Amendment to Oakland Zoo Master Plan

Clarifying Revisions to Draft Subsequent Mitigated Negative Declaration / Addendum (February 2011)

April 20, 2011

This document contains the proposed revisions to the Draft Subsequent Mitigated Negative Declaration / Addendum (dated February 2011). New language is underlined and deleted language is ~~struck-out~~.

I. BIOLOGICAL RESOURCES

Revision 1 (Fire Fuel Management): The following text is added to Mitigation Measure 14c on page 3.3-39 and in Appendix C:

14c) Obtain appropriate authorizations from resource agencies to address possible incidental take and a Permit for Management of a rare or threatened species pursuant to Fish and Game Code Section 2081 and Section 7 of the Endangered Species Act, as called for under SCA-BIO-10. The project applicant shall provide compensatory mitigation for impacts to Alameda whipsnake habitat. Such mitigation shall be provided at a ratio of no less than 1:1 (at least one acre for every acre of impact), subject to any increase in this ratio that may be required by the resource agencies. There is adequate area within Knowland Park to achieve this mitigation ratio. Subject to the approval of the resources agencies, mitigation shall be achieved through habitat restoration and enhancement within the California Exhibit boundaries, the Ecological Recovery Zone, and other locations within Knowland Park, at another restoration location with an Alameda whipsnake habitat restoration plan area approved by the U.S. Fish and Wildlife Service and the California Department of Fish and Game, through the purchase of mitigation credits at a mitigation bank within the East Bay region, or some combination of these options. The project applicant shall retain a qualified biologist to prepare an Alameda whipsnake Mitigation and Monitoring Plan in connection with the application for an incidental take authorization and Management Permit. The Mitigation and Monitoring Plan will be subject to approval by the California Department of Fish and Game and the U.S. Fish and Wildlife Service. The Mitigation and Monitoring Plan shall include (a) a habitat restoration/creation performance standard of no net loss of habitat functions and

values; (a) location of the mitigation site(s); (c) a detailed habitat restoration/creation plan for the mitigation site(s); (d) provisions for timing and methods for invasive species removal, controls on herbicide application, and worker training programs that, at a minimum and subject to the requirements of the resource agencies, meet the applicable requirements of the Invasive Species Control Element of the HEP; (f) provisions that include cover requirements, methods of installation and maintenance, a tracking system, a record of source and species of plant materials used in revegetation; and (h) success criteria to be used to evaluate whether the restoration/creation efforts have achieved the identified goals of the Mitigation and Monitoring Plan.

The proposed California Exhibit shall be modified to incorporate recommendations from the 2011 Status Report (Swaim Biological, Inc. 2011), which include removing the amphitheater from the stand of chamise-chaparral; restricting the California Interpretive Center ten feet to the east and limiting grading to within ten feet of the edge of the building; modifying and establishing controls to the bison/tule elk extension exhibit, and ensuring that the perimeter fence is permeable to allow for unrestricted movement of Alameda whipsnake through the area. Controls associated with the bison/tule elk exhibit shall include limiting the number of animals housed to 20 bison and 20 tule elk, maintaining protective cover by creating irrigated pasture outside woodland habitat, and placing rock outcrops and logs to serve as refugia for dispersing snakes. The location of the California Interpretitive Center shall be adjusted to the northeast away from the stand of chamise-chaparral, if required by the California Department of Fish and Game and/or the U.S. Fish and Wildlife Service, to provide for appropriate defensible space for fire fuel management as required by the Oakland Fire Department.

Revision 2 (Trees – Overnight Camping Area): Table 3.3-2 in Section 3.3, Biological Resources, is revised as follows:

TABLE 3.3-2: PROTECTED TREE IMPACTS – APPROVED MASTER PLAN AND PROPOSED MASTER PLAN AMENDMENT

	Approved Master Plan	Proposed Master Plan Amendment
Number of Protected Trees to be Removed		
Native Species	73	51
Non-Native Species	25	0
Total	**98**	**51**
Number of Protected Trees Within 10 Feet of Construction		
Native Species	Not recorded	~~92~~99
Non-Native Species	Not recorded	16
Total	**Not recorded**	**~~110~~117**

Source: PJA

Revision 3 (Trees – Overnight Camping Area): The following figure is added to Section 3.3, Biological Resources, and to the California Exhibit Tree Diagram (Appendix G-4), as Figure 3.3-9, Proposed Master Plan Amendment, Trees Within 10 Feet of Proposed Construction Activities of Overnight Camping Area. [Figure is included on following page.]

[INSERT TREE FIGURE FOR OVERNIGHT CAMPING AREA]

Revision 4 (Trees – Sudden Oak Death): The following text is added to the Invasive Species Control Element of the Habitat Enhancement Plan (Appendix G-2) under Goal 1 on page 7:

> Native coast live oak and other vegetation in Knowland Park is susceptible to Sudden Oak Death (SOD), and construction and vegetation management activities must be conducted in a manner to minimize the further spread of this disease. SOD is caused by the pathogen *Phytophthora ramorum*, a fungus-like organism that thrives in the moist climate found along coastal California. It is the leading cause in widespread mortality of susceptible tree species, including tanoak and to a lesser degree, coast live oak, California black oak and Shreve oak. The pathogen attacks the vascular system of the tree, just below the bark, weakening the tree and making it more vulnerable to infection by other tree pests such as fungi and bark beetles.
>
> *Phytophthora* species are water-loving molds that produce plentiful spores in moist, humid conditions, and are known plant pathogens. While most leaf hosts do not die from the disease, they do play a key role in the spread of *P. ramorum*, acting as breeding ground for spore production, which may then be spread through wind-driven rain, water, plant material, or human activity. Trunk hosts such as oaks are considered terminal hosts, typically becoming infected when exposed to spores produced on the leaves of neighboring plants or through human contamination. The organism is most active during wet periods, and the risk of movement is therefore highest in muddy, wet areas and during rainy weather. *P. ramorum* spores can be found in living, dying, or recently dead plants, as well as in infested waterways and soil, and may be transported to new areas when infected plant material or infested soil is moved.
>
> The California Oak Mortality Task Force (COMTF) is a non-profit group working to manage SOD in California. The COMTF has compiled Best Management Practices (BMPs) that are applicable to construction and vegetation management activities in Knowland Park. These include practices related to tree removal and care, vegetation and other debris disposal, and sanitation measures to use during construction and vegetation management activities to minimize pathogen spread. BMPs shall be implemented to minimize the possible spread of this pathogen and loss of oaks and other vegetation in Knowland Park.

Revision 5 (Trees – Sudden Oak Death): The following text is added to the Invasive Species Control Element of the Habitat Enhancement Plan (Appendix G-2) under Goal 1 on page 8:

Implementation Action 1-7: *Develop and implement a comprehensive Sudden Oak Death Control Program addressing the possible spread and infection of SOD in Knowland Park associated with implementation of the Master Plan and vegetation management activities of the HEP. The SOD Control Program shall be prepared by a certified arborist or registered professional forester trained in the treatment of SOD and submitted to the City for its review and approval. The SOD Control Program shall be prepared in consultation with the pest control staff of the Alameda County Agricultural Department, and shall be completed prior to initiation of any construction or additional vegetation management activities in Knowland Park associated with the California Exhibit and/or the HEP. Best Management Practices (BMPs) shall be developed as part of the program to address possible spread and infection both during construction of the California Exhibit and vegetation management activities associated with the HEP. Provisions in the SOD Control Program shall include the following major components with related BMPs, as modified to reflect the best available science in treating and avoiding spread of the pathogen.*

- ***Identify and Monitor Extent of SOD Infection****: Map the current extent of observed SOD infection in Knowland Park, designated zones for high and low risk areas, and monitor any spread of the pathogen as part of the annual monitoring program of the HEP. Risk zones and the applicable BMPs listed below shall be adjusted as necessary if the annual monitoring indicates the infection has spread.*

- ***Sanitation Measures:*** *Sanitize tools, equipment, vehicles, shoes and clothing upon exiting high risk zones or when used on known or suspected infested trees as a precaution against spreading the pathogen. Use all reasonable methods to sanitize personal gear and crew equipment before leaving a P. ramorum-infested location or high risk area. Contaminated soil, particularly mud, on vehicle tires, workers boots, shovels, stump grinders, trenchers, etc., may result in pathogen spread if moved to a new, uninfested location. Products used in sanitizing are corrosive to metal and fabric, and toxic to native plants and other vegetation. Measures taken to prevent possible spread of this pathogen shall be implemented in a coordinated fashion to avoid possible secondary effects of treatment, including establishing designated sanitation stations where materials are available for treatment and runoff is adequately contained.*

- ***Worker Training:*** *Inform all construction and vegetation management crew members about the arboricultural implications of P. ramorum and required sanitation practices when working in high risk areas, and potential for spread to other locations. Where work will occur in*

infested areas, sanitation kits must be provided and their use monitored to ensure cleanup.

- ***Timing of Tree Removal and Construction:*** *Restrict timing of tree removal, work on infected and susceptible vegetation species, and grading to the dry season (June - October), or during dry spells if adherence to this schedule is not feasible. When working in wet conditions, equipment shall be kept on paved or dry surfaces to the maximum extent feasible. Construction and vegetation maintenance activities shall generally occur in disease-free and low risk areas before proceeding to infested and high risk areas, and appropriate sanitation measures followed.*

- ***Restrictions on Movement of Plant and Soil Material:*** *Appropriate restrictions on grading, other soil disturbing activities, and collection or movement of plant material (wood, brush, leaves and litter) shall be developed and implemented where grading, vegetation removal, and heavy equipment operation is to occur in infected and high risk areas. Within the regulated area, potential host material (e.g. wood, bark, brush, chips, leaves, or firewood) from tree removals or pruning of symptomatic or non-symptomatic plants shall preferably remain within the infected area to minimize pathogen spread, or disposed of off-site according to the quarantine Compliance Agreement for green waste disposal in Alameda County.*

Revision 6 (Trees – Sudden Oak Death): The following text is added to the Native Tree Protection and Replacement Element of the Habitat Enhancement Plan (Appendix G-2) under Goal 4 on page 13:

> ***Implementing Action 4-3:*** *Best Management Practices developed as part of the Sudden Oak Death Control Program in the Invasive Species Control Element of the HEP shall be implemented to address the possible spread of the pathogen and infection of oaks and other vegetation in Knowland Park.*

Revision 7 (Grasslands): The following text is revised in the Grassland Protection and Enhancement Element of the Habitat Enhancement Plan (Appendix G-2) on page 8:

> **Goal 2:** *Provide for the protection and enhancement of grassland habitat in Knowland Park through invasive species control and revegetation with native grassland species, and achieve a minimum 3:1 compensatory ~~adequate~~ mitigation for any permanent loss of native grassland habitat as a result of implementing the California Exhibit. The 3:1 compensatory mitigation assumes a worst-case ~~the~~ loss ~~and modification~~ of an estimated 4.44 ~~8.6~~ acres of native grassland habitat as a result of implementing the California Exhibit ~~by protecting and enhancing a minimum of 17.2 acres~~*

~~of grasslands in Knowland Park~~, resulting in a mitigation acreage of 13.32 acres to be protected and enhanced. This worst-case estimate and the corresponding compensatory mitigation acreage may be reduced through further refinement of plans for the California Exhibit to avoid additional stands of native grassland, and through implementation of a successful salvage and replanting program where avoidance is infeasible.[1]

[1] Under the provisions of the HEP, a requirement shall be considered infeasible if it is not capable of being accomplished in a successful manner within a reasonable time period, considering economic, environmental, legal, social, technological factors and/or if it would preclude implementation of the approved amended Master Plan or require additional amendment(s).

Revision 8 (Grasslands): The following text is revised in the Grassland Protection and Enhancement Element of the Habitat Enhancement Plan (Appendix G-2) under Goal 2 on page 9:

A grassland enhancement and replacement program will be implemented as part of the HEP to ensure that adequate mitigation is provided for the worst-case estimated 4.44 ~~8.6~~ acres of native ~~and non-native~~ grassland habitat possibly lost or modified within the footprint of proposed improvements or within animal enclosures of the California Exhibit. Non-native grassland habitat will be preserved and enhanced through the invasive species removal provided under the Invasive Species Control Element of the HEP. The grassland program will identify historic grasslands…

Revision 9 (Grasslands): The following text is revised in the Grassland Protection and Enhancement Element of the Habitat Enhancement Plan (Appendix G-2) under Goal 2 on page 9:

Implementing Action 2-1: *Compensation shall be provided for the loss of native grasslands as a result of constructing the California Exhibit. This shall be accomplished through a three-tiered approach which first evaluates the opportunity for avoidance and protection, allows for salvage and replanting where avoidance is not feasible, and provides minimum compensatory mitigation where loss is unavoidable, all subject to City review and approval by the Planning Director, summarized as follows:*

1) Require a minimum 3:1 compensation for native grasslands lost as a result of implementing the California Exhibit. Based on the 2011 grassland mapping program, a maximum estimate of 4.44 acres of native grasslands would be lost if no refinements to the plans for the California Exhibit and related improvement were to occur and all habitat within enclosures and limited disturbance areas were eliminated. Under this worst-case scenario, 13.32 acres of native grasslands shall be created or restored. This

estimate of grasslands lost and the required compensation shall be reduced based on efforts to further avoid native grassland and/or on implementation of a successful salvage and replanting program as described in 2) and 3), and defined in Implementation Actions 2-6 and 2-7, respectively;

2) Minimize the actual loss of native grasslands and reduce the required acreage of compensation through further refinement of detailed plans for the California Exhibit, alignment of enclosure fencing and perimeter fence, and roadway improvements. For every acre of native grasslands preserved through refinement, the maximum estimate of 4.44 acres lost shall be reduced and the total acreage in the 3:1 compensation ratio shall be reduced proportionally. Details of the native grassland avoidance program are defined in Implementation Action 2-6, including methods to confirm final acreage of habitat lost and success of the avoidance program in exhibit areas considered to be of low disturbance risk to native grasslands; and

3) Establish a salvage and replanting program where avoidance is not feasible through refinements, and provide an incentive for implementing this program by reducing the compensatory mitigation ratio where transplanting is successful. For every acre of native grasslands salvaged and successfully re-established through this program, the 3:1 compensatory mitigation ratio shall be reduced to 1:1. This reduced compensation ratio shall still be required because of the physical loss of intact native grasslands that will occur during transplantation. Details of the salvage and replanting program are defined in Implementation Action 2-7.

Compensation shall be provided in ~~A minimum of 17.2 acres of~~ grassland habitat outside of animal exhibits but in as close proximity to the California Exhibit as possible based on updated grassland mapping and the mapped extent of target invasive species. Areas serving as compensation for native grasslands lost as a result of the California Exhibit shall be treated, protected and managed as part of the Invasive Species Control and Native Revegetation Elements of the HEP, as defined under Implementation Actions 2-2 through 2-4. Compensation areas shall be restored, enhanced and managed to achieve a minimum native grass and forb component consistent with the cover class range of native grasslands lost, defined as either moderate quality native grasslands with a native component of from 10 to 40 percent absolute cover or high quality native grasslands with a native component over 40 percent absolute cover. This shall include treatment areas receiving native plant materials from the salvage and replanting program defined in Implementation Action 2-7. This comprehensive program would fully

implement the mitigation requirements of Mitigation Measure 13a ~~thereby providing a 2:1 mitigation ratio~~ for grasslands lost or compromised as a result of improvements in the California Exhibit area.

Revision 10 (Grasslands): The following text is added in the Grassland Protection and Enhancement Element of the Habitat Enhancement Plan (Appendix G-2) under Goal 2 on page 10:

Implementation Action 2-6: *Stands of native grasslands within the California Exhibit area shall be considered for additional avoidance during refinement of future improvement plans to protect native grasslands to the maximum extent feasible, incorporate them into the interpretive experience for future visitors, and reduce the maximum estimate of 4.44 acres of native grasslands adversely affected or lost as a result of Master Plan buildout. This shall include consideration of minor adjustments to building footprints, pathways, and other features which would permanently convert native grassland habitat, as well as minor adjustments to the alignment of exhibit enclosure fencing and the perimeter fence, where substantial avoidance is possible within the context of the approved amended Master Plan and the program for the California Exhibit. Where additional native grasslands are successfully avoided and protected within the California Exhibit area, the maximum estimate of 4.44 acres of grasslands requiring compensatory mitigation shall be reduced in equal amount and the required compensatory mitigation shall be reduced accordingly, as defined in Implementing Action 2-1. Protected stands of native grasslands within the California Exhibit that apply towards any reduction in the compensatory mitigation requirement shall be retained and managed in perpetuity as native grasslands, in addition to the grassland management provisions called for in Implementation Action 2-5. The additional grassland avoidance provisions shall be accomplished according to the following procedures and performance standards:*

- *Refine plans for the California Exhibit to avoid direct disturbance to stands of native grasslands to the maximum extent feasible while still meeting the program needs, fire safety and clearance requirements, and other variables related to short-term construction and long-term maintenance requirements. To ensure long-term protection and management of native grasslands within the California Exhibit, these areas shall be designated as "Protected Native Grasslands" on all relevant improvement and management plans. The annual monitoring reports required under the Implementation Element of the HEP shall include a review of the status of these Protected Native Grasslands. Additional compensatory mitigation shall be required if these areas are significantly compromised, as defined below.*

- *Recalculate potential impacts on native grasslands and determine the adjusted total for acreage lost and required compensatory mitigation defined in Implementing Action 2-1. Any reduction in estimated impacts on native grasslands shall be reviewed by a qualified biologist and meet with the review and approval of Planning Director. Following approval by the Planning Director, final grading and site improvement plans shall be revised to show all areas of native grassland to be preserved and shall indicate that construction is restricted from these areas.*

- *Prior to any site grading or grubbing, the limits of areas to be preserved as native grassland within the California Exhibit shall be flagged by engineered survey at a minimum 50-foot intervals in the field. Protective fencing shall be installed under the supervision of a qualified biologist along this boundary to encompass the entire stand of native grassland to be protected in each location. No construction equipment disturbance shall be allowed within these areas, unless conducted under the supervision of the qualified biologist and no grading or excavation is allowed. On-going removal of invasive species and other vegetation management activities may continue within these areas during construction. Following the completion of construction within the vicinity of the protected stands of native grassland, the temporary construction fencing shall be removed.*

- *All workers shall be trained regarding the sensitivity of the native grasslands to be preserved, and the need to remain outside the limits of the protective fencing at all times.*

- *Annual Monitoring shall be provided as part of HEP implementation to confirm that impact avoidance has been successful and assumptions regarding limited disturbance within animal enclosures have not significantly compromised the native grassland habitat values within these areas. Preserved grasslands shall continue to meet the respective cover class criteria for moderate and high quality native grasslands used to define the compensatory mitigation requirements in Implementation Action 2-1. If these minimum cover class requirements are not met during future annual monitoring performed as part of the HEP, then the adjustment to the required compensatory mitigation shall be voided, and the full 3:1 mitigation requirement shall apply to the acreage of affected grassland within the California Exhibit where avoidance was to be implemented.*

***Implementation Action 2-7**: A Native Plant Salvage and Replanting program, subject to review and approval by the Planning Director, shall be developed and implemented by a qualified biologist or landscape architect with experience in native grassland transplantation to relocate*

established clumps of native perennial species that would otherwise be lost as a result of constructing the California Exhibit. Where additional native grasslands are successfully salvaged and replanted, the compensation requirement shall be reduced according to the ratios defined in Implementing Action 2-1. The program shall include the following components and performance standards:

- *Salvaged material shall be installed in secure locations suitable for native grassland creation and enhancement within the Ecological Recovery Zone or other treatment areas to be revegetated as called for in the Native Revegetation Element of the HEP.*

- *Prior to any site grading or grubbing, the limits of maximum disturbance associated with implementation of the California Exhibit shall be flagged at a minimum of 50-foot intervals in the field where they intersect stands of native grasslands.*

- *Suitable native plants that would otherwise be destroyed shall then be harvested in advance of any site grading and grubbing, preferably in the late fall and winter months when plants are dormant. Some salvage in early spring may be necessary given the difficulty in determining health and viability of some species when dormant.*
- *Salvaged material shall be properly maintained until ready for reinstallation during the wet period (between November 15 and January 15) consistent with the General Treatment Methods in Table 2, including short-term irrigation both during temporary storage and during initial replanting to ensure survival.*

Treatment areas receiving salvaged native plant material shall be maintained and monitored as called for in the Native Revegetation Element of the HEP. Treatment areas shall continue to meet the respective cover class criteria for moderate and high quality native grasslands used to define the compensatory mitigation requirements in Implementation Action 2-1. If these minimum cover class requirements are not met during future annual monitoring performed as part of the HEP, then the 1:1 adjustment to the required compensation shall be voided, and the full 3:1 mitigation requirement shall apply to the acreage of affected grassland within the California Exhibit where the salvage program was implemented.

Revision 11 (Bristly leptosiphon): The following text is revised in the Species Protection Element of the Habitat Enhancement Plan (Appendix G-2) under Goal 5 on pages 15 and 16:

Implementing Action 5-2: *Annual monitoring shall be provided for a minimum of five years once wolves begin using the "Wolf Expansion"*

area to determine whether trampling, digging, and other possible disturbances could result in the extirpation of this population. Field monitoring inspections shall be conducted at least once a month for the first six months once wolves have been released into the enclosure, and the effects of newly established trails and movement patterns, tendency for digging, and risks to the occurrence of bristly leptosiphon determined. Thereafter, field monitoring inspections shall occur at least once a year when the bristly leptosiphon is in flower and any changes in the size and distribution of the occurrence can be determined. The monitoring shall be conducted by a qualified botanist or biologist, with annual reports on the condition of the occurrence, reproductive success, and need for any changes in access or management. Annual monitoring reports shall be submitted to the City of Oakland by October 15 of each year of monitoring. If it is clear that the occurrence becomes threatened by wolf activities, permanent protective fencing shall be installed providing a 25-foot buffer around the population. Annual monitoring shall be provided a minimum of three years beyond installation of any permanent protective fencing to ensure that the population is adequately protected and monitor changes in population size and distribution within and outside of the protective fence boundary.

Revision 12 (Trees – Overnight Camping Area): The following tabular information is added to the California Exhibit Tree Survey (Appendix G-4). [Table is included on following page.]

[INSERT TREE TABLE FOR OVERNIGHT CAMPING AREA]

II. NOISE

Revision 13 (Ambient Noise Increase): Figure 3.9-2 in Section 3.9, Noise, is replaced with the following figure, Figure 3.9-2, Ambient Noise Measurement Locations. [Figure is included on following page.]

SOURCE: Aliquot and PJA; ARCADIS

Figure 3.9-2
Ambient Noise Measurement Locations

Revision 14 (Ambient Noise): Table 3.9-10 in Section 3.9, Noise, is revised as follows:

TABLE 3.9-10: EXISTING AMBIENT NOISE CONDITIONS COMPARED TO FUTURE CONDITIONS WITH OPERATIONAL NOISE FROM PROPOSED MASTER PLAN AMENDMENT

Receptor	Location	Existing Ambient Noise Levels (dBA)	Combined Ambient Noise and Proposed Master Plan Amendment Operational Noise (dBA)	Difference (dB)
1[1]	Proposed Veterinary Medical Hospital (Noise Monitor)	54.2	58.4	4.2
2	Service Road (Noise Monitor)	56.5	56.6	0.1
3	Proposed California Exhibit (Noise Monitor)	54.9	55.0	0.1
12	Knowland Park (proposed public access path)	48.4	49.0	0.6
13	Knowland Park	50.1	50.7	0.6
14	Knowland Park	49.8	50.1	0.3

[1] Receptor 1 is the noise monitor location of the Veterinary Medical Hospital and is located well within the zoo property and does not represent a residential or park boundary.

Source: ARCADIS