activities would be in addition to requirements for NAHC and Most Likely Descendant notification steps addressed in mitigation measure MM CP-2a.

The ARDTP addresses appropriate consultation with Native American community regarding burials (ARDTP, page 411):

> **Native American Consultation**
>
> The MEA [San Francisco Planning Department Major Environmental Analysis section] may consult with appropriate member(s) members of the Native American community regarding this project prior to the discovery of burials. This consultation would not designate a Most Likely Descendant (MLD), nor replace the legal process whereby the Native American Heritage would appoint the MLD in the event human remains are found.
>
> Stewart ["An Overview of Research Issues for Indigenous Archaeology", as cited in the ARDTP] notes that "archaeology, contrary to how it was practiced in the past, is currently practiced with a sensibility that insists that indigenous peoples have a stake in the management of their ancestral remains, and that the values bound up in those remains, sites, landscapes, etc., are not exclusively scientific." Although this document's [ARDTP] scope is limited to the data potential of prehistoric sites, this does not preclude the value that the site has beyond its informational value.
>
> Topics of consultation might include, but not be restricted to, the opinions and wishes concerning the Bayview Waterfront Project as an Ohlone ancestral site, the cultural value or concerns regarding the site, opinions on publicity, etc. Of particular concern to archaeological consultants are issues regarding the handling, study, and special studies of burials and human remains—issues usually discussed with or otherwise addressed by an MLD.
>
> Especially sensitive issues are whether the MLD and/or the community would permit analysis of human remains of any sort, or even the archaeological excavation of any burials found. There are MLDs in California who categorically refuse permission to conduct osteological description and non-destructive analysis of human burials. Another is the question of the desirability of obtaining radiocarbon dates from shell beads associated with a burial, or the wish to use a small bone fragment from a Native American burial for radiocarbon dating purposes. Another potentially useful analysis which involves destruction of human remains is removal of a tooth from a mandible or maxilla for purposes of mtDNA extraction and characterization.

Refer also to Master Response 1 (SB 18) explaining that the Planning Department has begun a consultation process with Native American tribal representatives. That consultation process will be an avenue for addressing the types of concerns identified in the ARDTP.

Master Response 3: Impacts of the Project on Yosemite Slough (Biological Resources)

Introduction

Overview

In 2006, the California Department of Parks and Recreation (CDPR) approved the Yosemite Slough Restoration Project (Restoration Project). The Restoration Project, sponsored by the California State Parks Foundation would restore tidal wetlands in a 34-acre parcel of Candlestick Point SRA in Yosemite Slough immediately adjacent to the Project site. The Plan would increase the existing tidally influenced area from 9 acres to over 20 acres, create two islands intended for use by nesting birds, and provide nursery areas for fish and benthic organisms, transitional and upland areas to buffer sensitive habitats,

more than 5,000 feet of new interpretive trails with five vista points, approximately 2.5 acres of passive use public areas, an approximately 1,200-square-foot multi-use interpretative center with restroom facilities, new access to the restored area, and additional amenities including parking, fencing, lighting, benches, and drinking water fountains. The restoration design of the slough would also address soil contaminant issues arising from previous fill activities that could affect human and wildlife health. The Restoration Project has not been implemented. It is proposed for construction in an area adjacent to but outside of the Project area, with the exception of a small area that overlaps the proposed location of the Yosemite Slough bridge.

The biological impacts associated with the construction and operation of the Yosemite Slough bridge have been analyzed in Section III-N of the Draft EIR. However, specific concerns have been raised that the development of the Project would negatively impact the proposed/ongoing Restoration Project if it proceeds. Specifically, commenters have stated that development of the Yosemite Slough bridge would release contaminated sediment into the environment, provide an additional source of contaminated runoff into the slough, divide an existing state park, and disrupt existing or future wildlife migration. Some commenters suggested that the effects of the bridge, particularly on the Restoration Project, were not analyzed in the Draft EIR and indicated that maps in the Draft EIR did not clearly indicate whether the Restoration Project was part of the Project area. Specific concerns also included the potential effects of construction-related disturbance while the bridge is being constructed, operational effects of noise, vibration, and exhaust from vehicles using the bridge on wildlife using the area around the bridge, including the restoration site, and effects of shading from the bridge on habitats below. Comments suggested that the Draft EIR did not address these potential impacts in sufficient detail.

This response provides detail regarding how the Draft EIR took the Restoration Project into account in its analysis and why the Project would not significantly impact the Restoration Project or impair or interfere with the goals and objectives of the Restoration Project. This master response addresses these comments with respect to the Restoration Project and biological resources. Traffic issues associated with the proposed bridge are addressed in Master Response 4 (Purpose and Benefits of the Yosemite Slough bridge), and hazardous materials and contamination issues are addressed in Master Response 9 (Status of the CERCLA Process).

This master response has been prepared using the analysis of Project impacts to biological resources in the Draft EIR; references to technical literature; plans for the Restoration Project provided by WRA, Inc., the firm that designed the wetland restoration plan; reference to other relevant sites in the San Francisco Bay area (Bay area); and analysis and inferences drawn from these sources by Stephen C. Rottenborn, Ph.D. Dr. Rottenborn, a principal and senior wildlife ecologist with the ecological consulting firm H. T. Harvey & Associates, is an expert on the wildlife, particularly birds, of the Bay area. Dr. Rottenborn's expert analysis addresses issues raised in the various comments on biological impacts and in particular the Restoration Project. His curriculum vitae is provided in Appendix C&R-1 (Biological Consultant Curriculum Vitae).

This response is organized by the following topics:

- Consideration of Yosemite Slough and the Yosemite Slough Restoration Project in the Draft EIR
- Summary of the Restoration Project
- Discussion of Biological Resource Impacts on Yosemite Slough in the Draft EIR

- Potential Effects of Noise on Wildlife Use of the Yosemite Slough
- Potential Effects of Vehicle Exhaust on Plants and Animals of Yosemite Slough
- Potential Effects of Lighting on Animals of Yosemite Slough
- Wildlife Use and Habitat Conditions at Reference Sites
- Expected Effects of the Bridge on Wildlife Use of Yosemite Slough
- Conclusion

Commenters

Commenters who addressed this issue include:

- Federal, State, Regional, Local Agencies, Boards, and Commissions
  - > California State Parks (86-1, 86-6, 86-12)
  - > Planning Commissioner Lee (SFPC-125)
- Organizations
  - > Arc Ecology (85-25, 85-29)
  - > California State Parks Foundation (47-3, 47-4, 47-5, 47-7, 47-17, 47-18, 47-19, 47-21, 47-22, 47-23, 47-24, 47-35, 47-37, 47-38, 47-40, 47-47, 47-49, 47-50, 47-51, 47-54, 47-56, 47-59, 47-68, 47-70, 47-71, 47-72, 47-73, 47-74, 47-75, 47-77, 47-81, 47-82, 47-86, 47-87, 47-89, 47-93, 47-97)
  - > Golden Gate Audubon Society (81-1, 81-2, 81-4, 81-7, 81-9, 81-10, 81-11, 81-13, 81-14)
  - > Green Action Health and Environmental Justice (SFPC-81, SFPC-826)
  - > San Francisco Bay Conservation and Development Commission (103-9, 103-19)
  - > San Francisco Bay Trail (31-6)
  - > San Francisco Tomorrow (64-2, 64-4)
  - > Sierra Club (75-5, 75-7)
  - > Yosemite Slough Project at Candlestick Recreation Area (SFRA1-78, SFRA1-79)
- Individuals
  - > Linda Richardson (SFPC-4)
  - > Mishwa Lee (61-3, 61-7, 73-6)
  - > Saul Bloom (SFPC-136)

Comments received on the Draft EIR related to the Restoration Project and biological resource impacts were focused almost exclusively on issues addressed in Section III.N (Biological Resources) of the Draft EIR; therefore, this master response provides further discussion to update and augment the analysis of the issues presented in Section III.N.

Comment Summary

This master response responds to all or part of the following comments: 31-6, 47-3, 47-4, 47-5, 47-7, 47-17, 47-18, 47-19, 47-21, 47-22, 47-23, 47-24, 47-35, 47-37, 47-38, 47-40, 47-47, 47-49, 47-50, 47-51, 47-54, 47-56, 47-59, 47-68, 47-70, 47-71, 47-72, 47-73, 47-74, 47-75, 47-77, 47-81, 47-82, 47-86, 47-87, 47-89, 47-93, 47-97, 61-3, 61-7, 64-2, 64-4, 73-6, 75-5, 75-7, 81-1, 81-2, 81-4, 81-7, 81-9, 81-10, 81-11, 81-13, 81-14, 85-25, 85-29, 86-1, 86-6, 86-12, 103-9, 103-19, SFRA1-78, SFRA1-79, SFPC-4, SFPC-81, SFPC-82, SFPC-125, SFPC-136.

Summary of Issues Raised by Commenters

- No mention of the Restoration Project in Draft EIR
- The potential effects of construction-related disturbance to the slough
- Operational effects of noise, vibration, and exhaust from vehicles using the bridge on wildlife using the area around the bridge, including the Restoration Project site
- Effects of shading from the bridge on habitats below
- Project would interfere with goals of the Restoration Project

Response

It is important to recognize that CEQA requires that except for special-status species, determinations of significant adverse impacts depend on the regional habitat value of resources and species viability rather than the amount of impact in a specifically defined but very limited habitat.

Impacts to special-status species would be significant (in the absence of mitigation) if the Project would adversely affect any of the following: (1) a species listed as threatened or endangered by the state or federal government at the time the Draft EIR is published; (2) a major population or subpopulation of a species that would result in the regional declines of this species; (3) a relatively large number of individuals within a population that is considered rare or declining; (4) a species' metapopulation (i.e., if one of only a few known populations occurs in the impact zone, or if the species has extremely narrow habitat requirements); or (5) a habitat type or vegetation community in regional decline or that is regionally endemic and recognized as such by the local, state, or federal agencies identified in the Setting section.

Impacts to sensitive or rare species would be less than significant, even without mitigation, if they are not expected to substantially affect species or populations because (1) a relatively small number of non-listed individuals would be impacted; (2) the number of individuals of a non-listed species to be impacted represent a very small fraction of regional populations due to the species' regional abundance; (3) recovery and conservation effects are documented to adequately conserve the species or habitat, and impacts would not affect the recovery or conservation of this species or habitat; or (4) the species or habitat is locally common and fairly abundant in the region. Because such species exist in a broad area, in regionally abundant habitat, such species would not be expected to experience substantial impacts from a project.

Consideration of Yosemite Slough and the Yosemite Slough Restoration Project in the Draft EIR

Confusion regarding whether or not Yosemite Slough was considered part of the Project and whether impacts to portions of Yosemite Slough outside the Project site were analyzed in the Draft EIR stemmed in part from reviewers' interpretations of various figures in the Draft EIR, particularly Figure III.N-1 (Biological Resources Study Area). This figure correctly depicted only the mouth of Yosemite Slough as being within the "Project Boundary," while showing that a slightly greater portion of the slough was within the "Study Area" and the entire slough was within the "Yosemite Slough Watershed Wildlife Study Area." Commenters questioned why these study areas differed.

The purpose of Figure III.N-1 was to indicate the relationships of three different geographic areas: the boundary of the Project site (Project Boundary); the boundary of the area that was covered by the wetland delineation performed for the Project (Study Area); and the boundary of the area in which data on wildlife use had been collected during a study performed by LSA Associates, Inc. and volunteers in 2004 (Yosemite Slough Watershed Wildlife Study Area). The Study Area boundary extended beyond the Project boundary because impacts to wetlands and aquatic habitats, both existing and those that would be present after implementation of the Restoration Project, were anticipated to occur slightly upstream from the Project boundary during construction of the Yosemite Slough bridge. That the Study Area boundary did not include the entire slough does not indicate that the remainder of the slough was not considered in the impact analysis. Rather, as discussed in the following section, the impact analysis considered direct and indirect effects on all biological resources both within and adjacent to the Project boundary, including all of Yosemite Slough and relevant adjacent areas.

Commenters suggested that the Draft EIR did not adequately recognize the Restoration Project as an integral component of the Candlestick Point State Recreation Area (CPSRA) or adequately analyze effects of the bridge on the Restoration Project, and suggested that the bridge would conflict with the goals of the restoration. CEQA initially requires an analysis of the Project's effects against existing baseline conditions. The Restoration Project, although planned and approved, has not been implemented. After analyzing the impacts of a Project against existing conditions, CEQA requires consideration of Project effects in combination with other past, present, and future projects, i.e., a cumulative impact analysis. The Restoration Project was discussed in the cumulative context and was considered one of the "planned and in-process wetland restoration projects within the Bay area" in the cumulative impact analysis on page III.N-118 of the Draft EIR.

In addition, the Draft EIR considered the effects of the Project on the habitats and species that would be expected to use the restoration site in the context of the Draft EIR's assessment of direct and indirect impacts to sensitive habitats and special-status/sensitive species both on- and off-site (Impact BI-3a through Impact BI-12c). Direct, explicit reference to the effects of the CP-HPS Project, including the Yosemite Slough bridge, on the Restoration Project itself was limited in the Draft EIR because the Draft EIR followed the CEQA requirement to assess impacts with respect to the change that the Project would cause to existing, baseline conditions (under which the Restoration Project has not been implemented). The descriptions of Project impacts focused on existing conditions rather than explicitly discussing the future Restoration Project. However, the Draft EIR fully assessed the impacts on the resources that are the focus of the Restoration Project. As explained in more detail below, habitats in the existing slough and along the Candlestick Point and HPS Phase II shorelines contain the same or similar characteristics as the restored slough in terms of the types of habitats and species that could be impacted by the Project. To enable the public to see how the analysis covered the impact areas, this master response more directly correlates the biological analysis with the details of the Restoration Project.

Summary of the Restoration Project

As stated in the Initial Study/Mitigated Negative Declaration (IS/MND) issued by the California State Parks Foundation[9] for the Restoration Project, the goals and objectives of the restoration plan include the following:

- Increase the area subject to tidal influence.
- Restore habitat diversity by re-establishing tidal flats and marsh in areas of present upland fill.
- Improve local foraging and roosting habitat for migratory and resident birds.
- Improve quality of life for the surrounding community.
- Remediate, sequester, or remove contaminated soils to reduce potential for human and wildlife contact.
- Create a clean, beautiful, and local park that the public can visit and view wildlife habitat.
- Create an environmental area that local schools can use for educational field trips.
- Benefit local businesses by increasing the number of visitors coming to the area.
- Connect the Bay Trail through CPSRA with the Bay Trail that is proposed for Hunters Point.

The 12 acres of wetlands would occur through the excavation of three embayments. This would occur with inland excavation only, without dredging and minimal grading. The new wetlands would be vegetated with cordgrasses along the slough, pickleweed within most of the wetland, and gumplant, salt gratt, fat hen, and alkali heath within the traditional areas separating the grasslands from the wetlands.

Excavation on the north and south sides of the slough would create embayments and two isolated nesting islands. A sandy nesting island would be created on the northern side of the slough to provide habitat for birds, which according to the IS/MND for the Restoration Project would include species such as plovers, curlews, and sandpipers. This island would be approximately 0.71 acres in size and would be located in stable areas that would be minimally subject to erosion from tidal action. A second island, approximately 1.34 acres in size, would be created on the southern side of the slough. This island would primarily be constructed to shells with vegetation composed of coyote brush to provide loafing and foraging habitat for birds, which according to the IS/MND would include species such as ducks, western grebes, and greater and lesser scaup. Principal features of the proposed plan are the isolated bird nesting islands. The IS/MND states that the sand, shell, and rocky beaches would provide nesting habitat for a variety of summer nesting shorebirds such as the American avocet, black-necked stilt, and several species of terns. Isolation of the islands from the mainland by tidal channels is intended to protect nesters from feral animal and human disturbance.

The increased areas of cordgrass created in the restored wetland areas would provide refuge and a high quality of foraging area for juvenile fish thus creating a nursery habitat for local and migratory fish. The restored areas of cordgrass and pickleweed with the appropriate imported and amended soils would provide habitat for benthic invertebrates, including various worm and bivalve species. Benthic invertebrates are known to be important sources of food for shorebirds and bottom feeding fish.

[9] California State Parks Foundation. 2006. Initial Study/Mitigated Negative Declaration. Candlestick Point State Recreation Area Yosemite Slough Restoration Project.

Salt marsh vegetation occurs along the shoreline which is alternately exposed by low tides and inundated by high tides on a daily basis, between Mean Low Water and Mean Higher High Water. Low salt marsh typically occurs above Mean Low Water. This zone would be planted with Pacific cordgrass, a native species typically found in this zone. Middle salt marsh occurs around Mean Tide Level and planting in this zone would be primarily pickleweed. Within the zone of irregular flooding by the higher high tides, Mean High Water to Mean Higher High Water, planting would include alkali heath, fleshy jaumea, and salt grass. In areas where the California clapper rail and salt marsh harvest mouse occur, areas of cordgrass and low inter-tidal to mid-tidal ranges are the preferred habitat of California clapper rail, and pickleweed and high marsh areas are the preferred habitat of the salt marsh harvest mouse, both listed species.

The studies and surveys done to prepare the Restoration Plan determined that the potential for presence of any special-status wildlife species within the Yosemite Slough project area is presently low. Occupation by these species is greatly limited by existing site conditions, which either are not suitable or are not of sufficient stature to support most species. The IS/MND states that it is likely that restoration of the site could create native transitional and wetland habitats, which could substantially increase nesting and foraging habitats for wildlife species, particularly for sensitive species such as the western snowy plover, San Francisco common yellowthroat, double-crested cormorant, and the California clapper rail.

The Restoration includes preparation of the Monitoring and Adaptive Management Plan that would set the framework for long-term (5 year) biological monitoring of the project's restored habitats. There is a contingency measure provision that states that if annual or final success criteria are not met, the applicant would prepare an analysis of the cause(s) of failure and, if determined necessary by the Corps, propose remedial action for approval.

As discussed in the following sections, the Draft EIR analyzed impacts of the Project, including the proposed bridge, upon areas subject to tidal influence such as tidal flats and marsh (i.e., impacts to tidal wetlands, mud flats, and aquatic habitats were assessed). The Restoration Project would increase the extent of these habitats, in particular increasing the extent of tidal marsh habitat in Yosemite Slough and restoring more extensive contiguous marshes. The new, restored tidal marsh would increase the extent of vegetated wetlands by approximately 12 acres, which comprises approximately 0.003% of similar baylands and shallow aquatic habitats available within the Bay.[10] The pockets of marsh such as those that could be present on the restoration site after wetland construction are not expected to attract species other than those which currently use the CP-HPS Project site, in Dr. Rottenborn's opinion. Therefore, although the impact assessment in the Draft EIR did not expressly differentiate between impacts to existing wetland, mud flat, and aquatic habitats and those that could be present after implementation of the Restoration Project, the Draft EIR described the types of impacts to those habitats (and associated species) that could occur, considered the significance of those impacts, and prescribed mitigation measures. The intent was to identify impacts and the associated mitigation measures to address impacts to any sensitive habitats or species within the Project's impact areas, whether those habitats and species

[10] Goals Report. 1999. Baylands Ecosystem Habitat Goals. A report of habitat recommendations prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project. First Reprint. U.S. Environmental Protection Agency, San Francisco, CA/San Francisco Bay Regional Water Quality Control Board, Oakland, CA.

were on site or off site, and whether the habitats and species currently exist or could exist after implementation of the Restoration Project.

The potential impacts of the bridge on migratory and resident birds, and other taxa, that could use the restoration site were analyzed in the context of existing conditions, as the species expected to use the restoration site after restoration implementation are species that are currently present at least occasionally on the site. The Restoration Project would expand marsh and mud flat habitat, potentially providing more extensive habitat for species associated with vegetated tidal marsh such as marsh wrens, Alameda song sparrows, and possibly Bryant's savannah sparrows. Although implementation of the Restoration Project would increase the potential for these species to breed in Yosemite Slough in small numbers, relative to existing conditions, these species already could potentially occur in low numbers in the marsh remnants on the Project site. Other marsh-associated species, such as the California clapper rail, salt marsh harvest mouse, and salt marsh wandering shrew, are not expected to occur in the restored tidal marsh. The harvest mouse and wandering shrew are not known to occur as far north on the San Francisco Peninsula as the Project site,[11,12,13] and the site is isolated from potential source populations of these low-mobility species by miles of unsuitable habitat. As a result, there is no significant potential for natural colonization of restored tidal marsh in Yosemite Slough by these small mammals. Although the California clapper rail is mobile enough to be able to disperse to the site vicinity from source populations elsewhere, marsh size and proximity to other marshes are important determinants of habitat quality for this species, which typically nests in larger marshes, with more well-developed networks of small tidal channels, than would be restored by the Restoration Project.[14] Based on the small size of the marsh to be restored, Dr. Rottenborn concludes that California clapper rails would not be expected to use the restored marsh to any significant degree. Therefore, these "new" habitat areas are not expected to attract species other than those which currently use Yosemite Slough and South Basin at least occasionally.

The effects of the bridge on the species that might use the "nesting islands," if and when they are proposed as part of the Restoration Project, are not expected to be substantial. In Dr. Rottenborn's assessment of literature and characteristics of these species, suggests it is unlikely that additional species (i.e., those that are not currently present on the site) would actually use those islands for nesting to any significant degree. As noted, the Restoration Project description describes these islands as being created for special-status species such as the double-crested cormorant and snowy plover. In fact, neither species is likely to nest on these islands as described. Neither the cormorant nor the plover nests on such small, low, shell/sandy islands surrounded by tidal water anywhere in the Bay area. Rather, double-crested cormorants breeding in the Bay area nest primarily on electrical transmission towers or larger rocky islands (Ainley 2000).[15] A ground-nesting colony in the San Jose area is located on extensive berms

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[11] Shellhammer, H. S. 2000. Salt marsh harvest mouse. Pages 219-228 *in* Olofson, P.R. (ed.), Goals Project. Baylands ecosystem species and community profiles: life histories and environmental requirements of key plants, fish and wildlife.
[12] Shellhammer, H. S. 2000. Salt marsh wandering shrew. Pages 231-233 *in* Olofson, P.R. (ed.), Goals Project. Baylands ecosystem species and community profiles: life histories and environmental requirements of key plants, fish and wildlife.
[13] U.S. Fish and Wildlife Service. 2010. Draft recovery plan for the tidal marsh ecosystems of northern and central California. February 10, 2010 draft. California/Nevada Operations Office, Sacramento, CA.
[14] U.S. Fish and Wildlife Service. 2010. Draft recovery plan for the tidal marsh ecosystems of northern and central California. February 10, 2010.
[15] Ainley, D. G. 2000. Double-crested cormorant. Pages 323-325 *in* Olofson, P.R. (ed.), Goals Project. Baylands ecosystem species and community profiles: life histories and environmental requirements of key plants, fish and wildlife.

separating (and surrounded by) vast, non-tidal ponds, where the birds are much farther from mainland areas supporting potential mammalian nest predators such as raccoons than would be the case at Yosemite Slough.[16] Consequently, Dr. Rottenborn does not expect that cormorants would nest on small, low islands surrounded by tidal water in Yosemite Slough. Likewise, snowy plovers breeding in the Bay area nest on extensive sandy beaches along the coast or, inside the Bay, in areas providing extensive salt pannes (depressions embedded within salt and brackish marshes), in salt pond bottoms, or on islands of bay sediment within large, non-tidal salt ponds.[17] Based on the known habitat use of this species in the Bay area, Dr. Rottenborn does not expect this species to nest on the shell island that the Restoration Project expected would be vegetated with shrubs such as coyote brush; snowy plovers breed in open/barren to only sparsely vegetated areas.[18,19] Snowy plovers are also not expected to nest on the island that is proposed to be "sandy" due to its small size, exposure to tidal action, and proximity to the proposed marsh and to the human-use areas of the Restoration Project itself. In Dr. Rottenborn's experience with this species and review of the literature on Bay area-breeding snowy plovers, this species is not known to nest in such circumstances anywhere in the Bay area.

There is a low probability that most other island-nesting bird species in the Bay area, such as American avocets, black-necked stilts, Forster's terns, and Caspian terns, would nest on these islands. Unless (or more likely, until) these islands become dominated by vegetation, their substrate might be suitable for nesting by such species. However, small islands subjected to fully tidal conditions are not, in Dr. Rottenborn's experience, used for nesting by these species in south San Francisco Bay. Maintaining these islands free from vegetation is not proposed by the Restoration Project. As a result, these islands may become too densely vegetated to provide suitable breeding habitat for these species. Alternatively, they may be subject to so much tidal wash that colonization by vegetation or nesting by birds is precluded. Regionally abundant ducks (such as mallards), and perhaps western gulls (which nest on Double Rock), may nest on these islands, though again, western gulls are unlikely to nest on islands that are either densely vegetated or are unvegetated due to tidal action. However, Dr. Rottenborn expects the sandy island to be used primarily by foraging and roosting waterbirds. The shell/vegetated island would likely be used primarily by species that currently use the coyote brush-dominated portions of the non-native annual grassland currently present in some areas along the edges of Yosemite Slough and South Basin, and by roosting and foraging waterbirds along the perimeter of the island if open, unvegetated foraging and loafing areas persist.

Prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project. San Francisco Bay Regional Water Quality Control Board, Oakland, California.

[16] Bousman, W. G. 2007. Double-crested cormorant. Pages 148-149 *in* Bousman, W. G. (ed.), Breeding Bird Atlas of Santa Clara County. Santa Clara Valley Audubon Society.

[17] Page, G. W., C. M. Hickey, and L. E. Stenzel. 2000. Western snowy plover. Pages 281-284 *in* Olofson, P.R. (ed.), Goals Project. Baylands ecosystem species and community profiles: life histories and environmental requirements of key San Francisco Bay Regional Water Quality Control Board. Plants, Fish and Wildlife. Prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project. Oakland, California.

[18] Page, G. W., J. S. and J. C. Warriner, and P. W. C. Paton. 1995. Snowy plover (*Charadrius alexandrinus*). *In* A. Poole and F. Gill (eds.), The Birds of North America, No. 154. The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, D.C.

[19] U.S. Fish and Wildlife Service. 2007. Recovery plan for the Pacific Coast population of the western snowy plover (*Charadrius alexandrinus nivosus*). California/Nevada Operations Office, Sacramento, CA.

More importantly, limited nesting by special-status species new to the restoration area is not likely to be significantly impacted by the bridge. As noted, most of these species would not be breeding during the winter season. Temporary impacts from light, vibration, and exhaust may be attenuated by the physical separation of the islands from the bridge, since many of the birds using those islands are expected to learn that game-day impacts are not only confined to a few hours but that the people and vehicles using the bridge also cannot physically intrude on the island habitat.

Since the Restoration Project has not been implemented, there is some uncertainty as to how the bridge might affect this future project. It is not known, for example, whether all or just part of the Restoration Project would be constructed prior to construction of the Yosemite Slough bridge, and thus the extent of restored habitats that would be subject to impact by the bridge is unknown. Also, there is an Environmental Protection Agency (US EPA) inquiry into contamination of materials within Yosemite Slough, and it is possible that some remediation of these materials would be required prior to, or simultaneously with, the restoration. Because the US EPA has not yet reached a decision as to whether it would require any such remediation,[20] the timing of such remediation and hence a delay in restoration, if required, is unknown.

Even so, as described in the following sections, Dr. Rottenborn expects the impacts of the proposed CP-HPS Project, including the Yosemite Slough bridge, on the habitats and species either existing in the Project area or expected to occur in the Project area upon completion of the Restoration Project to be comparable to those described in the Draft EIR for existing habitats and species using the slough and the CP-HPS shoreline. Although the Restoration Project would increase the extent of tidal aquatic, mudflat, and (especially) tidal marsh habitat in Yosemite Slough, the type of the potentially affected habitats and species present after implementation of the Restoration Project would be largely similar to the existing conditions. Restoration of marsh habitat in Yosemite Slough would increase the potential for species associated with vegetated tidal marsh such as marsh wrens, Alameda song sparrows, and Bryant's savannah sparrows to nest in the slough (and/or increase the number of pairs that might breed in the slough to some extent), but these species could already be present in the Project area (albeit in low numbers). As described in detail in the following sections, the quantity of impacts to the new/restored habitats, including habitats that might be used by nesting birds associated with tidal marsh habitats, would not be substantially greater than the Project's effects on existing Yosemite Slough conditions. The following sections expand on some of the concerns raised in comments regarding effects on biological resources in the slough. These sections discuss that, while the bridge would have a limited adverse effect on habitat conditions in and wildlife use of the Restoration Project, impacts are either less than significant, or mitigable to less-than-significant levels, and the bridge would not preclude the achievement of the biological goals of the Restoration Project.

Discussion of Biological Resource Impacts on Yosemite Slough in the Draft EIR

The Draft EIR discussed potential impacts of the Yosemite Slough bridge on common species and habitats (Impact BI-2), special-status plants (Impact BI-3b), wetlands and aquatic habitats (Impact BI-4c), fish and marine mammals (Impact BI-9b), native oysters (BI-10c), designated critical habitat for green

[20] Brett Moxley (U.S. EPA), pers. comm. to Stephen C. Rottenborn (H. T. Harvey & Associates), phone conversation on January 28, 2010.

sturgeon and Central California Coast steelhead (Impact BI-11c), essential fish habitat (Impact BI-12c), wildlife movement and wildlife nursery sites (Impact BI-13b), and local policies or ordinances protecting biological resources (Impact BI-14b). These discussions did not separately distinguish impacts to existing biological resources from impacts to biological resources that may be expected to occur in the future following implementation of the Restoration Project by State Parks, because although some habitats, such as intertidal mud flat and tidal salt marsh, would be more extensive once restoration occurs, the species and habitat types that would be present following restoration are comparable to the types of species and habitats currently present at Yosemite Slough. Therefore, the Project-specific and cumulative impact analysis performed in the Draft EIR considered direct and indirect effects of the bridge, including its construction and use, on biological resources that are currently present, and that would be present after restoration has been completed, both on- and off-site. To better understand these issues, the full effect on the Restoration Project will be outlined.

As discussed in the Draft EIR, construction of the Yosemite Slough bridge is expected to affect common species and habitats, sensitive habitats such as wetlands, mud flats, and aquatic habitats, and potentially some special-status wildlife species. The Draft EIR prescribed measures (MM BI-4a.1, MM BI-4a.2, MM BI-4c, MM BI-5b.1 through MM BI-5b.4, MM BI-9b, MM BI-12a.1, MM BI-12a.2, MM BI-12b.1, MM BI-12b.2, and MM BI-14a) to mitigate potentially significant impacts to less than significant levels. As identified in mitigation measure MM BI-4a.1 on pages III.N-59-62 of the Draft EIR, the permanent loss of aquatic, mud flat, and essential fish habitats as a result of the placement of bridge piers within the slough would be mitigated by replacement of such habitat through creation or restoration at a minimum 1:1 ratio. In addition, the following text has been added to mitigation measure MM BI-4a.2 (on page III.N-63 of the Draft EIR, before the last square bullet beginning with "For impacts to tidal habitats") to ensure temporarily impacted sensitive habitats would be restored to their pre-construction condition following the completion of construction activities:

…

- *Testing and disposal of any dredged sediment shall be conducted as required by the USACE and the Long-Term Management Strategy (LTMS)*[790]
- *All temporarily impacted wetlands and other jurisdictional waters, whether in tidal or non-tidal areas, shall be restored to pre-construction contours following construction. Such impact areas include areas that are dewatered (e.g., using coffer dams) and/or used for construction access. Temporarily impacted wetlands that were vegetated prior to construction shall be revegetated in accordance with a Wetlands and Jurisdictional Water Mitigation and Monitoring Plan as described above.*
- *For impacts to tidal habitats: …*

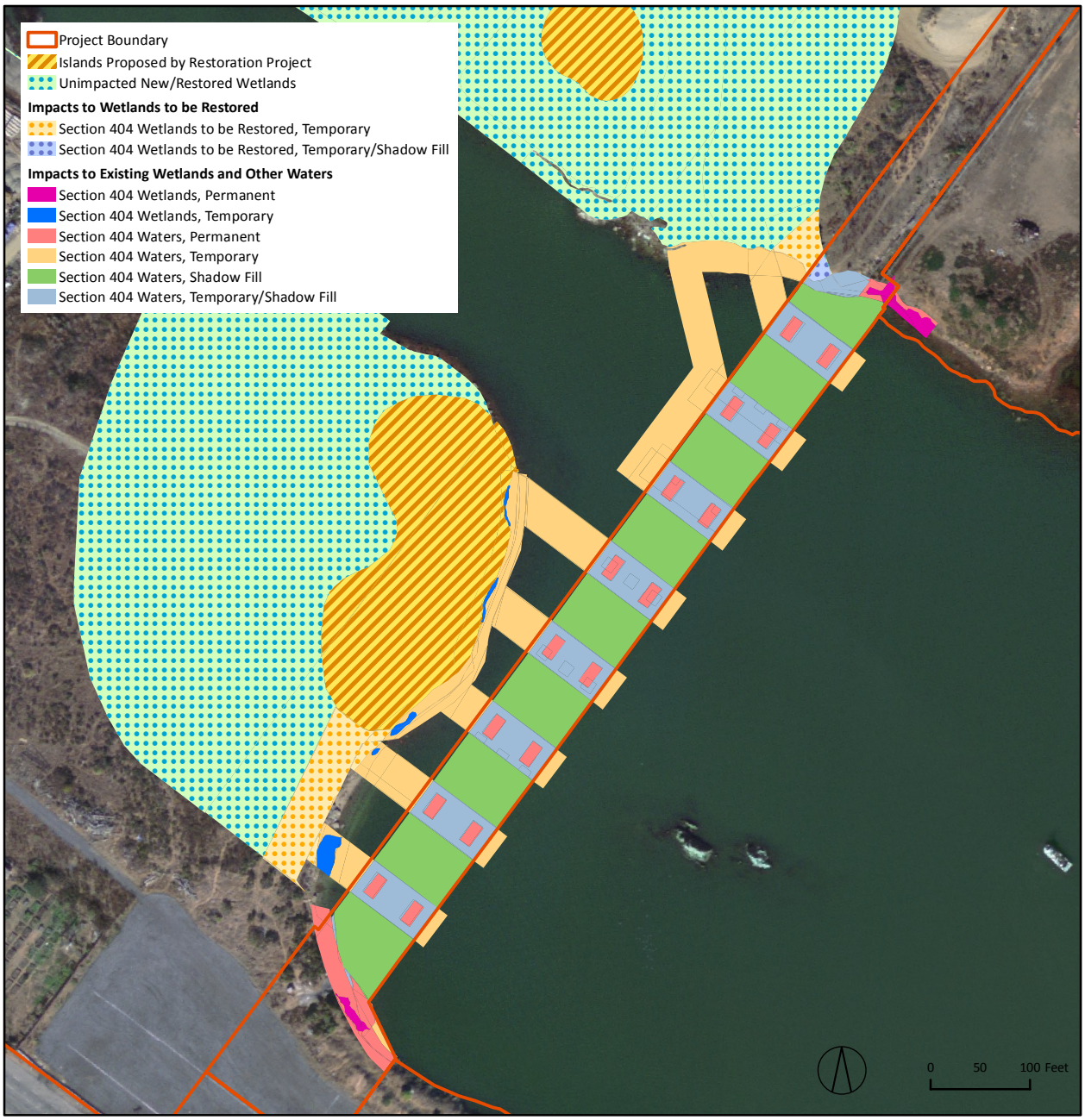
Several commenters questioned why the Draft EIR explicitly analyzed impacts to future wetlands that may be constructed as part of the US Department of the Navy (Navy) wetland mitigation on HPS but did not explicitly analyze the potential impacts to wetlands that would be created by the Restoration Project. Neither the Navy's wetland mitigation nor the Restoration Project is currently in place, and thus neither project comprises part of the existing CEQA baseline. They are future potential impacts which are likely or foreseeable impacts, and are assessed based on the likelihood and timing of occurrence. To more explicitly explain the extent of possible impacts to wetland and aquatic/mud flat habitats that would be present after the Restoration Project is implemented, the proposed bridge footprint and temporary construction/access areas were overlaid electronically on final plans for Phase I of the

restoration plan (on the north side of Yosemite Slough) provided by WRA, Inc., the firm that designed the wetland restoration plan, on 19 January 2010 and 50 percent plans for Phase II (on the south side) provided by WRA on 4 February 2010. The text of the cumulative impact analysis has been revised in the Final EIR to include an assessment of the resulting changes in acreages of impacts to jurisdictional habitats that would be affected, as described in further detail below and depicted in Figure III.N-7 (Impacts to Wetlands and Other Waters after Yosemite Slough Wetland Restoration). This more detailed explanation and calculation of acreages clarifies the extent of the potential impact if the Restoration Project is constructed in accordance with the designs provided by WRA prior to construction of the bridge. The assessment does not result in a new significant impact or a substantial increase in the magnitude of an impact because the Draft EIR had already identified impacts to wetlands and other waters resulting from construction of the Yosemite Slough bridge as a significant impact, and the impacts to "new" wetlands that would be restored by the Restoration Project do not substantially increase the magnitude of these impacts over those assessed in the Draft EIR. Although approximately 12 acres of new tidally influenced habitats, predominantly tidal marsh, are proposed to be constructed by the Restoration Project, bridge construction access would result in temporary impacts to only 0.21 acre of new vegetated tidal marsh that is proposed as part of the Restoration Project, and less than 0.01 acre of wetlands that would be restored by the Restoration Project would be permanently impacted by shading as a result of being located directly under the bridge. The bridge would result in no permanent fill of new/restored wetland, aquatic, or mud flat habitat other than in existing conditions as created by the Restoration Project. Rather, while temporary impacts to wetlands and other waters would increase slightly, permanent impacts to these sensitive habitats would be reduced if the Restoration Project is implemented prior to bridge construction because shoreline improvements that would otherwise be constructed as part of the Project would then not be necessary on the south side of Yosemite Slough west of the bridge. A total of 0.03 acre of permanent impacts to existing wetlands and 0.19 acre of permanent impacts to existing Section 404 waters along the Yosemite Slough shoreline (off site) that were originally identified for the Project would not occur if Phase II of the restoration plan is implemented prior to bridge construction (though these existing jurisdictional areas would be temporarily impacted during bridge construction).

The mitigation measures that were previously described in the Draft EIR would, as originally intended, apply to any impacts to wetland and aquatic habitats, whether such habitats currently exist or are restored by the Restoration Project prior to bridge construction. Therefore, the mitigation measures for impacts to new wetland, aquatic, and mud flat habitats on the Restoration Project site were identified in the Draft EIR.

To more directly respond to public concerns, the following text has been added to the cumulative impacts discussion (before the first partial paragraph on page III.N-122 of the Draft EIR) to provide a more detailed discussion of impacts to future wetland and aquatic habitat in consideration of the Restoration Project:

> In response to public concerns, impacts to future wetland and aquatic habitat in consideration of the Yosemite Slough Restoration Project have been quantified. If the Restoration Project is implemented before the Yosemite Slough bridge is constructed, then the bridge would impact not only existing wetlands, aquatic habitats, and mud flats, but also sensitive habitats that have been restored by the Yosemite Slough Restoration Project. Based on the final Phase I Restoration Plan



SOURCE: HT Harvey, 2010; Moffat & Nichol, 2009; Mactec, 2010; PBS&J, 2010. PBS&J 05.07.10

FIGURE III.N-7 Candlestick Point - Hunters Point Shipyard Phase II EIR

IMPACTS TO WETLANDS AND OTHER WATERS AFTER YOSEMITE SLOUGH WETLAND RESTORATION [New]

(on the north side of Yosemite Slough) provided by WRA, Inc. (the firm that designed the restoration plans) on 19 January 2010 and 50 percent plans for Phase II of the Restoration Plan (on the south side of Yosemite Slough) provided by WRA on 4 February 2010, additional impacts to sensitive habitats were calculated and are illustrated by Figure III.N-7 (Impacts to Wetlands and Other Waters after Yosemite Slough Wetland Restoration). Bridge construction access would result in temporary impacts to 0.21 acre of new vegetated tidal marsh that is proposed as part of the Yosemite Slough Restoration Project, but the CP-HPS Project would result in no permanent fill of new/restored wetland, aquatic, or mud flat habitat. Further, if the Restoration Project is implemented prior to bridge construction, shoreline improvements that would otherwise have been constructed to extend along the southern Yosemite Slough shoreline will not be necessary. Therefore, 0.03 acre of permanent impacts to wetlands and 0.19 acre of permanent impacts to Section 404 waters along the southern Yosemite Slough shoreline (off site) that were originally identified for the Project would not occur if Phase II of the Restoration Plan is implemented prior to bridge construction (though these existing jurisdictional areas would be temporarily impacted during bridge construction). Temporary impacts would be mitigated through implementation of mitigation measures MM BI-4a.1 and MM BI-4a.2, as required by the Project. Based on the plans for the restoration site provided by WRA as described above, less than 0.01 acre of wetlands that would be restored by the Restoration Project would be impacted by shading as a result of being located directly under the shadow of the bridge. If additional vegetated wetlands are proposed within the bridge footprint as design for Phase II of the Restoration Plan proceeds, such that additional shading impacts to vegetated wetlands would occur, and if such wetlands are constructed prior to construction of the bridge, mitigation for such impacts will be provided by the CP-HPS Project at a 1:1 ratio as described above.

In addition to new wetlands and other waters that are restored (i.e., from existing nonjurisdictional areas) by the Restoration Project, it is also possible that wetland vegetation would colonize some areas near the proposed bridge site that are currently unvegetated "other waters" as a result of planting or changes in hydrology or sediment accretion that occur as a result of the Restoration Project. As a result, some bridge impact areas that are currently aquatic or mud flat habitat could be vegetated at the time of bridge construction, resulting in a slight increase in impacts to vegetated wetlands due to construction access or, possibly, shading and a concomitant decrease in impacts to other waters. However, such areas were already considered impacted "other waters" in the Draft EIR, and they would be very limited in extent. Impacts to vegetated wetlands, whether currently existing or existing at the time of construction, would be mitigated via implementation of mitigation measures MM BI-4a.1 and MM BI-4a.2, as described in the Draft EIR.

The construction of the Yosemite Slough bridge and approach roads would also impact limited areas of upland habitat, including upland transitional habitat located immediately upslope from restored wetlands and a proposed buffer zone located immediately upslope from the transitional habitat within the proposed restoration site. Impacts to upland transitional and buffer habitat would be predominantly temporary, occurring during bridge construction, with approximately 600 square feet of potential, temporary impacts to upland transitional and buffer habitats on the Restoration Project site (based on an overlay of the bridge plans over the Restoration Project plans provided by WRA). Such temporarily impacted areas would be restored to their pre-construction conditions following bridge construction. Approximately 170 square feet of upland transitional and buffer habitat would be permanently impacted by the bridge abutment on the northern side of the slough. Approximately 1.5 acres of additional upland areas within the Restoration Project site would be permanently impacted by the bridge approach roads, including areas on both the north and south sides of the slough. These upland areas would be planted

with native shrubs, grasses, and forbs.[21] The upland transitional, buffer zone, and upland habitats on the Restoration Project site that would be impacted by the CP-HPS Project are similar to non-native annual grassland and landscaped areas at Candlestick Point and on portions of HPS Phase II, as described in Section III.N of the Draft EIR. Impacts to such upland habitat types and the plant and animal species associated with them were evaluated in Impact BI-2 (Common Species and Habitats) on pages III.N-50 to -55 of the Draft EIR. The additional impact to 1.5 acres within the Restoration Project site would not substantially increase Project effects on upland grassland or landscaped habitat or the species using these habitats due to the limited extent of such additional impacts. Furthermore, as discussed in Impact BI-2 (Common Species and Habitats) in the Draft EIR, any plant or wildlife species occurring in regionally abundant upland habitats on the Restoration Project site is itself regionally abundant, and any adverse effects of the CP-HPS Project on the abundance of such species on the restoration site would not substantially affect regional populations of these species. Upland transitional habitat occurring on the upland side of tidal marsh is a less abundant habitat regionally; however, its importance is tied closely to the value of the adjacent wetlands to species that may require upland transitional areas during high tides. Because the Yosemite Slough is not expected to support rare species such as the California clapper rail or salt marsh harvest mouse, for which upland transitional zones might be particularly valuable, the loss of 170 square feet of upland transitional and buffer habitat due to construction of the bridge would not result in a substantial impact to either the quality of the Restoration Project or the species that use it. Given the very limited nature of the upland and upland transitional habitats on the restoration site that would be impacted, such impacts are not expected to result in substantial reductions in the populations of any particular species, either on the site itself or regionally. Therefore, impacts to upland and upland transitional habitats in the Restoration Project area would not introduce a new significant impact.

Commenters also noted that a portion of the funding for the Restoration Project consisted of in-lieu fees paid as mitigation for wetland impacts by other projects and questioned whether the regulatory permits for those other projects would require revision if wetlands on the restoration site were impacted by the Project. It is not expected that the regulatory agencies would re-open the permitting for those other projects or require any additional mitigation or coordination on the part of the applicants for those projects. Rather, the regulatory agencies are expected to require the CP-HPS Project Applicant to obtain permits prior to engaging in any activity that could impact any such mitigation wetlands and to compensate for any such impacts through the implementation of the mitigation measures identified in the Draft EIR and/or other permit conditions.

Commenters suggested that potential effects of shading from the bridge on wetlands and other habitats below the bridge were not adequately discussed in the Draft EIR. This impact was discussed in Impact BI-4c. Although the bridge would be high enough to continue to let some light under the bridge, the potential for permanent loss of vegetated wetlands as a result of shading from the bridge was considered a potentially significant impact in the Draft EIR. The Draft EIR discussed the possibility that shading from the bridge would be great enough to result in the loss of vegetated wetlands (which would include both existing wetlands and any wetlands that have been restored as part of the Restoration Project) and prescribed mitigation via restoration at a 1:1 ratio (the same as for wetlands that are lost due to outright filling). To determine the extent of potentially vegetated wetlands that would be restored by

[21] California State Parks Foundation. 2006. Initial Study/Mitigated Negative Declaration. Candlestick Point State Recreation Area Yosemite Slough Restoration Project.

the Restoration Project and yet be located under the shadow of the bridge, the proposed bridge footprint has been overlaid electronically on final plans for Phase I of the Restoration Project (on the north side of Yosemite Slough) and 50 percent plans for Phase II (on the south side) provided by WRA, Inc. This overlay indicates that less than 0.01 acre (313 square feet) of new/restored vegetated tidal wetlands would be located under the shadow of the bridge. Further, although shading during early morning hours (when the sun is east of the bridge) would extend outside the bridge footprint into the restored tidal marsh to some extent, indirect sunlight during these morning hours and direct insolation during the afternoon would allow substantial sunlight to reach vegetated habitats, allowing for the development and maintenance of marsh vegetation in the restoration site in areas that are outside the immediate bridge footprint. If additional vegetated wetlands are proposed within the bridge footprint as design for Phase II of the restoration plan proceeds, such that additional shading impacts to vegetated wetlands would occur, and if such wetlands are constructed prior to construction of the bridge, mitigation for such impacts would be provided by the CP-HPS Project at a 1:1 ratio as described in the cumulative impact analysis.

The effects of shading on mud flat and aquatic habitat would be less substantial than on vegetated wetlands. Tidal marshes around the bay export nutrients and organic material to other estuarine habitats, including mud flats and aquatic habitats.[22,23] As a result, mud flats and aquatic habitats gain some of their productivity from organic matter exported from marshes in addition to photosynthesis within the mud flats and water column, and thus shading would not eliminate the base for mud flat and aquatic food webs within the shaded area. Also, shading would not affect habitat structure (e.g., height and density of vegetation) in these unvegetated habitats as it would in vegetated wetlands. As a result, shading is not expected to have substantial impacts to the aquatic and intertidal organisms using these habitats under the bridge, and these habitats would retain much of their existing ecological functions and values after the bridge has been constructed. Nevertheless, the Draft EIR (MM BI-4c on page III.N-68) specified that shading impacts to mud flat and aquatic habitats that are not permanently impacted by bridge piers but that are within the bridge footprint must be compensated via creation or restoration at a 0.5:1 ratio to acknowledge that some reduction in functions and values of these habitats would occur as a result of shading.

Some commenters suggested that shading from new high-rise buildings on Candlestick Point or Hunters Point Shipyard would also shade wetlands to the point that adverse effects would occur. The potential locations of shadows cast by all buildings proposed by the Project were predicted and were mapped in the Draft EIR on Figure III.F-2 for Candlestick Point and on Figure III.F-15 for HPS Phase II. As indicated by those figures, shadows cast by new buildings constructed by the Project on HPS Phase II would not reach any portion of the Restoration Project site, and only a very limited area on the southernmost portion of the Restoration Project site would be subject to any shading from buildings to be constructed on Candlestick Point. Comparing Figure III.F-2 and the 50 percent wetland restoration plans for Phase II of the Restoration Project provided by WRA, less than ½-acre of new, restored wetlands on the Restoration Project site would be subject to any shading from new buildings. The

[22] Kneib, R. T., C. A. Simenstad, M. L. Nobriga, and D. M. Talley. 2008. Tidal marsh conceptual model. Sacramento (CA): Delta Regional Ecosystem Restoration Implementation Plan.
[23] Atwater, B. F., S. G. Conard, J. N. Dowden, C. W. Hedel, R. L. MacDonald, W. Savage. 1979. History, landforms, and vegetation of the estuary's tidal marshes. Pages 347-385 in San Francisco Bay: the urbanized estuary. Pacific Division of the American Association for the Advancement of Science.

analysis of shade distribution during different times of year and times of day presented in Section III.F of the Draft EIR indicates that shading of any portion of the Restoration Project's new wetlands would be very infrequent, and most of the time there would be no shading of these areas. Therefore, it is expected that ample sunlight would reach these wetlands to allow for the development and maintenance of vegetated tidal marsh.

Potential Effects of Noise on Wildlife Use of Yosemite Slough

The effects of noise on wildlife have received quite a bit of research attention,[24] but the results of most studies cannot be directly applied to the Yosemite Slough site. Many such studies focused on the effects of very loud noise, such as that produced by low overflights of military aircraft,[25] rather than on the much less acute noise that would be associated with the proposed bus rapid transit (BRT) buses, vehicles, and human use of the Yosemite Slough bridge. The effects of noise and vibrations on invertebrates, reptiles, and amphibians have not been well studied, and studies of noise effects on fish suggest that "normal traffic noise would not be sufficiently great to disturb those species that have been looked at so far" [26] and in the case of the Project, the principal traffic noises would only occur for a few hours 10 to 12 days a year.

Most studies of noise effects have focused on birds. Some studies of grassland and woodland birds have found reduced abundance of birds in closer proximity to roadways.[27,28,29] However, the results of many studies documenting similar results do not conclusively identify noise or vehicular movements as the mechanism for the observed results; for example habitat changes were not controlled well enough to identify noise as the reason for reduced abundance near roads. Furthermore, several studies cited by Kaseloo and Tyson (2004) have demonstrated that habitat quality may be of much greater importance than proximity to roads in determining wildlife distribution, with birds occurring more abundantly in roadside areas providing higher-quality habitat than in lower-quality habitat farther from roads. Therefore, while a number of studies have documented adverse effects of roads on abundance and behavior of birds, other studies indicate a tolerance of proximity to roads in roadside areas providing high-quality habitat.

Most studies have investigated the effects of occasional, very loud noises such as low aircraft overflights or the distribution of wildlife in relation to proximity to very busy roads with thousands of vehicle

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[24] Kaseloo, P.A. and K.O. Tyson. 2004. Synthesis of noise effects on wildlife populations. Report No. FHWA-HEP-06016.

[25] Baker, M. and G. Belliveau (eds.) Effects of noise on wildlife conference, Proceedings. Happy Valley - Goose Bay, Labrador. Aug. 22-23, 2000. Institute for Environmental Monitoring and Research.

[26] Kaseloo, P.A. and K.O. Tyson. 2004. Synthesis of noise effects on wildlife populations. Report No. FHWA-HEP-06016.

[27] Foppen, R. and R. Reijnen. 1994. The effects of car traffic on breeding bird populations in woodland. II. Breeding dispersal of male willow warblers (*Phylloscopus trochilus*) in relation to the proximity of a highway. Journal of Applied Ecology 31(1):95-101.

[28] Reijnen, R. and R. Foppen. 1994. The effects of car traffic on breeding bird populations in woodland. I. Evidence of reduced habitat quality for willow warblers *(Phylloscopus trochilus*) breeding close to a highway. Journal of Applied Ecology 31(1):85-94.

[29] Reijnen, R., R. Foppen, C. ter Braak, and J. Thissen. 1995. The effects of car traffic on breeding bird populations in woodland: III. Reduction of density in relation to the proximity of main roads. Journal of Applied Ecology 32(1):187-202.

trips/day. In contrast, the Yosemite Slough bridge would be used only by BRT buses except during the 10 to 12 days/year, and half dozen or so hours on those days, in which vehicles entering or exiting the new stadium would be using the bridge. During those few game days, both traffic noise and the number of vehicles are expected to result in greater disturbance than on days when only buses would use the bridge. While the amount of such game-day noise, vibration, and human activity on the bridge, and the degree to which such factors would disturb wildlife using Yosemite Slough, are unknown, it is reasonable to expect that these factors would disturb wildlife to a greater extent than everyday BRT use on non-game days. Due to the timing of the NFL football season, these effects would primarily occur during the avian nonbreeding season (i.e., in fall and early winter). During that season, the slough is currently used primarily by foraging and loafing waterfowl, shorebirds, gulls, and large waders. After implementation of the Restoration Project, those species may be complemented by somewhat larger numbers of marsh-associated birds, such as marsh wrens and sparrows, than currently use the slough. Disturbance by game-day traffic is expected to cause waterbirds foraging and loafing in open areas to either move farther from the bridge than would be the case on non-game days, or to leave the slough entirely. Small passerines (i.e., perching birds) using tidal salt marsh and upland habitats may also move farther from the bridge or may spend more time in vegetated cover than usual on game days, if they are not tolerant of (or if they do not habituate to) such disturbance. As discussed in "Expected Effects of the bridge on Wildlife Use of Yosemite Slough" below, birds that are permanent residents are expected to return to their normal activities and territories after game-day disturbance subsides, and nonbreeding birds may either return to their use of areas closer to the bridge or would find foraging and loafing habitat elsewhere around the Bay. Other wildlife taxa, such as mammals and reptiles, may show greater avoidance of areas close to the bridge on game days than during non-game days. On game days, they may thus move to areas either within the Restoration Project site or on the east side of the bridge that are farther from the bridge, or they may spend more time in the cover of vegetation during game days. However, due to the limited mobility of these species, they are not expected to move long distances, and it is likely that they also would return to areas closer to the bridge (or increase their activity in areas closer to the bridge) after game-day activity subsides.

On all other days, one bus would cross the bridge every 2.5 minutes, on average, during peak commute periods and every 5 minutes the remainder of the day. The hybrid buses that would be used on this BRT route would have a maximum noise level (from pull-away after a stop to 35 miles per hour [mph]) of 70 to 75 A-weighted decibel scale (dBA) at the source, roughly equivalent to the sound of freeway traffic at a distance of 50 feet. Some studies have documented that such noise levels have effects on some birds, while others have found no long-term effects on birds of much higher noise levels (as reviewed by Kaseloo and Tyson 2004). For example, a US Department of the Interior report on the Environmental Impact of the Big Cypress Swamp Jetport, addressing B-720 jet flyovers at altitudes of 500 to 5,000 ft, indicated that birds were not observed to be flushed or disturbed at noise levels ranging from 75 to 96.5 dBA.[30] Another study reviewed by Kaseloo and Tyson reported no significant effect of jet overflights on wading birds at levels of 55 to 100 dBA. Further, while there are no established criteria relating traffic noise and animal behavior, the analyses of noise effects on wildlife often employ higher impact thresholds than the 70 to 75 dBA noise levels that would result from BRT bus use, or even game-day traffic use, of the Yosemite Slough bridge. For example, the Bay area to Central Valley High-Speed

[30] US Environmental Protection Agency (US EPA). 1971. Effects of noise on wildlife and other animals. NTID300.5.

Train Program Environmental Impact Report/Environmental Impact Statement used a sound exposure level of 100 dBA as its impact threshold.[31]

The ambient noise to which animals are currently exposed at Yosemite Slough, and to which animals would be exposed after implementation of the Restoration Project, is already relatively high, at least intermittently. The closest noise measurement to Yosemite Slough (recorded during the preparation of the Draft EIR) was taken in a vacant lot within the Project site along Carroll Avenue, across from Alice Griffith Neighborhood Park residences. The ambient noise level at this location was measured at 64.8 decibels, and the primary source of noise at this location was generated from traffic (Table III.I-6 [Existing Peak-Hour Traffic Noise Measurements (L_{eq})] of Section III.I [Noise and Vibration]). In addition, the industrial and storage uses of the properties on the south side of Yosemite Slough that are outside both the Yosemite Slough restoration area and the CP-HPS Project site, and that would thus not be subject to change as a result of either project, are the source of considerable ambient noise. Back-up signals on equipment, truck noise from the adjacent truck storage yard, and machinery from adjacent industrial areas contribute to noise levels in the area,[32] and any wildlife using Yosemite Slough, both currently and following restoration, would have to be habituated to such noise levels. Thus, the noise levels at Yosemite Slough on non-game-days following bridge construction can be characterized as having moderately high ambient noise levels, as expected of this urban location, punctuated every 2.5 minutes (during commute periods) to 5 minutes (during non-commute periods) by somewhat increased noise levels as a BRT bus passes over the bridge. Based on the available information on noise effects on wildlife and observations of wildlife use of other urban wetland areas in the Bay area, Dr. Rottenborn has inferred that such BRT traffic may result in a small reduction in use of areas near the bridge by wildlife, or temporary effects on wildlife behavior when a bus passes by, but such noise is expected to affect a relatively small proportion of the Yosemite Slough area and is not expected to substantially reduce wildlife use of the restoration site (as discussed in greater detail in "Expected Effects of the bridge on Wildlife Use of Yosemite Slough" below).

Potential Effects of Vehicle Exhaust on Plants and Animals of Yosemite Slough

There is some evidence that urban air pollution, including exhaust from vehicles, may adversely affect vegetation.[33] However, the effects of vehicle exhaust on plants and animals have not been well-studied, especially in natural situations (as opposed to lab conditions), and there is no evidence to suggest that exhaust from vehicles using the Yosemite Slough bridge would result in substantial adverse effects on wildlife or plant communities. The hybrid buses that the BRT system would operate are low-emission vehicles. The infrequency with which such buses would be crossing the bridge, the low-emission nature of these buses, and the absence of other traffic on the bridge during non-game days limits the potential for exhaust from vehicles using the bridge to affect plants and animals in the slough. Furthermore, wind levels that are characteristic of the San Francisco Bay shoreline are expected to disperse exhaust, and

[31] California High-Speed Rail Authority and Federal Railroad Administration. 2008. *Bay Area to Central Valley High-Speed Train (HST) Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS)*. Final. Volume 1: Chapters. May. Sacramento, CA and Washington, D.C.

[32] S. Rottenborn, H. T. Harvey & Associates, pers. obs. during January 6, 2010 site visit.

[33] Honour, S. L., J. N. B. Bell, T. W. Ashenden, J. N. Cape, and S. A. Power. 2009. Responses of herbaceous plants to urban air pollution: Effects on growth, phenology and leaf surface characteristics. Environmental Pollution 157:1279-1286.

there is no evidence that exhaust emissions could concentrate in any particular area near the bridge in concentrations or for durations great enough to result in adverse ecological effects.

Effects of deposition of certain emissions, such as nitrogen compounds, on plant communities in Yosemite Slough are not expected to be substantial. Adverse effects of nitrogen deposition have been documented in very nitrogen-poor plant communities, such as serpentine grasslands, where nitrogen deposition has the potential to alter plant and animal community composition by allowing plants that cannot tolerate low-nitrogen conditions to persist.[34] However, wetlands such as those along Yosemite Slough are comparatively nitrogen-rich, and thus addition of nitrogen in exhaust would not be expected to affect plant or animal communities. Also, flushing of intertidal wetlands by tides prevents the accumulation of any compounds that may be present in exhaust in tidal wetlands.

Exhaust emissions would be higher on the 10 to 12 days/year in which stadium traffic is using the bridge. However, there is no evidence that such emissions would result in such acute effects, before exhaust can be dispersed by wind, on those few days that substantial adverse effects on any plant or animal species would occur particularly given the temporary nature of such impacts (i.e., for a few hours before and after football games during those 10 to 12 days/year). In fact, since most games occur on Sundays, they would be during periods in which normal, weekday freeway emissions would not occur. Also, as discussed under "Expected Effects of the bridge on Wildlife Use of Yosemite Slough" below, most birds (and possibly mammals and reptiles) are expected to maintain a slight buffer between most of their activities and the bridge, a buffer that would likely be somewhat greater on game days than during other times of the year as discussed in "Potential Effects of Noise on Wildlife Use of Yosemite Slough" above. Thus exposure to exhaust from vehicles using the bridge is not expected to result in any adverse effects on the health of wildlife using Yosemite Slough, even on game days.

Potential Effects of Lighting on Animals of Yosemite Slough

Some commenters suggested that lighting associated with the Project, including lights on the Yosemite Slough bridge and headlights from vehicles traveling around the project site, could adversely affect wildlife use of Yosemite Slough. Lighting in and adjacent to more natural areas on the Project site, including Yosemite Slough, is expected to increase as a result of the Project. Some night lighting would be required on the bridge but the effect of lighting is unclear. Artificial lighting has been demonstrated to cause changes in the physiology and behavior of a number of animal taxa; while some animals take advantage of artificial lighting to more easily detect prey at night, or take advantage of prey concentrations attracted to artificial lights, other animals are adversely affected by artificial lighting.[35] In more remote areas that are not already subjected to urban lighting, an increase in night lighting could disrupt behavior of animals, potentially increase predation on some nocturnal animals, and result in displacement of the most sensitive species from areas with increased lighting. However, Yosemite Slough is already subjected to some night lighting, including considerable night lighting from the stadium and parking lots during evening games at Monster Park. As a result, wildlife currently using the site are habituated to the lighting present within this urban area.

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[34] Weiss, S. B. 1999. Cars, cows, and checkerspot butterflies: nitrogen deposition and management of nutrient-poor grasslands for a threatened species. Conservation Biology 13:1476-1486.
[35] Rich, C. and T. Longcore (eds.). 2006. Ecological consequences of artificial night lighting. Island Press, Washington, D.C.

As discussed in Impact AE-7a of the Draft EIR, the final lighting design has not been completed, but the Project has developed standards for lighting in certain areas. Lighting in open space areas would be very limited and low-intensity. Area lighting would be subject to restrictions on fixture height, would be oriented toward the ground, or would be screened to minimize illumination in off-site areas such as Yosemite Slough. Headlights of vehicles using nearby roads and of buses using the bridge would be elevated above the slough, especially when on and near the bridge, and thus would not directly illuminate the aquatic and wetland habitats that are either currently present in the slough or that would be present following restoration. The increase in vehicular traffic on game days would result in a potential increase in indirect lighting of the slough by headlights due simply to the number of vehicles using their headlights that might be present, but again, these vehicles would be elevated above the slough, so that they would not directly illuminate the restored aquatic and wetland habitats. Therefore, the increase in lighting of Yosemite Slough as a result of the CP-HPS Project is not expected to be substantial.

In addition, the Draft EIR includes mitigation measures that reduce spill light and require shielding of light fixtures to reduce light pollution (refer to mitigation measures MM AE-7a.1 through MM AE-7a.3). Mitigation measure MM AE-7a.1 restricts light fixture direction and prescribes state-of-the-art light fixtures and shielding; mitigation measure MM AE-71.a requires the use of low-level and unobtrusive light fixtures for landscape illumination and exterior sign lighting; and mitigation measure MM AE-7a.3 requires the Applicant to prepare a Lighting Plan for each phase of the Project to be approved by the Agency prior to issuance of building permits to minimize glare and prevent spill light.

Given the urban context in which Yosemite Slough occurs, species using the area are already habituated to some lighting. Further, wildlife use of other urban sites, including many of the reference sites discussed in the following section, indicates the ability of the species that currently use the Yosemite Slough site, and that would use it following implementation of the Restoration Project, to habituate to both fixed and vehicular lighting. As a result, Dr. Rottenborn has inferred that increased lighting is not expected to result in a significant impact to wildlife use of Yosemite Slough.

Wildlife Use and Habitat Conditions at Reference Sites

One of the major reasons why studies of the effects of noise or lighting on wildlife conducted in other areas and situations may be difficult to apply to the Yosemite Slough bridge project is that many wildlife species are known to habituate to stimuli that do not result in obvious harm to them. Many species are known to habituate to loud noises, movement of large equipment, artificial lighting, and other human activities. Providing an extreme but relevant example, some wildlife species even tolerate airport noise to the point that wildlife control is often required at airports to minimize the risk of airplane strikes. For example, as recently as December 2009, the abundance of waterbirds foraging near runways at Oakland International Airport was so great that lethal control of some birds by United States Department of Agriculture (USDA) wildlife services officials was necessary.[36] These birds were habituated to the extremely loud noise of airplane landings and take-offs, focusing instead on the resources present in the waters surrounding the runways.

There are a number of locations around the San Francisco Bay area where mud flat, aquatic, and marsh habitats occur in close proximity to areas of high-volume traffic, noise, and human use, and where

[36] http://www.ktvu.com/news/22091151/detail.html.

wildlife (particularly birds) use areas in spite of this high human activity due to the high habitat quality those areas provide. Dr. Rottenborn concludes such areas serve as potential reference sites for the Yosemite Slough bridge in terms of allowing for at least some prediction of the effects of the bridge structure, traffic, and human use on wildlife use and habitat conditions at Yosemite Slough, and on the potential for wildlife using Yosemite Slough (either in its current or restored condition) to habituate to the bridge and vehicular use of the bridge. These reference areas, which Dr. Rottenborn has visited on a number of occasions to observe birds, include:

- Coyote Creek Reach 1A waterbird pond and South Coyote Slough (San Jose): heavily used by waterfowl, shorebirds, and gulls even though it is 500 feet from the Newby Island Sanitary Landfill entrance (heavily used by garbage trucks 6 days/week), 750 feet from Interstate 880, 150 feet from a two-lane interstate frontage road, and 100-200 feet from a recycling facility and associated storage loud that is subject to loud noise from heavy equipment, recycling operations, and even noisemakers intentionally employed to attempt to deter nuisance birds
- San Jose-Santa Clara Water Pollution Control Plant (San Jose): the settling ponds, which are bisected by numerous levee roads, support large numbers of waterfowl, shorebirds, and other birds despite frequent movement of noisy, heavy equipment throughout the plant (within 10 feet or less of the edges of the settling ponds)
- Pond A16, New Chicago Marsh, and Triangle Marsh (Alviso): Pond A16 and New Chicago Marsh support large numbers of waterfowl, gulls, and shorebirds, including nesting terns on islands and nesting snowy plovers in salt pannes, and Triangle Marsh supports high densities of marsh-nesting species, despite the proximity of these areas to active railroad tracks and recreational use of surrounding levees
- Shoreline Park (Mountain View): Shoreline Lake, the Coast Casey Forebay, Charleston Slough, and the Palo Alto Flood Control Basin support large numbers of waterbirds and marsh birds despite very heavy use by pedestrians, cyclists, golfers, and (on Shoreline Lake) boaters and despite the fact that this complex of habitats is bisected by a number of trails that are heavily used by pedestrians and cyclists
- Palo Alto Baylands (Palo Alto): supports high densities of a variety of waterbirds and marsh species despite heavy recreational use and its proximity to an adjacent landfill (with an entrance less than 150 feet from tidal marsh), water treatment plant (120 feet from tidal marsh), and airport taxiways and runways 75-100 feet from tidal marsh and lagoons
- South Bayside System Authority Plant (Redwood City): ponds adjacent to this water treatment plant, and encircled by a road used by trucks and other vehicles less than 10 feet from pond edges, with an adjacent dog park 65 feet from pond edges, support very high densities of waterfowl and shorebirds, as well as nesting terns on islands and nesting herons and egrets in ornamental trees around the plant, despite plant noise and frequent movement by trucks
- Crissy Field (San Francisco): supports at least locally high numbers and diversity of waterbirds despite intensive recreational use
- East San Francisco Bay shoreline along I-580 north of the Bay Bridge: heavily used by foraging shorebirds on lower tides, even though I-580 traffic lanes are within 50 feet of the bay shoreline

At all of these locations, heavy wildlife use (particularly by birds) occurs in close proximity to loud noise, high human activity, and/or heavy vehicular traffic because these birds are habituated to such activities and because the natural resources provided by the habitats on these reference sites are important to birds. These reference locations provide important, high-quality habitat for these species despite a level

of human activity and noise similar to or even exceeding that expected at Yosemite Slough. Based on the habituation to such human activity by birds that he has observed at these reference locations, Dr. Rottenborn has inferred that bird use of Yosemite Slough, either in its current or restored condition, is not expected to be substantially reduced as a result of everyday, operational effects of noise, movement of buses, or human activity on the Yosemite Slough bridge. Birds at these reference locations do respond to sudden or excessive stimuli, such as sudden and unusually loud noises or very close approach by humans or dogs, by flushing or otherwise altering their behavior. Similarly, sporadic, temporary increases in disturbance levels at Yosemite Slough (e.g., unusually heavy traffic or noise occurring during the 10-12 game days/year) would likewise be expected to have a greater effect than everyday noise and vehicular movements occurring on non-game days.

There are also locations within the Bay area where birds regularly fly across roads that are wider and/or more heavily used by traffic than the Yosemite Slough bridge would be, even on game days. Such locations include the following:

- Highway 92 in Hayward, where waterbirds move between the Eden Landing Ecological Reserve on the south side of the highway and Hayward Regional Shoreline on the north (and between the Bay mudflats adjacent to each of these two areas) by flying over the highway
- Highway 84 in Menlo Park and Fremont, where birds move between ponds and along the bayshore on both ends of the Dumbarton Bridge by flying over the highway
- Highway 37 west of Vallejo, where birds move between San Pablo Bay to the south and the Napa River and associated marshes to the north by flying over the highway
- Highway 101 southeast of Mill Valley, where birds move between the portions of upper Richardson Bay on either side of the highway by flying over the highway

In each of these cases, birds fly across highways that are much more heavily traveled than the Yosemite Slough bridge would be as they move between important foraging areas on both sides of these roads. Based on these examples, Dr. Rottenborn has inferred that waterbirds using Yosemite Slough, either in its present condition or after implementation of the Restoration Project, would move between Yosemite Slough and South Basin/San Francisco Bay areas to the east if they perceive the habitat value of Yosemite Slough to be high enough.

Further, there are a number of locations in the Bay area where marsh habitat exists immediately adjacent to freeways supporting much higher traffic volumes, and thus much higher exhaust emissions, than would be supported by the Yosemite Slough bridge. Such examples include:

- Palo Alto Flood Control Basin along Highway 101 and its frontage road in Palo Alto
- Marshes near Inner Bair Island along Highway 101 in Redwood City
- Tidal salt marsh at the Bay edge at the I-80/I-880 junction at the east end of the Bay Bridge in Oakland
- Tidal marsh along Highway 37 at the San Pablo Bay National Wildlife Refuge

Traffic volume is consistently heavier on these highways than would be the case on the Yosemite Slough bridge even on game days, yet marsh vegetation persists in these reference areas. Based on these examples, Dr. Rottenborn has inferred that the much lower overall exhaust emissions that would result from traffic use of the Yosemite Slough bridge, even on game days, would not result in substantial

adverse effects on habitats of the slough, including tidal salt marsh that would be restored by the Restoration Project.

Expected Effects of the bridge on Wildlife Use of Yosemite Slough

Prior to construction of the bridge, pre-construction surveys for nesting birds would be conducted in accordance with MM BI-6a.1 if construction commences between February 1 and August 31, and buffers around active nests would be maintained to avoid impacts to such nests. Thus, bridge construction would not result in the loss of active nests of birds in surrounding areas such as the Yosemite Slough restoration site. To clarify that MM BI-6a.1 pertains to construction in Yosemite Slough, the text for Impact BI-6b, on page III.N-75 of the Draft EIR, has been revised as follows:

> Similar to development at Candlestick Point, … Implementation of mitigation measures MM BI-6a.1 and MM BI-6a.2 (as detailed in Impact BI-6a), both at HPS Phase II and Yosemite Slough, would reduce the effects of Project construction and implementation on nesting special-status and legally protected avian species to less-than-significant levels.

During construction of the bridge, construction equipment and personnel would be operating not only within the bridge footprint, but in adjacent areas on either side of the bridge. Potential construction-related impacts of the Project, including the bridge, are discussed in Impact BI-2 through Impact BI-15b of the Draft EIR. The number of pieces of heavy equipment and construction personnel and the magnitude of construction-related noise (e.g., pile driving) and vibrations associated with these construction activities are expected to disturb wildlife in Yosemite Slough and adjacent portions of South Basin while construction is ongoing. Wildlife use of the slough, at least in areas relatively close to the construction area, are expected to be low during the construction period, as few species would tolerate such high levels of disturbance. However, such activities are temporary in nature, and construction-related disturbance of wildlife would not have long-term effects on wildlife use of Yosemite Slough and South Basin. Small mammals, reptiles, and slender salamanders that are displaced or disturbed by construction activities are expected to retreat to areas farther from the bridge, where habitat would be present to support these species while construction is ongoing. After construction has been completed and habitat within temporary impact areas restored, these small animals are expected to eventually move back into areas disturbed during bridge construction and occupy habitat closer to the bridge. Being more mobile, birds are expected to respond more readily to construction, both by moving away from areas of high disturbance during construction and quickly moving back in to occupy suitable habitat after construction has been completed.

Previous studies reported in the literature provide no clear evidence as to the longer-term effects of the bridge on wildlife use of Yosemite Slough. While studies conducted under circumstances different from those present on the Project site document adverse effects of noise and artificial lighting on wildlife under those specific circumstances, the phenomenon of habituation by wildlife to stimuli such as noise, lighting, and movement of people and vehicles is well documented. As an expert on birds of the Bay area, Dr. Rottenborn has observed the results of such habituation in the form of heavy wildlife use of high-quality habitat areas, such as the reference sites listed in the previous section, despite noise and human activity that in some areas exceeds what would occur on the Yosemite Slough bridge. Based on relevant literature coupled with extrapolations from observations of wildlife throughout the Bay area, the expected effects of the bridge on wildlife use of the slough, as described in the following paragraphs

(which pertain to the effects of the bridge either under existing conditions or after implementation of the Restoration Project) can be assumed.

There would likely be some adverse impacts from the bridge on wildlife species, especially birds, during game days. However, these game-day impacts are very limited in area and temporary, being of much shorter duration than the ongoing human activities to which birds have habituated on the reference sites listed above. While the local impact on waterbird use of the slough would be expected, no substantial effect on the regional abundance of such species would occur, for two reasons:

1. There are numerous other locations throughout the Bay area that can be used by nonbreeding waterbirds as foraging and loafing sites. Many waterbirds using the Bay during migration and winter make regular movements between foraging and loafing or roosting sites, or between high-tide and low-tide foraging areas, and they are thus capable of making regular, fairly long-distance movements. If waterbirds are displaced from Yosemite Slough, they would be able to move to other locations providing suitable habitat.
2. Waterbirds using Yosemite Slough represent a very small fraction of the regional abundance of these species, because waterbirds expected to use the slough regularly are regionally common species, and because Yosemite Slough represents such a small proportion of the regional availability of waterbird habitats. For example, Yosemite Slough currently provides approximately 10 acres of tidally influenced habitats (primarily aquatic and mud flat habitat, with some vegetated tidal marsh), and the Restoration Project would restore 12 acres more of tidally influenced habitat (primarily vegetated wetlands).[37] In comparison, the San Francisco Bay estuary provides approximately 262,000 acres of baylands (which include 30,000 acres of tidal mud flats and 40,000 acres of tidal marsh) and 180,000 acres of shallow bay/channel habitat.[38] Combined with the limited and very temporary effect of game-day impacts, the impact on the Yosemite Slough would not be a substantial adverse effect.

Such habitat is valuable wherever it occurs, for a variety of reasons, which is why the Draft EIR required mitigation for impacts resulting from direct fill and shading of wetland, aquatic, and mud flat habitat.

Other wildlife taxa, such as mammals and reptiles, may show greater avoidance of areas close to the bridge on game days than during non-game days. On game days, they may thus move to areas either within the Restoration Project site or on the east side of the bridge that are farther from the bridge, or they may spend more time in the cover of vegetation during game days. Movement by such species under the bridge may be inhibited, or in the worst case, may cease altogether on game days. However, due to the limited mobility of these species, they are not expected to move long distances, and they are expected to return to areas closer to the bridge, increase their activity in areas closer to the bridge, and continue movement under the bridge after game-day activity subsides. If noise and vibrations are great enough, fish may also avoid areas immediately adjacent to the bridge during game days, but such effects would be short-lived, and on non-game days, fish are expected to continue to move in and out of the slough by swimming under the bridge.

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[37] California State Parks Foundation. 2006. Initial Study/Mitigated Negative Declaration. Candlestick Point State Recreation Area Yosemite Slough Restoration Project.

[38] Goals Report. 1999. Baylands Ecosystem Habitat Goals. A report of habitat recommendations prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project. First Reprint. U.S. Environmental Protection Agency, San Francisco, CA/San Francisco Bay Regional Water Quality Control Board, Oakland, CA.

On non-game days, wildlife species are expected to make greater use of the areas under and immediately surrounding the bridge. During high-water conditions, fish would continue to swim under the bridge and use adjacent aquatic habitats as they currently do, and it is expected that swimming and diving birds would do the same to some extent given the height of the bridge above the water. During low tides, shorebirds, gulls, and other waterbirds are expected to use mud flats adjacent to the bridge. Terrestrial animals can continue to move along the shoreline, beneath the bridge, and marsh animals, which are expected to dominate the largely vegetated marsh that is planned for the portions of the restoration area closest to the bridge, would use tidal salt marsh areas there. Thus, as has been observed at a number of other sites around the Bay area, wildlife is expected to largely habituate to the bridge and its use, and the bridge would not conflict with the Restoration Project's objective of improving local foraging and roosting habitat for migratory and resident birds (or any of its other objectives).

However, some reduction in wildlife use of the bridge footprint and immediately adjacent areas, relative to the existing condition or the condition anticipated following Yosemite Slough restoration, is expected to occur. The movement of and noise associated with people and vehicles would likely have some effect on wildlife use of the immediate vicinity of the bridge. In many areas around the Bay, Dr. Rottenborn has observed waterbirds maintaining a buffer between themselves and shoreline edges supporting roads, tall vegetation, or structures. It is possible that this buffer is maintained due to the perceived threat from humans or vehicles moving along the shoreline, the perceived threat from predators that may be hiding along the shoreline, or a defense against the perceived threat from predators that may be blocked from view by structure along the shoreline. The presence of the Yosemite Slough bridge may impede the line of sight between wildlife on the ground or in the water and more distant areas; some animals may maintain some distance between the bridge and their activities out of concern that they would not be able to detect approaching predators when they are too close to the bridge. Collectively, these factors are expected to result in a localized reduction in the number of individuals of some species in areas immediately adjacent to the bridge.

Bird use of the nesting islands proposed to be created as part of the Restoration Project may be affected by the presence of the bridge to some degree as well, although the physical separation of these islands from the bridge limits adverse effects. However, as discussed previously, it is unlikely that these proposed nesting islands would provide high-quality nesting habitat for many bird species, particularly waterbirds. As a result, the presence of the bridge is not expected to result in substantial effects to any waterbirds, and particularly any nesting waterbirds, using these islands.

Any reduction in use of the immediate bridge footprint, the roads between the proposed stadium and Candlestick Point, and their vicinity, compared to existing conditions and to potential conditions following Yosemite Slough restoration, is not expected to rise to the level of a significant impact, for reasons discussed in Impact BI-2 (page III.N-50) of the Draft EIR and for the reasons described for game-day circumstances above. The area in which the abundance of species such as waterfowl, shorebirds, or marsh bird species could potentially be reduced represents an extremely small impact on habitat for such species that is available in the region (which, on the scale of habitat use by these species, would be considered the entire San Francisco Bay area). Most of the waterbird species that use Yosemite Slough do not breed there, and most of the individual waterfowl, gulls, terns, shorebirds, cormorants, and grebes that might forage in Yosemite Slough originate from breeding sites outside the Bay Area.

While non-breeding habitat is important to these species, the abundance of these species in the region (i.e., the Bay Area) is not necessarily a strict function of habitat availability in the Bay Area; conditions and factors associated with breeding grounds and migratory routes affect these species' populations in general, so that the number of individuals that use the Bay Area may not be limited by the availability of habitat in the region. In that case, the loss of a small proportion of habitat available to these species in the Bay Area would not be expected to result in any measurable reduction in the regional abundance of these species. Even assuming that regional availability of foraging or roosting habitat is limiting regional populations of these waterbird species, the proportion of the regional populations of these species that would be adversely affected by the bridge would be extremely small, and this impact does not rise to the threshold of a significant impact. Similarly, all the mammals and reptiles (and the single amphibian species) occurring in the terrestrial portions of the site are regionally abundant and widespread species. As a result, any reduction in abundance of these species that may occur as a result of the bridge would have a negligible effect on the regional abundance of these species, and thus the impact to these species would be less than significant.

Conclusion

There is no substantial evidence that special-status species are significantly impacted by the Project. As indicated in the Draft EIR and in this master response, impacts to wildlife in Yosemite Slough are less than significant because the species involved (1) are a small number of non-listed individuals, (2) represent a very small fraction of large regional abundance, (3) would not substantially affect the recovery or conservation of the species, and (4) are mostly locally common and abundant in the region. In addition, the localized impacts on the Yosemite Slough are minimally invasive, and the effects are temporary, mitigated, or insignificant to a real extent. For these reasons the biological impacts of the Project on Yosemite Slough are determined to be less than significant with implementation of mitigation measures proposed in the Draft EIR.

Master Response 4: Purpose and Benefits of the Yosemite Slough Bridge

Introduction

Overview

This master response addresses comments made questioning the need for the Yosemite Slough bridge.

This response is organized by the following topics:

- Introduction
- Transportation Plan Objectives and Regulatory Context
- Discussion of the Yosemite Slough Bridge and Alternative Routes

Commenters

Commenters who addressed this issue include:

- Federal, State, Regional, Local Agencies, Boards, and Commissions
  - > California State Parks (86-12)