lake or approximately 11,500 cubic yards. Under this proposal, the lake would be dredged from the buffer inwards at a 1:3 slope down to a depth of 11 feet, thereafter gently sloping at 1:120 to a maximum depth of approximately 13 feet. This approach would remove nutrient-rich upper levels of sediment, deepen the lake to prevent it from filling with emergent vegetation, and provide at least an additional 150 years of lifespan for the lake, estimated using the current sedimentation rate of 5 mm/yr (Horne, 2000).
- Alternative 3 proposes to remove an average of five feet of sediment from the lake, or approximately 13,800 cubic yards. Under this proposal the lake would be dredged from the buffer inwards at a 1:3 slope down to a depth of 12 feet, thereafter gently sloping at 1:120 to a maximum depth of approximately 14 feet. In addition, the upper foot of nutrient rich sediment would be scraped away in the non-sandy areas within the buffer zone, removing an additional 500 cubic yards of nutrient rich sediment from the lake bottom. This approach would deepen the lake sufficiently to prevent emergent vegetation from rapidly filling the lake, and provide at least an additional 200 years of lifespan for the lake. It also would remove most of the nutrient-rich sediment from the lake bottom, further improving lake water quality (Horne, 2000).

These three dredging scenarios were developed based on the incremental benefits of dredging balanced against the impact and cost of removal. Removing less sediment than proposed in the minimum dredging option (Alternative 1) would not remove enough of the nutrient-laden sediment nor make the lake deep enough to prevent the rapid spread of emergent vegetation. Removing more sediment than proposed in the maximum dredging option (Alternative 3), although it would provide additional lifespan for the lake, would not provide proportional benefits for the lake ecosystem (Horne, 2000).

Dredging would occur in late summer and fall, 2001 after exotic trees are cleared from the access route to the lake. A cleared area along the east shore would be temporarily armored with gravel to facilitate access to the lake and create a staging area for the removal of dredge spoils (Figures 6, 7, 8). Gravel would be placed over geotextile fabric to minimize mixing with native soil and facilitate removal after construction. All gravel used to create temporary construction access to the lake would be removed when construction is complete.

Dredging would be conducted either by clamshell removal or hydraulic dredging. In the first approach, lake sediment is removed using a clamshell bucket mounted on a floating barge equipped to maneuver through shallow waters. All dredging equipment would be steam-cleaned prior to avoid introducing exotic species to the Project Area. A dump scow (additional barge) floats alongside the crane barge and receives the dredge materials,

which are anticipated to be 40 to 50 percent solid material (a mixture of fine sands, silts, and clay). The dump scow has silt curtains (permeable railings) that hold back the solids and allow water to drain back into the lake. The dump scow periodically returns to the staging area where a crane unloads dredge material into trucks for immediate transport to the dewatering area. If the staging area cannot hold all of the dredge materials during dewatering, they would be transported in lined trucks to another storage area at the Presidio. The dewatering area would be managed to prevent discharge of decant water. Materials would be allowed to dry for approximately one to three months, depending on weather conditions. Materials would be periodically turned to allow for more efficient drying. After dewatering, dredged sediment would be transported and stored for reuse at the Presidio or disposed off-site.

Lake sediment may also be removed by hydraulic dredging. In this approach, a hydraulic suction dredge moves around the lake on a barge and pumps the sediment into an on-shore silt basin or large trailer mounted tanks that can be hauled off-site. Silt basins would need to be constructed in disturbed upland areas near Mountain Lake, on the existing roadway, or the former tank site. During dewatering, clarified water could be returned to the lake.

To minimize erosion impacts during dredging and subsequent dewatering, best management practices would be implemented. These include measures such as installation of silt fences or placing rice-straw bales downstream from exposed soils; minimizing the surface area of exposed soil; and tarping stockpiled soils, equipment, and materials. To the extent feasible, dredging would be conducted during the late summer and fall before the onset of winter rains (August-November) to minimize erosion.

Dust control measures to be implemented during dredging include several steps recommended by the Bay Area Air Quality Management District. Measures would include watering the site several times daily in dry weather, covering trucks hauling dredged sediment or other construction materials, covering all dry soil stockpiles, and ceasing work when visible dust clouds form. Non toxic soil stabilizers would be used on all unpaved dredging access areas to Mountain Lake. All paved access areas would be swept daily with water sweepers, and streets in the vicinity (e.g., the West Pacific Avenue access to the Project Area) would be swept with water sweepers if soil or dust is carried in that direction.

The Project Area is persistently noisy from automobile traffic on Park Presidio Boulevard. Nonetheless, efforts would be made to reduce temporary increases in on-site noise generation during dredging. These include limiting work to certain hours (daytime during weekdays only) and installation of appropriate noise-reduction equipment on construction equipment. Methods to reduce noise impacts and to minimize potential accidents during dredging include avoiding the south shore of the lake, where the highest

density of visitor use occurs, and keeping construction areas off-limits during construction activity. Construction equipment would be brought to the lake from West Pacific Avenue via the Arguello Gate of the Presidio or from the Presidio via the Public Health Service Hospital.

Confirmatory sampling of stockpiled sediments would be conducted to evaluate suitability for proposed reuse sites. A sampling and testing protocol would be submitted for appropriate agency review before confirmation samples are collected. Confirmation samples would be analyzed for chemicals of concern based on previous sampling data. Other analyses may be conducted, such as bioassays and waste extraction tests, depending on the proposed reuse locations (e.g., proximity to wetlands or surface water, depth to groundwater, and the potential for human and ecological exposure). Confirmatory sampling data would be compared with screening criteria appropriate to the proposed disposal/reuse sites. Sediment evaluation and reuse site selection would be conducted in consultation with responsible agencies (e.g., USCOE, RWQCB).

As discussed in Section 2.3.2, sediment testing performed to date indicates that lake sediment is below existing wetland cover criteria for typical background contaminant concentrations (RWQCB, 1992). Additional confirmatory samples would be collected from dredge materials prior to the final selection of reuse and/or disposal sites. Dredged sediments may be temporarily stockpiled for dewatering at the tank area. The stockpile area would be bermed and runoff from the stockpile would be controlled. Depending on the site-specific characteristics of the proposed disposal/reuse locations, stockpiled sediment may be analyzed for inorganic and organic chemicals, leachability (using the modified waste extraction test), and/or toxicity to aquatic organisms.

According to data previously collected (Dames and Moore, 1996; Beutel, 1997; Erler and Kalinowski, 1998), some of the sediments may require special handling or may not be suitable for all reuse alternatives. Because potential on-site reuse areas are adjacent to existing wetlands, regulators may use cover criteria to determine if sediments are suitable for reuse (e.g., 50 mg/kg lead; RWQCB, 1995).

If sediments do not meet applicable soil and/or water quality standards for a given disposal site, treatment may be considered. If treatment is not an option, sediment that is not suitable for the proposed disposal/reuse sites would be placed in an appropriate alternative disposal location, such as a Class II or III landfill. Testing requirements, screening criteria, and disposal locations would be selected in consultation with appropriate agencies, including the USCOE and RWQCB.

3.2.1.1 Sediment Reuse and Disposal

If dredged sediments are determined to be appropriate for on-site reuse at Mountain Lake, approximately 1,000 cubic yards of sediment would be used to recontour the former tank site (Figure 3). If the remaining unused sediments are determined to be acceptable for reuse in other areas of the Presidio, they would be left in an appropriate temporary sediment storage area within the Presidio for later use as needed. Any sediment determined to exceed applicable limits for reuse at the Presidio would be transported to an approved off-site disposal location in consultation with appropriate agencies.

Recontouring would be conducted during phase one following removal of exotic trees and the temporary access road used during dredging. Sediment placement would be limited to the immediate vicinity of the tank area. Appropriate geotechnical criteria for compaction and slope stabilization would be evaulated and used in consultation with a geotechnical engineer. Tests would be conducted to check that placed fill materials and placement design meet appropriate geotechnical criteria for slope stability. No fill placement would take place in USCOE jurisdictional wetland areas.

3.2.2 MECHANICAL AERATION

A permanent, sustainable, partially solar-powered aeration system is proposed for the deepest water under all three Action Alternatives. Mechanical aeration systems have been used to improve water quality in shallow lakes. Mechanical aeration of the deepest part of the lake would compensate for uncontrollable urban nutrient inputs and nutrient-laden sediment inputs from the unexcavated buffer zones around the edge of the lake. The subsurface aeration unit would consist of a pipe laid along the lake bottom through which dissolved oxygen is introduced into the lake water. This type of aeration system would not be visible from the shore. The aeration unit (approximately 2' x 2') would be sited to avoid or minimize effects to wetland habitats.

3.2.3 AQUATIC HABITAT ENHANCEMENT

Mountain Lake is degraded as a habitat for wildlife (See Sections 2.3.2.2, Water Quality, and 2.4.2.2, Wildlife). Most aquatic species found in Mountain Lake are exotic. There are three potential ways to enhance aquatic habitat at Mountain Lake - through the enhancement of aquatic and wetland vegetation, through the enhancement of common, native aquatic vertebrates, and through the enhancement of special-status, native aquatic vertebrates.

3.2.3.1 Enhancement of Aquatic and Wetland Vegetative Community

Under all three Action Alternatives, enhancements would be made to wetland and aquatic plant communities at Mountain Lake. Plantings would be made along a hydrologic gradient with rooted submergent aquatic beds in deep water, emergent aquatic vegetation (e.g, permanently submerged Scirpus spp.) in shallower water, and emergent wetland vegetation that is seasonally submerged (e.g., spikerush) along the shoreline. There are areas where human actions have altered this natural slope along the shoreline. Along the eastern shoreline, a ditch is present between the band of bulrush and upland banks, probably a result of removals of rich shoreline material for use. Limited fill would be placed within this ditch to create a seasonally-inundated wetland and re-establish emergent vegetation. These improvements would increase the habitat for invertebrates and amphibians along the shore.

It is likely that under historic conditions, water clarity was sufficient to allow the establishment of rooted submergent aquatic beds. Typical taxa include pondweeds (Potamogeton spp.) and ditchgrass (Ruppia spp.). The ecological benefits of increased submergent vegetation are widely known. Waterfowl commonly forage on submergent vegetation. Various amphibians such as Pacific tree frogs (Hyla regilla) use submergent vegetation as egg attachment sites. Invertebrates also use submergent plants for egg laying (e.g., numerous odonate species) and food (e.g., snails).

Efforts to re-establish submergent vegetation would be made, if feasible based on the success of other enhancement actions. Successful re-establishment depends on improved water clarity (Hammer, 1992) from reducing the staining caused by eucalyptus leaves, reducing the standing crop of phytoplankton from increased zooplankton abundance and reduced plant nutrients, and elimination of bottom foraging carp. Failure in any one of these elements could make it difficult to re-establish rooted submergent aquatic beds.

3.2.3.2 Enhancement of Common, Native Aquatic Vertebrates

It is likely that Mountain Lake and adjacent upland areas once provided habitat for common aquatic vertebrates such as the Pacific tree frog, California newt, western toad, and garter snake. Persistent habitat alterations and isolation from donor populations are probable reasons for their absence today.

It is possible that habitat improvements proposed in under all three Action Alternatives could allow for the re-establishment of some of these common, native aquatic vertebrates. However, their re-establishment may have minimal value to the viability of the species throughout its range because of habitat isolation. Nonetheless, the educational benefits may be sufficient alone to pursue their re-establishment.

Newts would be the easiest to re-establish and are quite charismatic. Adult newts are generally considered toxic and have few repeat predators. Adult newts successfully reproduce in artificial ponds in Marin County that contain non-native bullfrogs and fish. However, the amount of existing and proposed riparian and upland habitat may be insufficient in area to allow for a sustainable, long-term population at Mountain Lake. In addition, management practices on the adjacent golf course and vehicular traffic on the adjacent Park Presidio Boulevard would pose mortality problems and would require fencing or other measures to restrict newt access. The reintroduction of common native aquatic fauna may be considered, pending the success of other habitat enhancements proposed in this plan.

3.2.3.3 Enhancement of Special-Status, Native Aquatic Vertebrates

The enhancement of Mountain Lake could represent an opportunity to re-establish two special status species, the red-legged frog (Rana aurora draytoni) and western pond turtle (Clemmys marmorata pallida). A detailed discussion of why these species are not proposed for reintroduction to Mountain Lake is included in Appendix C. Although none of the Action Alternatives call for the re-introduction of these species at this time, reintroductions may be proposed in the future. If and when reintroduction is proposed, additional environmental review and agency consultation would be required.

3.2.4 EXOTIC TREE REMOVAL/NATIVE PLANT COMMUNITY ENHANCEMENT

The removal of exotic trees is proposed in each of the Alternatives for the purpose of improving water quality (Horne, 2000; Laws, pers. comm.; Moral and Muller, 1969) and to enhance native habitat values around Mountain Lake. Exotic trees currently grow in areas around Mountain Lake that would otherwise support native wetland, riparian, and woodland communities (Figure 4).

The timing and scope of tree removal activities is distinct for each Alternative (Figures 6, 7, 8). The Alternatives include partial, phased, and full removal approaches to the eucalyptus grove along the east shore. The visual impact of these approaches has been modeled using photo simulations (Figures 10, 11, 12). The Alternatives include:

- Alternative 1 takes a partial removal approach to exotic trees (Figures 7 and 10). It proposes to remove the portion of the eucalyptus along the east shore closest to the lake (1.36 acres). Under this Alternative, the four large eucalyptus trees along the de Anza Trail (0.29 acres), exotic trees along the north end of Park Presidio Boulevard (0.75 acres) and exotic trees east of the culvert (2.05 acres) would be

permanently retained. Areas along the east shore where trees are removed would be revegetated with freshwater wetland, riparian woodland, and upland woodland species (1.36 acres) (Figure 9).

- Alternative 2 takes a phased approach to the removal of exotic trees (Figures 8 and 11). It proposes to remove the portion of the eucalyptus along the east shore closest to the lake (1.36 acres) during the first phase of tree removals, leaving the four large eucalyptus trees along the de Anza Trail (0.29 acres) for a later phase of removal. During subsequent phases of tree removal, the four remaining eucalyptus along the east shore (0.29 acres), exotic trees along the north end of Park Presidio Boulevard (0.75 acres), and exotic trees east of the culvert (2.05 acres) would be removed. Areas where trees are removed would be revegetated with freshwater wetland, riparian woodland, and upland woodland species (4.45 acres total).
- Alternative 3 takes a one-time, full removal approach to exotic trees (Figures 8 and 12). It proposes to remove all eucalyptus along the east shore (1.65 acres) and exotic trees beyond the east arm culvert (2.05 acres) in one phase. During subsequent phases, exotic trees along the north end of Park Presidio Boulevard (0.75 acres) would be removed. Areas where trees are removed would be revegetated with freshwater wetland, riparian woodland, and upland woodland species (4.45 acres total).

a. Existing Conditions

b. After Implementation

c. After 5 Years

d. After 20 Years

a. Existing Conditions

b. After Implementation

c. After 5 Years

d. After 20 Years

a. Existing Conditions

b. After Implementation

c. After 5 Years

d. After 20 Years

Tree removal techniques would be assessed carefully on a case-by-case basis. Techniques range from complete root ball removal to flush cutting trunks at ground level with subsequent management so that no regrowth occurs. Where erosion or archeological sensitivity is a concern, removal techniques minimizing soil disturbance would be used. If required, cartridges containing an appropriate agency-approved herbicide (such as Rodeo or Roundup) would be injected into tree stumps to inhibit regrowth. This method ensures that the applied pesticide is contained within the stump. Removed trees would either be recycled as mulch or transported to an appropriate storage area within the Presidio for future reuse.

To minimize the erosion impacts of tree removal, best management practices, such as those recommended in RWQCB protocols, would be implemented during and after. These include measures such as installation of silt fences or placing rice-straw bales downstream from exposed soils; minimizing the surface area of exposed soil; and tarping stockpiled soils, equipment, and materials. To the extent feasible, tree removal would be conducted during the summer and fall before the onset of winter rains (August-November) to minimize erosion.

Disturbance to some wildlife species may occur during tree removals. Most birds using the Project Area have large home ranges (Small, 1974). Adjacent or nearby habitat is available for many of these species. Areas such as Crissy Field could provide temporary alternate habitat for shorebirds and waterfowl, and the riparian corridor along Lobos Creek within the Mountain Lake watershed would provide good habitat for songbirds. Revegetation could provide suitable nesting sites for species such as the yellow warbler. The period between February and August represents nesting season for most birds that might occur within the Project Area. Impacts to birds would be minimized by working primarily between August and February, outside of the period during which birds breed. Exceptions include weed removal activities and follow up requirements, which would be localized in one area to minimize potential impacts.

Following tree and other weed removal activities, the site would be recontoured as needed, and the trail and overlooks would be constructed. Within the upland areas, appropriate clean fill material would be used to fill any holes left by stump removal. Prior to the placement of any new soil, it would be tested to ensure that it can support the appropriate plant species targeted for revegetation. Existing soils would also be tested to determine what treatments may be necessary to reduce the impacts left from the eucalyptus trees.

For all of the Alternatives, revegetation would begin during fall 2001, after the exotic trees are removed. The revegetation planting palette (Appendix F) was selected based on analysis of existing remnant vegetation communities at Mountain Lake, paleoecological data, historical references, literature reviews, communication with local experts, and an examination of similar ecosystems found within the region, such as Lake Merced (Reidy, 1999; Holloran, pers comm.). Cattails, bulrushes, sedges, and other wetland species would be planted in the freshwater wetland areas. Plantings in riparian woodland areas would include Arroyo and yellow willow (Salix lasiolepis and S. lucida ssp. lasiandra), American dogwood (Cornus sericea), red alder (Alnus rubra), and wax myrtle (Myrica californica). In oak woodland areas, species include buckeye (Aesculus californica), Pacific madrone (Arbutus menziesii), and coast live oak (Quercus agrifolia. Most of these native plants can be found in various habitats on the Presdio. All plant material would be propagated from Presidio sources, to prevent contamination of the existing native plant gene pool. However, species that have been extirpated from the Presidio would be reintroduced from areas on the San Francisco Peninsula or Marin County, if local propagules are unavailable.

To protect newly planted vegetation, all native plantings would be temporarily fenced while vegetation becomes established. Guidelines for public access would be clearly posted. New east shore overlooks would be surrounded by dense willow riparian and native woodland, thereby minimizing visitor impacts and encouraging passive

recreational use and educational opportunities in the area. Fencing and signage would be provided to discourage entry into sensitive habitats.

Supplemental planting may be required if the revegetation survivorship rate is less than 80%. Survivorship monitoring would continue for 2 years after each planting phase. Revegetation areas would be also be monitored annually to document the success of revegetation efforts and to document the changes in plant community composition. Monitoring for success of plantings would continue after all plantings are completed.

Additional weeding would be required both in the exotic tree removal areas and throughout the Project Area to ensure that other invasive species do not establish in the areas where the trees are removed and that invasive species do not continue to spread into existing native habitats. The removal of early colonizing weeds is critical to ensure that new plantings survive. Mulch may be applied to the newly planted area to suppress the establishment of invasive weed species. Weeding would be conducted in small, localized sub-areas so that alternative habitats are available within the Project Area. Weed removal efforts would continue at least through the monitoring period. After weed removal, erosion control measures would be used when necessary on steeper slopes where exotic plants are dominant (e.g., periwinkle and Himalayan blackberry along West Pacific Avenue to the east of Mountain Lake; Figure 4) and where soil is likely to erode. Rehabilitation of native plant communities is a long-term benefit that would decrease soil erosion to below current levels in sparsely vegetated areas along the east shore.

Exotic weed removal would be phased. The revegetation strategy described above would be adopted (and amended if necessary based upon the evaluation of monitoring data) for future exotic tree and weed removals. Exotic weed removal and containment would take place and continue throughout all phases of the project. Exotic species removal would be conducted in accordance with best management practices.

3.2.4.1 Cape Ivy Removal and Containment

Under all three Alternatives, Cape ivy will be contained and removed. The expansion of Cape ivy at Mountain Lake represents perhaps the most significant threat to the health of the riparian and upland vegetation. Cape ivy (Delairea odorata), formerly referred to as German ivy (Senecio mikanioides), is an invasive introduced vine that currently infests every plant community on the Presidio. Cape ivy grows vegetatively as a vine, and fragments as short as one half inch, carried by runoff, landscape machinery and humans, can take root and grow rapidly, colonizing new areas. Growth rates of individual plants and populations have been measured at several locations with individual stems averaging one foot of growth per month (Alvarez, 1995; Farrell, 1994; Hillis, 1994).

Cape ivy causes significant reductions in vascular plant species richness, and is known to have reduced the abundance of several insect orders (Coleoptera and Diptera) for two GGNRA riparian plant communities. This could affect those species dependent on insects as food (Fisher, 1997). Because Cape ivy reduces plant diversity and alters vegetation structure, it may affect other community level properties such as providing habitat for pollinators, insects and birds, as well as ecosystem level functions like nutrient cycling and food web dynamics.

There is also evidence that the pyrrolizidine alkaloids found in Cape ivy may have a toxic effect on sensitive aquatic wildlife. Controlling Cape ivy would require a long-term integrated pest management approach. This strategy would involve a combination of hand removal techniques, mechanical control measures (such as power equipment); combined with limited use of approved herbicides when necessary. Cape ivy removal would be phased over a 3-5 year period. Removal requires a step-by-step containment process:

1. Verify that the containment process would not adversely affect rare plants and animals or seasonal wildlife activities in the Project Area.
2. Remove dead woody debris and garbage from targeted containment lines (containment lines are usually 1-2 meters wide and consist primarily of herbaceous plants, topped shrubs and limbed trees.)
3. If necessary reduce the stature of woody shrubs by cutting them to within one foot of ground level with hand tools, mechanical or hedge trimmers. Minimize cutting native shrubs or trees as much as possible by removing lower limbs only.
4. Appropriately dispose of woody debris (recycle in yard waste containers) mulch if necessary on steep slopes to prevent erosion and to minimize nonnative plant establishment.
5. Conduct follow-up hand removal on 8-week intervals, and remove any Cape-ivy that has entered or resprouted in the containment zone. The follow-up schedule would depend somewhat on the habitat and season.
6. Each season continue containment efforts by working toward the center of the patch.

All removal areas would be revegetated with species from the appropriate native plant community (Appendix F). Follow up activities required for maintenance of weed removal sites (e.g., resprout and seedling removal efforts) would be conducted on a case by case basis. Follow-up activities may be required to ensure the eradication of Cape ivy.

3.2.5 TREE PLANTING ALONG PARK PRESIDIO BOULEVARD

In all three of the Action Alternatives, trees would be planted between Mountain Lake

and Park Presidio Boulevard to screen highway traffic and diversify existing vegetation. The existing eucalyptus in along Park Presidio Boulevard would not be removed because they provide a screen between Mountain Lake and Park Presidio Boulevard, and because the species planted there (Eucalyptus camaldulensis) is not invasive and has a low standing biomass of leaves to drop into the lake. Tree species to be planted include red alder (Alnus rubra), holly-leafed cherry (Prunus ilicifolia), California wax myrtle (Myrica californica), blue elderberry (Sambucus mexicana), bay laurel (Umbellularia californica), toyon (Heteromeles arbutifolia), big-leaf maple (Acer macrophyllum), Pacific madrone (Arbutus menziesii), coast live oak (Quercus agrifolia), and yellow willow (Salix lucida ssp. lasiandra). Alder, wax myrtle, cherry, maple, and willow are fast-growing species that would quickly screen the roadway and most of the buildings beyond. Wax myrtle, bay, oak, and toyon are slower-growing but longer-lived species. All tree planting in this area would occur during phase one of all Alternatives. A photo simulation showing these plantings after twenty years are shown in Figure 13.

3.2.6 PROTECTION OF CULTURAL RESOURCES

All three of the Action Alternatives include the stabilization of historic pump #316 and the non-historic pump structure within which it is located. Other than pump #316, there are no known cultural resources of significance or potential significance where construction related activity would take place within the Project Area. However, there may be unknown historic or archeological resources buried at the Project Area that could be affected by construction activities. As a result, an Archeological Management Assessment and Monitoring Program (AMA) would be conducted under all three Alternatives.

3.2.6.1 Archeological Management Assessment and Monitoring Program

An Archeological Management Assessment and Monitoring Program (AMA) would be conducted prior to implementation of the Mountain Lake Enhancement Plan. The AMA would inventory known archeological sites in the Project Area, and include test excavations as appropriate, to determine if significant sites or historic features exist and if construction might adversely affect archeological resources. Reports of any investigations would be submitted to the State Historic Preservation Office (SHPO) and the Advisory Council on Historic Preservation (ACHP). A phased inventory, evaluation, monitoring, and treatment program for archeological resources regarding construction and ongoing maintenance at Mountain Lake would be conducted.

a. Existing Conditions

d. After 20 Years

3.2.6.2 Discoveries During Construction

Under all three Alternatives, during the construction phases of the project, professional archeological monitoring would occur to ensure that any unanticipated, post-review discoveries are treated appropriately. If any archeological or other historic resources are unexpectedly discovered during the construction process, the SHPO and the ACHP would be notified and the protocols outlined in 36 CFR Part 800.13 (Post Discoveries) would be followed. The discovery of any human remains or associated mortuary items covered under the Native American Graves Protection and Repatriation Act would be treated in accordance with 43 CFR 10.4 (Inadvertent discoveries). Consultation and work would be conducted in accordance with the programmatic agreement that constitutes the Section 106 compliance for the Presidio General Management Plan Amendment.

3.2.7 CONSTRUCTION OF EAST SHORE TRAIL AND OVERLOOKS

A new trail and three overlooks are proposed for construction in the former tank site and the exotic tree removal area along the east shore in Alternatives 2 and 3 (Figures 7 and 8). The new east shore trail and overlooks are being constructed in areas currently dominated by exotics (e.g. eucalyptus) to avoid impacts to existing riparian and wetland habitats. The trail would begin at the east end of the existing tank site and slowly descend as it parallels the east shore. Adjacent to historic pump #316, a small group seating area would be built. The group seating area includes a low seat wall, a small, non-irrigated grassy slope for seating, and a site for future wayside construction. Above this overlook would be woodland. Below this overlook would be riparian woodland (Figure 9). This overlook would provide a sunny, well-protected site for small group interpretation, and an opportunity to interpret Mountain Lake's ecology and history.

A second overlook would located north of the first overlook on an existing bluff within the exotic tree removal area in Alternatives 2 and 3. Once exotic tree removal is complete, this site would provide a view over Mountain Lake and an opportunity to observe nearby willow riparian woodland. This overlook would include a low seat wall facing the lake and provision for future wayside panels. A new rustic-style staircase would connect this overlook to the existing main road. Bare areas surrounding this overlook would be restored with riparian woodland species (Figure 9).

The spur trail continues its descent through an area that would be planted with riparian woodland species. Mountain Lake would be visible through the vegetation. The trail ends at an overlook with benches where the lake and adjacent wetland vegetation is visible. The trail would be signed to protect waterfowl and other bird species during nesting season. Guardrails would be constructed along the trail for public safety and to protect planted native vegetation until it is established.

To minimize erosion impacts during construction, best management practices would be implemented. These include measures such as installation of silt fences or rice-straw bales downstream from exposed soils; minimizing the surface area of exposed soil; and tarping stockpiled soils, equipment, and materials. To the extent feasible, trail construction would be conducted during the late summer and fall before the onset of winter rains (August-November) to minimize erosion.

3.2.8 CONSTRUCTION OF SOUTH SHORE INTERPRETIVE OVERLOOK

In all three Alternatives (Figures 6, 7, 8), a small overlook would be constructed in a currently degraded upland area along the south shore of Mountain Lake. This overlook would have a full view of the lake, providing a perfect opportunity to interpret the lake and it's history. The overlook would include benches and provision for future wayside

panels. This overlook would be designed to meet ADA guidelines. The existing degraded slopes on either side of the overlook would be weeded and replanted with native riparian woodland species.

3.2.9 EAST-ARM CULVERT REMOVAL AND BRIDGE INSTALLATION

A culvert currently connects the east arm of Mountain Lake to the seasonal wetlands further east (Figure 2). The paved part of the Juan Bautista De Anza Historic Trail (West Pacific Avenue) crosses over the east-arm culvert. In Alternatives 2 and 3, the culvert, the section of paved road over the culvert, and the fill that supports the road would be removed to reconnect the two wetland areas. A pedestrian bridge (approximately 40 feet long and 15 feet wide) would be built to replace the existing road. Areas where fill is removed would be revegetated with appropriate native wetland and riparian woodland species.

3.2.10 ADAPTIVE MANAGEMENT OF THE LAKE

Under all three Alternatives, after the completion of phase one of enhancement (dredging, exotic plant removal, and revegetation), Mountain Lake would be monitored and observed for several years for algae bloom activity. Depending on the phytoplankton abundance and the frequency of algae blooms, the need to implement adaptive management strategies such as the removal of exotic fauna would be evaluated. These project components would be designed based on observed conditions at Mountain Lake after the completion of phase one enhancement activities.

The removal of certain types of exotic fish can reverse eutrophication in small lakes (Horne, 2000). Such removals can contribute to an increased abundance of zooplankton that forage on phytoplankton, thereby keeping phytoplankton levels low in Mountain Lake (Horne, 2000). Removals also eliminate carp "rooting" behavior, which eliminates emergent vegetation and adds nutrients to the water. Eliminating carp can decrease the likelihood of algae bloom occurrence (Horne, 2000; Codemo, 1996). Exotic fish removals can also facilitate the growth of submergent vegetation and the re-establishment of native aquatic organisms (See Sections 3.2.3.1, 3.2.3.2, and Appendix B). Exotic fish would be removed using any of a number of techniques, which are described in Appendix B. Subsequent monitoring would be used to measure the success of these removals at achieving the proper balance and to determine whether or not additional removals are warranted.

3.3 DESCRIPTION OF ALTERNATIVES

The Alternatives for the enhancement of Mountain Lake that follow were developed to explore the range of issues raised during public scoping, agency consultations, and staff analysis. Actions that were suggested in this process, but were not consistent with the project objectives as outlined in Section 1.1.4 are addressed in Section 3.4.

Some actions are common to all three Alternatives. Actions common to all three Alternatives include:

- The strategy for sediment re-use
- Stabilization of historic pump #316
- Planting along Park Presidio Boulevard
- Future adaptive management of the lake
- Ongoing vegetation management activities

However, the three Alternatives vary in terms of:

- Dredging
- Exotic tree and weed removal
- East arm culvert removal
- Extent and phasing of revegetation
- Visitor access.

The Alternatives are described below and summarized in Table 1. The Proposed Action is Alternative 2.

TABLE 1: MATRIX COMPARING THE PROJECT ALTERNATIVES

DREDGING OF SEDIMENT:

Alternative 1 -

First phase removal of 6000 cy to increase maximum depth to 11'

Alternative 2 (Proposed) -

First phase removal of 11,500 cy to increase maximum depth to 13'

Alternative 3 -

First phase removal of 14,300 cy to increase maximum depth to 14'

EXOTIC TREE REMOVAL:

Alternative 1 -

First phase removal of trees along east shore (1.36 ac)

Permanent retention of four large eucalyptus along roadway, exotic trees along north end of Park Presidio and east of culvert

Alternative 2 (Proposed) -

First phase removal of trees along east shore (1.36 ac)

Future phase removal of eucalyptus along roadway (0.29 ac), trees east of culvert (2.05 ac) and along north end of Park Presidio (0.75 ac)

Alternative 3 -

First phase removal of trees along east shore (1.65 ac) and trees east of culvert (2.05 ac)

Future phase removal of exotic trees along north end of Park Presidio (0.75 ac)

EXOTIC WEED REMOVAL:

Alternative 1 -

First phase removal of weeds in tree removal area (2 ac). Cape ivy removal (0.7 ac)

Alternative 2 (Proposed) -

First phase removal of weeds in tree removal area (2 ac). Cape ivy removal (0.7 ac)

Future phase removal of weeds east of culvert (1.8 ac) and in habitats (1.8 ac)

Alternative 3 -

First phase removal of weeds in tree removal area (2 ac) and east of culvert (1.8 ac). Cape ivy removal (0.7 ac)

Future phase removal of weeds in habitats (1.8 ac)

NATIVE SPECIES PLANTINGS:

Alternative 1 -

Revegetation of tree and weed removal areas with native species.

Alternative 2 (Proposed) -

Revegetation of tree and weed removal areas with native species.

Alternative 3 -

Revegetation of tree and weed removal areas with native species.

PLANTING ALONG PARK PRESIDIO:

Alternative 1 -

First phase planting of dense trees to buffer lake (0.41 ac). Existing eucalyptus are retained.

Alternative 2 (Proposed) -

First phase planting of dense trees to buffer lake (0.41 ac). Existing eucalyptus are retained.

Alternative 3 -

First phase planting of dense trees to buffer lake (0.41 ac). Existing eucalyptus are retained.

VISITOR ACCESS:

Alternative 1 -

First phase construction of south shore overlook. Existing undefined access under 4 eucalyptus.

Alternative 2 (Proposed) -

First phase construction of south shore overlook and a new 300' unpaved trail with three overlooks along east shore.

Alternative 3 -

First phase construction of south shore overlook and a new 490' unpaved trail with three overlooks along east shore.

EAST ARM CULVERT:

Alternative 1 -

None

Alternative 2 (Proposed) -

Future phase replace culvert and road with a bridge to connect the east arm with Mountain Lake.

Alternative 3 -

First phase replace culvert and road with a bridge to connect the east arm with Mountain Lake.

3.3.1 ALTERNATIVE 1

Elements of Alternative 1 are shown in Figure 6 and are discussed below. All actions in Alternative 1 would be implemented in one phase except for future adaptive management of the lake and ongoing weed removal and revegetation activities. A detailed description of each action is provided in Section 3.2.

- Dredging of 6,000 cubic yards of sediment to increase the depth of the lake by an average of two feet, to a maximum depth of eleven feet
- Mechanical aeration of the deep water in Mountain Lake
- On-site reuse of 1,000 cubic yards of sediment, and disposal or reuse of 5000 cubic yards of sediment at the Presidio or an appropriate off-site location
- Stabilization of historic pump #316
- Removal of 85 eucalyptus, 4 Monterey pines, 5 Monterey cypress, and 2 Canary Island pine trees along the east shore of Mountain Lake (1.36 acres)
- Weed removal in and adjacent to the tree removal area (2 acres). Containment and removal of Cape ivy at Mountain Lake (0.7 acres)
- Revegetation in exotic tree and weed removal areas with native freshwater wetland and willow riparian forest species
- Native tree planting along Park Presidio Boulevard to screen the road (.41 acres)
- Construction of a south shore overlook
- Adaptive management of the lake

3.3.2 ALTERNATIVE 2 (PROPOSED ACTION)

Elements of Alternative 2 (Proposed Action) are presented in Figure 7 and are discussed below. Actions are divided into first phase and future phase actions. A detailed description of each action is provided in Section 3.2.

First Phase

- Dredging of 11,500 cubic yards of sediment to increase the depth of the lake by an average of four feet, to a maximum depth of thirteen feet.
- Mechanical aeration of the deep water in Mountain Lake
- On-site reuse of 1,000 cubic yards of sediment, and disposal or reuse of 10,5000 cubic yards of sediment at the Presidio or an appropriate off-site location
- Stabilization of historic pump #316
- Removal of 85 eucalyptus, 4 Monterey pines, 5 Monterey cypress, and 2 Canary Island pine trees along the east shore of Mountain Lake (1.36 acres)

- Weed removal in and adjacent to the tree removal area (2 acres). Containment and removal of Cape ivy at Mountain Lake (0.7 acres)
- Revegetation of tree and weed removal areas with native freshwater wetland, willow riparian forest and upland woodland species
- Native tree planting along Park Presidio Boulevard to screen the road (.41 acres)
- Construction of a south shore overlook
- Construction of an unpaved (300') trail with three overlooks along the east shore
- Adaptive management of the lake

Future Phases

- Removal of four remaining eucalyptus trees along the east shore (0.29 acres), exotic trees east of the culvert (2.05 acres), and trees along the north end of Park Presidio Boulevard (0.75 acres).
- Phased removal of additional exotic weeds (4.3 acres)
- Revegetation of tree and weed removal areas with native freshwater wetland, willow riparian forest and upland woodland species
- Removal of east arm culvert and replacement with a bridge

3.3.3 ALTERNATIVE 3

Elements of Alternative 3 are presented in Figure 8 and are discussed below. Actions are divided into first phase and future phase actions. A detailed description of each action is provided in Section 3.2.

First Phase

- Dredging of 13,800 cubic yards of sediment to increase the depth of the lake by an average of 5 feet, to a maximum depth of fourteen feet. Removal of the top one foot of sediment from the buffer areas (an additional 500 cubic yards of material).
- Mechanical aeration of the deep water in Mountain Lake
- On-site reuse of 1,000 cubic yards of sediment, and disposal or reuse of 13,300 cubic yards of sediment at the Presidio or an appropriate off-site location
- Stabilization of historic pump #316
- Removal of all exotic trees along the east shore of Mountain Lake (1.65 acres) and east of the culvert (2.05 acres).
- Weed removal in and adjacent to the tree removal area (2 acres) and in the area east of the culvert (1.8 acres). Containment and removal of Cape ivy at Mountain Lake (0.7 acres)
- Revegetation of tree and weed removal areas with native freshwater wetland, willow riparian forest and upland woodland species
- Native tree planting along Park Presidio Boulevard to screen the road (.41 acres)

- Construction of a south shore overlook
- Construction of an unpaved (490') trail with three overlooks along the east shore
- Removal of east arm culvert and replacement with a bridge
- Adaptive management of the lake

Future Phases

- Removal of exotic trees along the north end of Park Presidio (0.75 acres).
- Phased removal of exotic weeds in existing wetland and willow habitat (1.8 acres)
- Revegetation of tree and weed removal areas with native freshwater wetland, willow riparian forest and upland woodland species

3.3.4 NO ACTION ALTERNATIVE

No enhancement actions are proposed under the No Action Alternative. The Project Area would continue to be managed in an "as is" condition. Resource management would be limited primarily to pretection of extisting native plant habitats and sensitive species. No actions would be taken to expand visitor opportunities.

3.4 ALTERNATIVES CONSIDERED BUT REJECTED

The following Alternatives were considered during the planning process but rejected as incompatible with the project objectives or outside the scope of this project.

3.4.1 ADDING UNCONSOLIDATED FILL TO THE BEACH ALONG THE SOUTH SHORE

During public scoping it was suggested that additional fill material should be deposited on the beach along the south shore of Mountain Lake to replace material that has sloughed into the lake over time. This idea was rejected as being incompatible with the objective of reducing sedimentation into the lake.

3.4.2 RE-INTRODUCTION OF SPECIAL STATUS AQUATIC SPECIES TO MOUNTAIN LAKE

The enhancement of Mountain Lake could represent an opportunity to re-establish two special status native fauna, the red-legged frog and western pond turtle. Both species are

thought to have previously existed within the Project Area. Neither species is found at Mountain Lake due to a combination of factors, including habitat destruction, low habitat quality, and predation by exotic fish and bullfrogs in the lake. Because of these constraints, there are no plans to reintroduce either species at this time (Appendix C). However, the success of habitat enhancements included in this plan may make reintroductions feasible in the future. If and when reintroduction is proposed, additional environmental review and agency consultation would be required.

3.4.3 CREATING VISITOR ACCESS INTO EXISTING HABITAT AREAS

During public scoping, suggestions were made that would create access into existing habitat, such as the construction of a boardwalk into existing willow riparian woodland along the east arm. This alternative was rejected because the existing habitat areas along the north and east arms are small and surrounded by high levels of visitor use. Further fragmentation could have a significant impact on the habitat value of these areas. Therefore all new visitor access improvements are proposed for currently disturbed areas that would be revegetated as a part of the Plan.

3.4.4 DREDGING OF FORMER NORTH AND EAST ARMS

Both the north and east arms were open water prior to sedimentation. Today both the north and east arms are the least disturbed parts of the lake with the highest habitat values and the greatest diversity of emergent vegetation. It was determined that dredging these arms to create open water would make a negligible improvement to water quality but would destroy species-rich emergent wetlands in the process. Therefore dredging of the north and east arms was rejected as an alternative.

3.4.5 NO DREDGING OF MOUNTAIN LAKE

During public scoping, the idea of addressing water quality problems in Mountain Lake without dredging was raised. Specifically the idea of using only aeration as a means for enhancing water quality in Mountain Lake was put forward. This alternative was rejected because the abundance of nutrient-rich sediment currently found in Mountain Lake would make it difficult to eliminate algae blooms solely through aeration. Additionally, the benefits associated with deepening the lake, such as preventing the rapid filling of the lake with emergent vegetation, increasing thermal stratification, and increasing the volume of water in the lake, would not be achieved. For these reasons, a no-dredging alternative was rejected.

3.4.6 DEEPER DREDGING OF MOUNTAIN LAKE

During the public scoping process, an alternative restoring Mountain Lake to its original depth of 30-feet was proposed. This alternative was considered but rejected as being inconsistent with the objectives of this project and difficult to achieve. The objective of this project (Section 1.1.4) is to improve water quality in Mountain Lake, and not to restore Mountain Lake to some original condition. Mountain Lake has shrunk by 40 percent, and is seriously impinged by urban uses on all sides that preclude a full restoration of its original condition. Concerns about slope stability in adjacent upland areas and the potential for "punching through" the bottom of the lake suggest that full dredging might endanger the lake itself and/or adjacent land uses (Horne, 2000). As a result, the Mountain Lake Enhancement Plan focuses on dredging an average of between 2 and 5 feet of material from the lake. This is deep enough to address project objectives, but not so deep to raise slope stability concerns. Deeper dredging alternatives have been rejected.

3.4.7 LEAVING ALL EXISTING EUCALYPTUS TREES ALONG THE EAST SHORE

During public scoping, some participants expressed a desire to keep all of the eucalyptus trees along the east shore of Mountain Lake. Leaf litter and other debris from the eucalyptus contribute to the lake's poor water quality and prevent most native species from growing underneath them. The species found along the east shore (E. globulus) is invasive, fast-growing, tall, and water-consuming, making it highly efficient at invading and outcompeting existing riparian woodland and wetland habitats. Leaving the entire grove of eucalyptus along the east shore permanently would not only contribute to ongoing water quality problems in Mountain Lake, but it would probably spread into existing habitat. Therefore, this concept was not included in the Alternatives.

3.5 PERMITS AND APPROVALS REQUIRED TO IMPLEMENT THE PLAN

A description of the regulatory framework associated with the Mountain Lake Enhancement Plan is included in Section 2, Affected Environment. The Presidio Trust initiated early agency consultation during the scoping period and determined that the following environmental permits and approvals would be required to implement the Proposed Action. It is possible that additional permits and certifications would be required once the Mountain Lake Enhancement Plan Proposed Action is finalized. A more complete discussion of the scoping and interagency consultation process is included in Section 5, Consultation and Coordination.

3.5.1 NATIONAL ENVIRONMENTAL POLICY ACT

After circulation and public review of the EA, the Presidio Trust would consider and respond to any written or oral comments, either through the use of errata sheets, or text changes and rewrites in addition to, or in place of, errata sheets. The combination of the EA and the errata sheets would form the complete and final EA on which a Finding of No Significant Impact (FONSI) or decision to prepare an EIS would be based.

3.5.2 NATIONAL HISTORIC PRESERVATION ACT

Section 106 of the National Historic Preservation Act requires the Presidio Trust and the National Park Service to address potential effects on properties contributing to the Presidio National Historic Landmark District. Section 106 compliance would occur under the Presidio Programmatic Agreement between the National Park Service, the California State Historic Preservation Officer, and the Advisory Council on Historic Preservation.

3.5.3 CLEAN WATER ACT

Some aspects of the Proposed Action may require a permit or certification from the U.S. Army Corps of Engineers (USCOE) to comply with Section 404 of the Clean Water Act. Initial consultation with the USCOE during the project's scoping period indicated that Section 404 permits would not be required. Ongoing consultation with USCOE through the project's construction phase would occur.

3.5.4 STATE PORTER-COLOGNE WATER QUALITY CONTROL ACT

A National Pollutant Discharge Elimination System (NPDES) permit from the San Francisco Regional Water Quality Control Board (RWQCB) and compliance with Section 401 of the federal Clean Water Act would be required to address potential sources of surface water discharge during construction.

3.5.5 ENDANGERED SPECIES ACT

Potential impacts to endangered and other special-status species are assessed in this document. Federal agencies, such as the Presidio Trust, are required to consult with the U.S. Fish and Wildlife Service (USFWS) to ensure their actions do not jeopardize the

continued existence of any species listed as endangered or threatened under the 1973 Endangered Species Act. Consultation with the USFWS was initiated during the scoping phase and will continue to ensure that the Proposed Action is in compliance with this law.