

WILDLIFE CONSERVATION BOARD

1700 9th Street, 4th Floor
 Sacramento, California 95811

Mailing Address

Post Office Box 944209
 Sacramento, California 94244-2090

Restoration Funding Application***APPLICANT INFORMATION**

Full Legal Title of Organization Requesting Funding: San Diego Association of Governments (SANDAG)

Mailing Address: 401 B St #800, San Diego, CA 92101

Federal Employee Identification Number: _____

Person Representing Organization: Kim Smith

Title: Senior Regional Planner

Telephone: (619) 699-6949

Email address: kim.smith@sandag.org


 Keith Greer (Jun 28, 2021 09:59 PDT)

Jun 28, 2021

PROJECT INFORMATION

Project Title: Buena Vista Lagoon Enhancement Project Planning

County: San Diego County

Funding Request \$3,000,000

Total Project Cost (include in-kind contributions): \$3,100,000

Project Location: Distance and direction from nearest city: Buena Vista Lagoon is located in northern San Diego County and spans the boundary between the cities of Carlsbad and Oceanside (Figure 1)

Assessor's Parcel Number(s) (APN) See Attachment A

Current Zoning and Master Plan Designation the City of Oceanside General Plan Land Use Map and the Local Coastal Program (LCP) map designates the lagoon area as Open Space (Oceanside 2009; 1985). The City of Carlsbad General Plan Land Use Map designates the portion of Buena Vista Lagoon within the City of Carlsbad as Open Space and indicates the lagoon as a Special Resource Area (Carlsbad 2015). Both the City of Carlsbad Zoning Map and LCP map designates the lagoon as Open Space (Carlsbad 2019a; 2019b).

Landowner (name(s), address(es) and (optional) email address(es)) See Attachment A

Proposed starting date: Dependent upon funding availability.

Estimated completion date: N/A

Legislative District: Senate: 36 Assembly: 76

Project Elements (Check the program(s) that applies to your project):

Enhancement or Restoration of Inland Wetlands (Central Valley only)

- Enhancement or Restoration of Riparian Habitat (Statewide)
- Habitat Enhancement and Restoration Program (General)
 - Wetlands outside the Central Valley
 - Endangered Species Habitat (Statewide)
 - Forest Land Habitat (Statewide)
 - Ecosystem Restoration on Agricultural Land (ERAL) (Statewide)

*(Call WCB staff before submitting application to assure project fits the WCB programs and funding exists. When ready for submittal, submit one hard copy and one electronic copy in word processing program. Include budget as a spreadsheet.)

I. Project Location

Describe the project location and identify any previous WCB projects that you are aware of on the site or property. Describe historic and current land uses and physical and topographic attributes of the project site.

Buena Vista Lagoon is located in northern San Diego County and spans the boundary between the cities of Carlsbad and Oceanside. The lagoon encompasses approximately 240 acres and includes the Buena Vista Lagoon Ecological Reserve managed by the California Department of Fish and Wildlife (CDFW). Portions of the lagoon are also owned by the State of California and controlled by the State Lands Commission. The Buena Vista Audubon Nature Center (Nature Center) is owned by the non-profit Audubon Society. Two private landowners own small areas of the lagoon, St. Malo Homeowner's Association (HOA) and the Carlsbad Beach Owners HOA.]. The lagoon is bisected by two north-south roads: Interstate 5 (I-5) and Carlsbad Boulevard. There is a 50-foot-wide weir at the ocean inlet. SANDAG is not aware of previous WCB projects within the lagoon or Reserve.

Buena Vista Lagoon is currently dominated by subtidal areas and dense freshwater vegetated marsh, as well as some relic non-tidal high marsh. Buena Vista Lagoon historically had a dynamic equilibrium between a tidal-influenced saltwater system during dry conditions and a river-influenced freshwater system during wet conditions. Historical records indicate that extensive salt flats covered approximately 75% of the lagoon, while an additional 23% of the lagoon area was composed of salt marsh habitat. In 1940, a weir was installed at the lagoon outlet that precluded saltwater from entering the lagoon and the lagoon has since converted to a freshwater system. Sedimentation from the watershed upstream of the lagoon has also accumulated within the lagoon basins, leading to decreased water depths, increased nutrient levels, and decreased salinity. These stressors have led to the conversion of the wetland to freshwater marsh, characterized by continuously expanding stands of dense cattails resulting in vector issues. Additional stressors include runoff from adjacent roadways, upstream and adjacent development, and sewage spills. The lagoon is currently identified as an impaired water body for indicator bacteria, nutrients, and sedimentation/siltation on the State 303(d) list (SWRCB 2011).

Buena Vista Lagoon is a critical ecosystem to a wide range of federally or state-listed species (endangered, threatened, species of special concern). One sensitive plant species are known to occur within the lagoon, southwestern spiny rush. The lagoon area is also biologically rich with seven wildlife species listed as federally and/or state threatened or endangered considered resident/breeding within the lagoon: light-footed Ridgway's rail, western snowy plover, California least tern, southwestern willow flycatcher, least Bell's vireo, coastal California gnatcatcher, and Belding's savannah sparrow.

II. Project Description

Describe the existing condition of the habitat or property and any biological, cultural, or geologic surveys that have been conducted on site. Describe the problem and how the proposal will provide a solution. Describe the project objectives (e.g., enhanced habitats or ecosystem function, improved species use, reduced erosion, connectivity to floodplain, etc.) and specific methods used to restore and enhance habitats. Describe all resulting habitat(s), including acreage by habitat type, and for riparian restoration projects, please estimate the length (in feet) of the project and the average width (feet) of the resulting restored habitat, excluding the stream (include the width of restored habitat on both sides of the stream if applicable). Provide expected project timeline. Attach location maps, designs, plans, engineering drawings, color photographs, etc., to help describe your proposal. For projects on privately-owned land, a legal description of the property is required.

Existing Conditions

Buena Vista Lagoon has been progressively degrading in terms of benefits and value to biological communities, habitats, and human uses. A 2004 Feasibility Study states that between 2030 and 2050 the lagoon is expected to become a vegetated freshwater marsh or riparian woodland-meadow (Everest 2004). The continued degradation could reduce coastal habitat biodiversity or eliminate coastal wetland functions and values. Decreased water circulation leads to increased concerns about vectors and water quality impairments. Enhancement is critical to counteracting the stressors and restoring wetland functions to the lagoon. As part of the Enhancement Project, disposal of sediment excavated from the lagoon would be required.

Originally, three restoration alternatives (Saltwater, Freshwater, and Hybrid) were considered by SANDAG and evaluated at an equal level of detail in an Environmental Impact Report (EIR). Refinement during the public review stage resulted in development of the proposed Modified Saltwater Alternative, which is a variant of the Saltwater and Hybrid alternatives. It reflects public desire and agency input while still achieving the stated project objectives. The Modified Saltwater Alternative would result in a saltwater regime, emphasizing lower elevation salt marsh habitats and subtidal/open water west of I-5 and mid to upper salt marsh habitat east of I-5. Saltwater would enter the lagoon from an open tidal inlet during flood tides and freshwater would enter the lagoon from

upstream and along the boundary of the lagoon. During construction, vegetation and sediment would be removed from the lagoon using an anticipated combination of land and water-based equipment to achieve desired elevations for habitat establishment. Two approaches have been identified to handle the removed sediment; Approach 1 would dispose of dredged materials on nearby beaches, the nearshore, or offshore (e.g., LA-5), as suitable. Approach 2 would construct an overdredge pit for on-site disposal of finer-grained material and generate more material for reuse within the littoral zone (e.g., along beaches or in the nearshore). Area beaches identified for potential placement sites are located within Oceanside and North Carlsbad, while the nearshore site is off the coast of Oceanside.

Biological Resources

Buena Vista Lagoon is currently dominated by subtidal areas and dense freshwater vegetated marsh, as well as some relic non-tidal high marsh, as shown on Figure 1. The Buena Vista Lagoon Enhancement Project (Project) would restore the Buena Vista Lagoon with tidally influenced habitats throughout the approximate 240-acre site, as identified below. Specific habitat types (existing and proposed) are listed below:

Table 1 - Existing and Proposed Habitat Distribution (Acreages)

Habitat Type	Existing Condition	Proposed Project
Beach	0.6	0.8
Coastal and Valley Freshwater Marsh	96.2	--
Coastal Scrub	0.6	0.5
Deep Open Water	--	6.4
Diegan Coastal Sage Scrub	<0.1	0.8
Diegan Coastal Sage Scrub: Baccharis-Dominated	1.3	1.3
Disturbed Habitat	0.7	--
Eucalyptus Woodland	0.5	--
Mudflat	--	13.7
Nonnative Grassland	2.4	--
Nonnative Riparian	4.2	--
Open Water	106.8	76.7 ²
Riparian Enhancement	--	6.5
Southern Coastal Salt Marsh	14.8	22.7

Habitat Type	Existing Condition	Proposed Project
(Nontidal)		
Southern Coastal Salt Marsh High	--	57.5
Southern Coastal Salt Marsh Low	--	16.9
Southern Coastal Salt Marsh Mid	--	28.0
Southern Willow Scrub	2	--
Totals¹	238.3	238.3

¹ Totals may not add up equally due to rounding and slight differences in project study area.

² Includes 0.1 acre of channel guide and 5.9 acres of restricted tidal area.

Buena Vista Lagoon is a critical ecosystem to a wide range of federally or state-listed species (endangered, threatened, species of special concern). Ten sensitive plant species are known to have potential to occur within the lagoon and one species, southwestern spiny rush (*Juncus acutus* ssp. *leopoldi*), was detected within the lagoon (Figure 2). The lagoon area is also biologically rich with 114 special-status wildlife species with the potential to occur onsite. Seven wildlife species listed as federally and/or state threatened or endangered were detected during studies and are considered resident/breeding within the lagoon (Figure 3): light-footed Ridgway's rail (*Rallus obsoletus levipes*), western snowy plover (*Charadrius alexandrinus nivosus*), California least tern (*Sterna antillarum browni*), southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo (*Vireo bellii pusillus*), coastal California gnatcatcher (*Polioptila californica californica*), and Belding's savannah sparrow (*Passerculus sandwichensis beldingi*). Additionally, 22 nonlisted special-status wildlife species were detected during previous studies and are considered resident/breeding within the lagoon area. These are wandering (salt marsh) skipper (*Panoquina panoquin*), western spadefoot toad (*Spea hammondii*), western pond turtle (*marmorata marmorata*), San Diego coast horned lizard (*Phrynosoma coronatum blainvillei*), two-striped garter snake (*Thamnophis hammondii*), redhead (*Aythya americana*), least bittern (*Ixobrychus exilis*), white-faced ibis (*Plegadis chihî*), white-tailed kite (*Elanus leucurus*), Cooper's hawk (*Accipiter cooperi*), northern harrier (*Circus cyaneus*), osprey (*Pandion haliaetus*), Allen's hummingbird (*Selasphorus sasin*), Nuttall's woodpecker (*Picoides nuttallii*), western bluebird (*Sialia Mexicana*), Clark's marsh wren (*Cistothorus palustris clarkae*), yellow warbler (*Dendroica petechia brewsteri*), yellow-breasted chat (*Icteria virens*), western red bat (*Lasiurus blossevillii*), northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), southern grasshopper mouse (*Onychomys torridus Ramona*), and San Diego black-tailed jackrabbit (*Lepus californicus bennettii*).

Cultural Resources

A records search was conducted at the South Coastal Information Center (SCIC) to provide information on previous cultural resources surveys and known previously recorded cultural resource sites within a 300-meter radius of the cultural study area. Previous investigations have recorded 14 archaeological sites within 300 meters of the cultural study area (Table 2) and three sites (including one also considered for the lagoon) within the onshore materials disposal/reuse study areas. Most of these archaeological resources have not been formally evaluated for eligibility and are therefore considered potentially eligible for the California Register of Historical Resources (CRHR). During a 2014 pedestrian survey conducted in nonlagoonal sediment areas as part of preparation for the EIR, one additional site (CA-SDI 21274) was identified.

None of the previously identified cultural resources or recorded CA-SDI 21274 site are within the area of potential effect (APE) for the proposed project; instead, they are located within the buffer area outside of designated project limits. One prehistoric archaeological site CA SDI 19375 is adjacent to a proposed site access route (Jefferson Road) along the southern perimeter of the I-5 Basin. However, Jefferson Road is paved and has a curb that prevents vehicular access to the road shoulder. Therefore, the site would not be affected by use of this road.

Table 2
Archaeological Sites within 300 Meters of the Project Study Area

Resource Number	Primary Number (P-)	Component	Description	Date Recorded
Sites within 300 meters of the lagoon				
CA-SDI-626	-	P	Manos and lithic tools	1958
CA-SDI-627	-	U (most likely P)	No information	1958
CA-SDI-628	37-000628	P	Shell midden, debitage, cores, manos, lithic tools, and bone	1958, 1994, 2003
CA-SDI-629	-	P	Shell scatter, manos, and debitage	1958, 2009
CA-SDI-8346	-	P	Shell scatter	1981
CA-SDI-8455	-	P	Shell scatter and one flake	1981
CA-SDI-17272	-	P	Shell midden	2005
CA-SDI-17907	37-027452	H	Historic Buena Vista cemetery	2009
CA-SDI-18348	37-028351	P	Shell scatter and one flake	2007

Resource Number	Primary Number (P-)	Component	Description	Date Recorded
CA-SDI-19375	37-030500	P	Lithic scatter, shell	2009
CA-SDI-20692	37-032654	P	Shell midden, flaked stone artifacts	2012
CA-SDI-21274	37-033874	H/P	Historic road, shell scatter	2014
Sites within 300 meters of materials placement sites				
CA-SDI-626	-	P	Manos and lithic tools	1958
CA-SDI-13211	-	P	Shell scatter	1993
CA-SDI-14059	37-014227	P	Shell scatter, fire-affected rock, possible mono fragment	1994
CA-SDI-17414	37-026518	P/H	Bottles, cans, salt glaze ceramics, blue English print ceramics, manos, lithic and shell tools, shell scatter	1972

H = Historic; M=Multicomponent; P=Prehistoric; U=Undefined

Historic Structures

The records and literature search indicates that no historic buildings are within 300 meters (m) of the cultural resources study area. Four historic resources, however, have been identified within the cultural study area, including two bridges, a railroad, and a weir. The first resource, Bridge No. 57C0135, was constructed in 1914 and spans over Carlsbad Boulevard (Coast Highway). The bridge was subsequently modified in 1933. It has previously been evaluated in the Caltrans Local Agency Bridge Inventory and listed as Category 5 but is not eligible for the National Register of Historic Places (NRHP; Caltrans 2014a). The bridge is also considered not eligible for the CRHR. The second resource, the concrete bridge that spans over I-5 (Bridge No. 57 0277), was previously evaluated in the Caltrans Historic Highway Bridge Inventory as Category 5 and is not eligible for the NRHP (Caltrans 2010). The railroad is located within the North County Transit District's property and the weir is located on private property. Neither of these resources are listed on the NRHP nor CRHR.

Project Objectives

The overall purpose of the Buena Vista Lagoon Enhancement Project (BVLEP) is to enhance the biological and hydrological functions and recreational values of Buena Vista Lagoon by addressing increased sedimentation and invasive vegetation encroachment, as well as resulting declining coastal biodiversity, degrading water quality, water circulation restriction, and increased vector concerns. The primary objectives of the BVLEP include the following:

- Enhance and maintain sensitive habitats and native species, including rare and endangered species, to promote coastal biodiversity within the region.
- Promote a system of native wetland and terrestrial vegetation communities that can be sustained given the opportunities and constraints of the lagoon and anticipated sea level rise.
- Create conditions that curtail the growth and expansion of cattails, bulrushes, and invasive species.
- Protect, improve, and maintain water quality (e.g., reduce eutrophication) to meet water quality standards and address the 303(d) listed water quality impairments.
- Reduce vector concerns (e.g., potential for mosquito-borne disease) by minimizing potential mosquito breeding habitat.
- Maintain or reduce current flood risk to existing infrastructure and adjacent development.
- Maintain or enhance public access to the lagoon and recreation opportunities that are consistent with resource protection.
- Minimize cost of construction and maintenance.

When fully implemented, the BVLEP would establish a gradient of habitats as defined in Table 1 and shown in Figure 4 and has been designed to adapt to sea level rise and stop the ongoing conversion of the lagoon to a freshwater marsh or monotypic meadow. The project design will allow the wetland to migrate as sea level rise occurs by incorporating adjacent upland, riparian, and relic non-tidal marsh areas into the project site. Infrastructure modification, including removal of the inlet weir and expansion of the channel under Carlsbad Boulevard, would enhance hydrologic connectivity and circulation within the lagoon. As shown on Figure 5, a Boardwalk would be constructed between the Nature Center and Maxton Brown Park to enhance public access to the lagoon both physically and visually, creating a continuous pedestrian-only route within open space directly adjacent to and within the lagoon. The Boardwalk would accommodate education and interpretation of the site's unique ecological habitat. Additional public access to fishing opportunities would result via a proposed new trail. As noted above, portions of the lagoon and project site are privately owned. Figure 6 illustrates ownership within the lagoon and an owner list is attached (Attachment A) for your reference. Figure 7 identifies specific known agreements needed to open the lagoon inlet.

The BVLEP will restore a tidally influenced hydraulic regime, allowing the lagoon to once again function as a salt marsh coastal wetland ecosystem, more closely approximating historical distribution within San Diego. The existing 50-foot weir at the

ocean outlet would be removed and replaced with a 100-foot-wide open inlet to provide tidal exchange with the ocean and restore the inundation regime while improving flood performance.

The restoration of tidal influence will be accompanied by the removal of habitats that the current freshwater hydrology has allowed to move into and dominate the project area. This includes areas of coastal and valley freshwater marsh, disturbed habitat, eucalyptus woodland, nonnative grassland, nonnative riparian, and southern willow scrub habitats. These areas will be replaced by coastal lagoon habitats including deep open water, mudflats, southern coastal salt marsh (nontidal, high, mid, and low), and areas of riparian enhancement. The proposed lagoon channel network and infrastructure improvements would enhance hydraulic connectivity between the lagoon and ocean and allow fluvial flows to drain from the lagoon more efficiently. More efficient fluvial flows would also decrease sedimentation in the lagoon as tidal characteristics are restored. As a result of Project implementation, current freshwater marsh would convert to more approximate historic salt marsh ecological structures in the lagoon.

The BVLEP will also incorporate upland and riparian areas, as well as relic non-tidal high marsh, to serve as a wetland-upland transition zone and allow for migration of wetland under various sea level rise scenarios. As elevational ranges for each habitat move upward, expansion of higher marsh habitats would be restricted by development surrounding the lagoon. Approximately half of tidal salt marsh habitats (high, low, and mid) would be maintained in 2050.

Benefits

The proposed actions would accommodate the proposed habitat distribution and serve to restore and maintain sensitive salt marsh habitats and associated native species, including rare and endangered species, to promote coastal biodiversity within the region. While some impacts would occur as part of project implementation, over the long-term the enhancements would enhance wetland functions and values within the system. The BVLEP will protect, improve, and maintain water quality (e.g., reduce eutrophication) to meet water quality standards and address the 303(d) listed water quality impairments. Bacteria exceedances are anticipated to decrease from existing conditions, with a reduced potential for pollutants to be generated or released to the environment in violation of applicable federal or state standards, or that would be hazardous to human health or deleterious to biological communities over the long term. The Project would provide public health and safety benefits through increased vector control from the conversion of the hydraulic regime to saltwater and tidal influence. The post-project conditions would not be as conducive to vector breeding and lifecycle requirements, thus reducing the ability of vectors to survive in the lagoon compared to current conditions. Lagoon enhancement would promote a system of native wetland and terrestrial vegetation communities that can be sustained given the opportunities and constraints of the lagoon and anticipated sea level rise.

Once the need and objectives are outlined as above, provide the following two documents:

WORKPLAN. Thoroughly describe the full project and clearly indicate which portions are proposed for WCB funding. Be specific and concise – identify all construction activities as identified in the budget line items and identify how they will be constructed in sufficient detail for the Project Manager to identify project components. For example, a description for the installation of a pipeline would identify the material, diameter, and length of pipe to be installed, and planting plans should include the number of species and individual plants to be installed, and the type (i.e., potted plants, cuttings, plugs, etc.). In most cases, a drawing should be included to show the locations of all of the elements of the proposed work.

CEQA compliance for the project has been completed, and SANDAG is currently seeking funding to begin the engineering and design work necessary to implement the BVLEP.

All start and completion dates for project tasks are estimates and subject to change.

Task 1: Project Management

January 1, 2022, to January 31, 2025

Project management tasks will include procurement and contracting, contract management, scheduling, coordination, meetings, communications, technical reviews, quality control, and tracking of engineering design tasks, timelines, and budgets.

Grants administration tasks will include development and processing of quarterly progress reports and invoices and submission of all deliverables in accordance with WCB grant agreement requirements, and completion and submittal of all project close-out documentation per the executed grant agreement.

Deliverables: Executed contracts; quarterly progress reports and invoices; submission of deliverables; and Project final report.

Task 2: Conceptual Design Refinement

January 1, 2022, to June 30, 2023

This task includes working with resource agency staff, inlet and project area owners, and interested public on refinements to the Conceptual Design for the Modified Saltwater Alternative.

Deliverables: Conceptual design renderings and exhibits (habitat maps, conceptual grading plans, typical cross-sections, brief narrative).

Task 3: Technical Investigations

January 2022 to December 2022

Task 3.1: Topographic/Bathymetric Survey – prior surveys for the lagoon are dated. New data will be used to update volume estimates, improve grading plans, and update sedimentation rates.

Deliverables: Topographic/Bathymetric Survey (pdf file, AutoCAD files w/contours and measured point data, all Metadata)

Task 3.2: Vegetation Survey – prior surveys for the lagoon are dated. New surveys will assess the rate of reed expansion.

Deliverables: Vegetation maps (pdf file, GIS files with shapefiles and measured data, all Metadata).

Task 3.3: Geotechnical Engineering Investigation – data will be gathered to evaluate sediment/consolidation of the overdredge pit cap, and it can be used to

refine beach placement design.

Deliverables: Geotechnical Engineering Investigation (boring map, boring logs, laboratory testing and engineering analysis results, geotechnical engineering investigation report [draft and final]).

Task 4: Engineering and Design

January 1, 2023, to June 30, 2024

Complete 30% Engineering Design for Modified Saltwater Alternative, including Weir Basin Water Control System.

- Conduct engineering (plus biological and ecological) modeling/analyses for the Modified Saltwater Alternative and update Conceptual Design. This task also includes preliminary engineering design of the Weir Basin water control system.
- Develop engineering design plans of project components for the Modified Saltwater Alternative.

Deliverables: 30% Design Plans (Cover Sheet, Vicinity and Site Maps, General Notes, Existing Conditions, Demolition Plan, Grading Plan, Cross-Sections, Irrigation Plan, Planting Plan, Specifications Outline, Construction Cost Estimate and Narrative).

MANAGEMENT PLAN. In addition, nearly all restoration projects (contact the WCB program manager for more information) will require the development and submission of a long-term (typically, twenty-five years) management plan. Please describe all long-term management and maintenance activities of the project site and identify who will be responsible for those activities.

Specific design requirements and permit conditions will be identified and incorporated into a management plan that outlines long-term management and maintenance activities associated with the project. Overall, it is anticipated the project would incorporate methods and technologies used to design, model, and implement a restoration project of this scale that are similar to other successful projects recently constructed within the region. Given the dynamic nature of lagoon systems and the uncertainty for external factors such as sea level rise, the project includes both an anticipated maintenance regime and an adaptive management plan that would be implemented through the 50-year design life of the project. The maintenance plan would identify those areas of the lagoon that are anticipated to require periodic maintenance, such as inlet maintenance, or less frequent channel maintenance in other areas of the lagoon. The adaptive management plan would identify remedial measures that may be implemented if success criteria put in place as part of the project or permit conditions are not met or if conditions change during long-term monitoring and need to be addressed. Long-term monitoring would be an integral part of an adaptive management program established to guide maintenance strategies into the future. Development of the detailed adaptive management program would occur during the final engineering phase of the project, prior to the initiation of construction. It is anticipated that the long-term management plan would be a living document and would be updated regularly, as necessary.

General components associated with the adaptive management strategy, as currently anticipated, are described below.

1. **Replacement Planting.** Planted material that fails to become established would be replaced with similar plant species. Replacement vegetation would be installed between October 1 and March 31, to the extent possible.
2. **Weed Abatement.** Weedy species would be removed from the enhancement site frequently, so they do not compete with the establishment of native plantings. This effort could also extend into areas adjacent to the project disturbance limits if the project is responsible for the expansion of invasive species into undisturbed areas.
3. **Trail Maintenance and Trash Removal.** Fishing access trail maintenance would occur periodically to maintain a clear and safe pathway. Trash would be removed from the fishing access trail and other enhancement project areas and disposed of in an acceptable manner, e.g., trash bins or landfill.
4. **Bank Protection Repair.** Should severe storms or other events result in damage to bridge and channel armor, repairs may be completed.
5. **Biological Monitoring and Maintenance of Habitat Quality.** Regular biological monitoring would be conducted to ensure that the wetlands meet biological goals. These activities would include:
 - Removal of dead vegetation if it were to accumulate and create a biomass layer (hindering habitat growth and increasing vector breeding areas).
 - habitat protection and posting of No Trespassing signs,
 - enforcement of regulations associated with the enhancement of the wetlands and protection of listed species,
 - control of nonnative invasive plant species by mechanical and chemical means as appropriate, and
 - control of feral/exotic animal species using trapping and barriers as appropriate.
6. **Nesting Areas/Breeding.** A comprehensive program of inspection and maintenance of sensitive species breeding, and nesting areas would be included as part of the biological monitoring program. Nesting area management would require regular control of excessive, especially weedy vegetation, and of predators in the surrounding urban environment.
7. **Threatened and Endangered Species.** Species-specific monitoring and management objectives would be established in conjunction with the resource agencies for threatened and endangered resident species. Measures may include ongoing surveys, habitat improvements, predator control, or other activities for the benefit of the species.
8. **Inlet Maintenance.** In addition to potential closure of the inlet by sediment transported during an extreme storm event, the regular flood and ebb currents moving through the inlet would build a flood shoal in the interior of the inlet. These sediment deposits in the flood shoal can change the habitat distribution

within the wetlands by reducing the tidal range and/or by raising the elevations. As part of the adaptive management program, criteria establishing thresholds for initiating inlet maintenance would be developed.

9. **Channel Maintenance.** While maintenance of the inlet itself is anticipated to occur as frequently as every year, depending on the alternative, vegetation encroachment or sediment accumulation could occur in portions of lagoon channels over time. Maintenance of focused areas within lagoon channels is anticipated approximately every 10 years but would be tied to specific thresholds for initiating maintenance activities, which could involve vegetation removal and hauling from the site, or sediment removal through dredging small areas of the lagoon.

III. Probability of Success

1. Does the site contain the appropriate hydrology, soils, geography, etc. to support the proposed project? Explain.

Prior to installation of the weir at the lagoon inlet, the project site was historically influenced by tidal saltwater during dry conditions and freshwater during seasonal wet conditions. Currently, the project site supports mostly subtidal and freshwater areas due to the existing weir and higher volumes of freshwater input; however, remnant non-tidal high marsh exists mostly within the I-5 basin. The project site is anticipated to support coastal salt marsh habitats once tidal inundation is restored and elevations are graded to support the desired habitat types.

2. Was the area historically occupied by habitat comparable to that proposed? Discuss.

Historical records indicate that approximately 75 percent of the lagoon consisted of extensive salt flat habitats and an additional 23 percent was composed of salt marsh habitat (Beller et al. 2014). The proposed project would restore a gradient of coastal salt marsh habitats while providing areas for wetland migration upslope with the onset of sea level rise. While the project would establish a saltwater regime, the watershed has shifted from historic conditions. Large sections of the creek have been channelized to reduce the chance of flooding private property. Approximately 80 percent of the watershed is developed primarily with commercial and residential uses, and some agricultural uses (CWN 2002). Additionally, a number of storm drains are directed to the lagoon. These changes have led to increased freshwater runoff into the lagoon throughout the year and establishing salt flats similar to historic conditions would not be sustainable due to these consistent increased flows. As a result of Project implementation, current freshwater marsh would convert to more approximate historic salt marsh ecological structures in the lagoon.

3. Does the project utilize methods and technologies that are understood and well proven? If not, is there an adaptive management component to the project? Explain.

The project design approach utilizes modeling that has been proven to result in successful restoration throughout southern California. Construction methodologies are also well understood and are anticipated to be similar to the approach recently used in the successful restoration of nearby San Elijo Lagoon in San Diego County. There is also an adaptive management component, as summarized above, to the project to enable the implementation of remedial measures should the project not achieve identified success criteria, and to facilitate the resilience of the project into the future under anticipated climate change conditions (including sea level rise).

4. What are the expected maintenance methods and annual costs? Is there a viable public or private organization willing and able to perform the needed long-term management and maintenance?

Under the Modified Saltwater Alternative, periodic maintenance at the ocean inlet would be required. Material would be removed from the inlet to maintain the tidal exchange and placed on the north end of the North Carlsbad Beach placement site. Annual Maintenance is anticipated to cost between \$185,000 and \$295,000 and would likely be implemented by CDFW as the primary landowner and manager.

5. Please explain any biological monitoring planned to assess the effectiveness of the proposed project.

A comprehensive monitoring program to ensure compliance with regulatory requirements and track project success, as well as identify adaptive management strategies as mentioned above, is anticipated for the project. Pre- and post-construction monitoring would be designed to establish a pre-construction baseline for lagoon conditions, including sensitive species, then monitoring and confirming project success criteria are met over the longer term (5-10 years). For the lagoon enhancement monitoring program, a construction and monitoring plan would be prepared during the permitting and final design phase. The plan will have different requirements depending on the ultimate permit conditions (e.g., if constructed for specific mitigation purposes, there may be different criteria established than if the project is implemented for restoration). Requirements could include plant or habitat establishment, weed abatement, and remedial measures, as well as established annual success criteria for factors such as water quality or tidal exchange.

Once the initial post-construction monitoring phase is complete and success criteria have been met, the program would transition to adaptive management, where the site would be maintained in perpetuity. Post-construction monitoring could also be tied to adaptive management actions to facilitate project success.

6. If a water supply is necessary to the success of the project what is the short and long-term source and availability of water for the project, and what are the short and long-term water costs?

A water supply would be required during construction and through the irrigation phases of the project. It is anticipated that the contractor would connect to an existing water conveyance system as agreed upon with the Cities of Carlsbad and/or Oceanside. Post-restoration, water may be temporarily required to irrigate plants to facilitate establishment for a portion of time (e.g., approximately five years). However, it is anticipated that irrigation will be localized to upland and high marsh areas and would cease once plants are initially established. Long-term irrigation needs would not be required as part of the project.

7. For riparian projects, describe the stream's flow regime. Does the site flood on a regular basis? Is there connectivity to the floodplain?

The proposed habitat distribution for the project would provide existing riparian enhancement areas along the edges of the lagoon within all four basins. Enhancement activities may consist of weeding and remedial planting, but full-scale grading is not anticipated to occur in these areas. Freshwater inputs from surrounding developed areas supports these existing riparian areas and is connected to the overall lagoon floodplain, with flows continuing to the lagoon. The project is not proposing to alter those flows along the outer edges of the lagoon.

The lagoon is part of the Buena Vista Creek floodplain where low-lying areas are likely to experience flooding during 100-year events. Removal of sediments to establish proposed habitats, channel improvements, and establishment of tidal connection with the ocean would help to increase the capacity for upstream inputs to flow out into the ocean in a manner that mimics historic site conditions. Currently, flooding regularly affects the informal public trails located near the Nature Center. Hydraulic improvements associated with implementation of the project would improve the connectivity and water conveyance system of the lagoon, and overall flood conditions would be improved.

8. Have the stressor(s) (e.g., intensive grazing, hydrology modifications, etc.) that caused the problem been eliminated or modified to reduce future impacts? Explain.

Reducing the stressors (i.e., weir/water impoundment and cattails/freshwater marsh expansion) affecting the lagoon are primary objectives of project implementation as noted above. Additional stressors such as watershed and adjacent urban development cannot be eliminated, but the project is being designed to accommodate those stressors to the extent feasible (e.g., sizing infrastructure opening and channel sizes to accommodate increased urban inflow from upstream to enable efficient freshwater drainage).

9. Will the California Conservation Corps be involved in this project?

The specific implementation mechanism for the project has not yet been confirmed; at this point the California Conservation Corps is not anticipated to be involved with the project.

IV. Project Significance

1. Is the project on or near a State Wildlife Area, Ecological Reserve, National Wildlife Refuge, Private Wildlife Sanctuary, County Reserve, or any other protected habitat area? Name them and indicate how far they are from the project site.

The project site is located within a State Ecological Reserve (i.e., Buena Vista Lagoon Ecological Reserve) managed by CDFW.

2. Where is the project located in relation to existing habitat types of high quality that are similar to the habitats to be restored or enhanced with this project? Are there critical or sensitive habitats (e.g., vernal pools, T&E habitats, etc.) nearby? Please include a map showing the locations in relation to the project site.

As mentioned above, the lagoon is impaired due to sedimentation, lack of water circulation, and encroachment of nonnative species within this area that used to be subject to both tidal and freshwater influences depending on dry or wet conditions. Existing habitats are shown on Figure 3 with sensitive plants and wildlife shown on Figures 5 and 6, respectively. Despite current impairments, existing habitats such as the freshwater marsh and remnant, non-tidal salt marsh support T&E species like the light-footed Ridgway's rail and Belding's savannah sparrow. There are no critical habitat designations as determined by the U.S. Fish and Wildlife Service within the project site. While freshwater and remnant non-tidal salt marsh areas support sensitive species, the project is proposing replace these lower functioning habitats with higher valued ones that support an array of sensitive species.

3. Will the project provide or help establish a habitat corridor, connecting two larger protected areas or areas of high quality?

In general, wildlife species are likely to use habitat in the project site for movement related to home range activities (foraging for food or water, defending territories, searching for mates, breeding areas, or cover). The lagoon is important to local wildlife movement as it provides open, undeveloped habitats for wildlife use.

Buena Vista Lagoon has been identified as a Biological Core and Linkage Area (BCLA) under the North County Multi Habitat Conservation Program (MHCP) and is completely surrounded by development. Instead of functioning as a regional corridor, Buena Vista Lagoon is a large area of natural open space that is important because it provides habitat for core populations of sensitive wildlife and plant species. This BCLA functions as a large contiguous area of habitat that supports major and critical species populations such as those species discussed in this document and is considered an area of high habitat value (SANDAG 2003). Therefore, while the project will not necessarily establish a habitat corridor or connect larger areas to each other, it will improve an existing area critical to local wildlife movement.

4. Describe adjacent land uses, including agricultural lands by type. Describe how the adjacent land uses could affect or be affected by the project, either conflicting or complementary.

Buena Vista Lagoon spans the Cities of Oceanside and Carlsbad, both of which have a mix of residential and commercial developments of varying densities. Substantial transportation features (highway and railroad) traverse the lagoon, and this area is influenced by the adjacent Pacific Ocean which makes up the western boundary of both cities. To the west of I-5, the lagoon is generally surrounded by single- and multi-family residences to the north and south. To the east of I-5, the northern and eastern lagoon boundaries consist of highway (State Route 78 [SR 78]) and commercial uses, with residential uses atop hillsides to the south.

Generally, surrounding land uses may experience temporary inconveniences during construction but long-term conflicting affects are not anticipated. The project has incorporated a series of mitigation measures to minimize temporary construction impacts. Even with mitigation measures incorporated into the project, the Final EIR found that temporary impacts during construction to visual resources, traffic and circulation, air quality, noise, and public health and safety would be reduced or minimized, but that mitigation would not reduce to a level of less than significant under CEQA. However, it is important to note that surrounding land uses would be impacted temporarily during proposed construction and associated interruptions from equipment use and materials disposal would cease once construction is complete. Long-term, construction-related impacts are not anticipated.

Due to removal of the weir and reestablishment of the tidal connection at the ocean inlet, impacts to the surrounding land use and public safety would result from operation of the Modified Saltwater Alternative with the new inlet crossing at the beach. It is anticipated that the new inlet crossing could create a safety threat to recreational users during certain tidal conditions of high-water volume and velocities.

5. What species of fish or wildlife will benefit from the project, including any threatened or endangered species?

Buena Vista Lagoon is a critical ecosystem to a wide range of sensitive plant and wildlife species. The Modified Saltwater Alternative would result in substantial benefits to biological resources, including providing high-quality nesting habitat to threatened and endangered species, as shown in Table 4. Increased circulation and flushing would result in a healthier benthic community and more foraging opportunities for birds. The foraging opportunities would be increased in quantity, quality, and diversity resulting in a long-term and persisting benefit for avian populations, including some special-status species such as California least tern or western snowy plover that regularly use the lagoon for foraging. The project would halt the conversion of the lagoon to a more monotypic freshwater marsh habitat with decreased circulation and open water that is currently occurring due to sedimentation and vegetation encroachment.

Table 4
Modified Saltwater Alternative Existing and Post-Implementation Acreage of Suitable Habitat for Special-Status Wildlife Species (acres)¹

Special-Status Species	Vegetation Community	Existing Habitat	Habitat Acreage Post-Implementation
Light-footed Ridgway's rail	Coastal and valley freshwater marsh	96.2	0
	Mudflat	0	13.7
	Southern coastal salt marsh nontidal	14.8	22.7
	Southern coastal salt marsh high	0	57.5
	Southern coastal salt marsh low	0	16.9
	Southern coastal salt marsh mid	0	28.0
	Total		111.0
Western snowy plover	Beach	0.6	0.8
	Mudflat	0	13.7
	Total	0.6	14.5
California least tern	Beach	0.6	0.8
	Open water	106.8	76.7 ²
	Deep open water	0	6.4
	Mudflat	0	13.7
	Total	107.4	97.6
Least Bell's vireo and Southwestern willow flycatcher	Southern willow scrub	2.2	0
	Total	2.2	0
Belding's savannah sparrow	Mudflat	0	13.7
	Southern coastal salt marsh nontidal	14.8	22.7
	Southern coastal salt marsh high	0	57.5
	Southern coastal salt marsh low	0	16.9
	Southern coastal salt marsh mid	0	28.0
	Total		14.8
Coastal California	Coastal scrub	0.6	0.5
	Diegan coastal sage scrub	0	0.8

Special-Status Species	Vegetation Community	Existing Habitat	Habitat Acreage Post-Implementation
gnatcatcher	Diegan coastal sage scrub: <i>Baccharis</i> -dominated	1.3	1.3
	Total	1.9	2.6

¹ Numbers may not sum exactly due to rounding.

² Includes 0.1 acre of channel guide and 5.9 acres of restricted tidal area.

Enhancement activities, such as vegetation removal, dredging, and creation of deep-water habitat, would have beneficial effects on fish habitat availability and quality, and water quality resulting in long-term positive impacts on native fish, fish populations, species assemblage, and species diversity. Native saltwater fish species would have access to the lagoon system through the open inlet and would also benefit from the creation of deep-water habitat areas through improved spawning and rearing habitat, resulting in long-term beneficial effects on the stability and sustainability of fish populations. Establishment of marine submergent vegetation is likely to occur at some point in time following saltwater inundation, which would provide spawning and nursery habitat for a variety of saltwater fish species.

6. Is the project or project site part of, or consistent with, any conservation related plans, strategies, studies, or programs? If so, identify the plan and explain.

Enhancement efforts for the Buena Vista Lagoon were evaluated as a component of the North Coast Corridor Public Work Plan/Transportation and Resource Enhancement Program (PWP/TREP) (Caltrans 2014b). The PWP/TREP identified opportunities to improve ecological health and hydrological connectivity to enhance coastal resources and habitats within the corridor. The Buena Vista Lagoon Enhancement Project was originally evaluated as a potential enhancement opportunity for mitigation along the North Coast Corridor. Mitigation requirements have been met, and the Buena Vista Lagoon Project is not currently part of that program. The project site also falls within the North County Multi Habitat Conservation Program (MHCP) area and is addressed by the Oceanside and City of Carlsbad Subarea Plans. Portions of the site are within conservation areas referred to as Hardline Focused Planning Areas within both subarea plans. The project would be consistent with the designation of the reserve as open space within these planning documents and would be supported in their objectives to provide for continued preservation of resources within the lagoon.

7. How might the possible effects of global climate change (e.g., sea level rise, changes in precipitation and/or temperature, water availability, etc.) affect the long-term success of this project?"

The project has been designed to adapt to sea level rise by allowing the wetland to migrate with rising sea levels by incorporating adjacent upland, riparian, and relic

non-tidal marsh areas into the project site. Implementation of the project and the associated adaptive maintenance and monitoring program would serve to improve the ability of the lagoon to adapt to anticipated future sea level rise. For example, the lagoon's adaptability to sea level rise would benefit from removal of the existing weir and opening of an ocean inlet, enabling the lagoon to drain incoming freshwater more efficiently and improve flood control during large storm events, leading to less potential in general for flooding hazards. The lagoon channel network and infrastructure improvements would enhance hydraulic connectivity between the lagoon and ocean and allow fluvial flows to drain from the lagoon more efficiently. Better tidal exchange between the lagoon and ocean increases tidal range in the lagoon and enhances its ability to slowly adapt to changes in sea level over time. Additionally, lower flood elevations would provide additional resiliency against floods, other extreme events, and sea level rise.

The project has intentionally incorporated upland and riparian areas, as well as relic non-tidal high marsh, to serve as a wetland-upland transition zone and allow for migration of wetland under various sea level rise scenarios. As elevational ranges for each habitat move upward, expansion of higher marsh habitats would be restricted by development surrounding the lagoon. Therefore, approximately half of tidal salt marsh habitats (high, low, and mid) would be maintained in 2050. While it is generally understood that sea level rise will reduce tidal salt marsh habitats creating more subtidal areas, the project would provide longevity for salt marsh areas to persist at a net gain over existing conditions and would reduce the severity of potential flooding under sea level rise conditions.

V. Public Support

1. Is the project supported by, consistent with, or in conflict with any local or regional plans? Identify the plan and explain.

Inconsistencies with access-related coastal land use policies would occur due to restricted north-south beach access across the new open tidal inlet; but this condition would be similar to existing access up and down the coast at other area lagoon inlets (e.g., San Elijo Lagoon). The North County Multi Habitat Conservation Program (MHCP), one of the regional conservation planning documents that covers this portion of northern San Diego County, covers the lagoon project site (SANDAG 2003). The northern half of the site occurs within the City of Oceanside; the Oceanside subarea plan will be the MHCP implementing document of the northern portion, once approved (Foothill and Associates 2010). The southern half of the site occurs within the City of Carlsbad; the City of Carlsbad Subarea Plan (City of Carlsbad 2004) is the MHCP implementing document for the southern portion. Portions of the site are within conservation areas referred to as Hardline Focused Planning Areas within both subarea plans. The project would be consistent with the designation of the reserve as open space within these planning documents and would be supported in their objectives to provide for continued preservation of resources within the lagoon.

2. If the project site is privately-owned, is the property encumbered with a Williamson Act contract or any other conservation agreements (i.e., conservation, flood, or agricultural easements)?

The project site is not developed for farming or agricultural use, and no Williamson Act contract is applicable to the project area (California Department of Conservation 2014).

The Carlsbad HOA owns the property to the south of the current inlet channel and has granted a public access easement. The inlet weir is owned privately as well as the weir basin itself. Coordination with landowners as identified in the attached ownership information will be concurrent with the work funded under this request.

3. How does the project involve the local community or local interest groups and what type of commitments (cash, time, in-kind) have or will be made toward the project?

During the preliminary design and CEQA compliance phase, SANDAG worked in coordination with various agencies and organizations interested in implementation of the proposed project. Several agencies and organizations contributed to the initial phase of the project. The Cities of Carlsbad and Oceanside provided \$100,000 each for the EIR preparation, with additional funds provided by SANDAG (\$800,000) and CDFW (\$225,000). The Buena Vista Lagoon Foundation also provided funds for evaluation of the potential Boardwalk.

Throughout the environmental process, SANDAG has solicited input on key issues and concerns relevant to the project from public agencies, stakeholder and interest groups, and the general public. Some of these stakeholders include not only individuals, but the following agencies and organizations:

- City of Oceanside
- City of Carlsbad
- California Department of Fish and Wildlife (CDFW)
- St. Malo Property Association
- Carlsbad Beach Owners HOA
- Buena Vista Lagoon Foundation
- Nextdoor Buena Vista Lagoon Association
- Buena Vista Lagoon Joint Powers Committee (Buena Vista Lagoon JPC)
- Buena Vista Lagoon Audubon Society

Moreover, extensive public involvement was undertaken between SANDAG and community members after deliberations heard during certification of the Final EIR in November 2018, and the certification of the Final EIR was delayed addressing this public testimony. Through a series of meetings and collaborative efforts, members of the public and SANDAG developed a proposal that reflected modifications requested by the property owners while continuing to meet key project objectives, resulting in the Modified Saltwater Alternative. Additionally, the project was recently awarded the Hard-

Won Victories award by the local San Diego chapter of the American Planning Association and has been nominated for the state award.

The project continues to be supported by the Cities of Oceanside and Carlsbad through a monthly meeting of the Buena Vista Lagoon Joint Powers Committee. In addition, local community groups such as the Buena Vista Foundation and Audubon Society, as well as the project landowners have shown support in moving this project forward to the next phase.

4. Please explain any planned public use of the project site, and if none is planned, explain why. Will volunteers be used to implement the project, and if so, how will the applicant assure that plan specifications are followed?

A pedestrian Boardwalk would be constructed as part of the project to increase connectivity between the Cities of Oceanside and Carlsbad and enhance public access to the lagoon, both physically and visually. The Boardwalk would extend between the Nature Center and Maxton Brown Park, creating a continuous pedestrian-only route within open space directly adjacent to and within the lagoon that is elevated above vegetation to provide visibility to the interior of the lagoon. Six overlooks would be incorporated into the Boardwalk to accommodate benches and vista points to enhance passive recreation at the lagoon. The Boardwalk would accommodate a range of recreational activities, including fishing, walking, nature study (e.g., bird watching), education, and interpretation of the site's unique ecological habitat. Also, a new public fishing area located in the northeast corner of the Railroad Basin would provide additional access to enhanced fishing opportunities and be accessed via a proposed new trail. Existing trails extending from the Nature Center would also become more connected to the lagoon and wetland as conversion from very tall and dense cattail stands to lower-lying salt marsh occurs.

Since this is a large-scale enhancement effort with heavy equipment use and specialized machinery required, volunteers will not be used to implement the project due to safety considerations.

5. For Ecosystem Restoration on Agricultural Land (ERAL) projects explain the potential for the project to be applied to other agricultural properties in the area, and statewide. Explain any outreach efforts to other landowners in the area regarding the project.

The project is not considered an ERAL project; therefore, this question does not apply.

VI. Project Readiness

1. Is (are) the landowner(s) willing to allow the construction of the project and agreeable to maintaining the project on a long-term basis (typically, 25 years)?

Both the Cities of Oceanside and Carlsbad have expressed their support of the project, as evident by the comment letters submitted as part of the EIR process supporting restoration of tidal influence to the lagoon. They have contributed financially to the environmental documentation phase and are currently working with SANDAG in support of the project.

The primary landowner and manager, CDFW's mission is "to manage California's diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public." With that comes CDFW's support of a saltwater alternative since it restores the lagoon to historic conditions in support of sensitive plants and animals that use coastal salt marsh habitats and other native habitats. SANDAG has been working with CDFW in partnership and they are willing to allow construction of the project; long-term management of the lagoon would be undertaken by CDFW to ensure monitoring and adaptive management measures are implemented.

As discussed above, significant effort has gone into planning and coordinating with private landowners that surround the lagoon, particularly at the inlet and weir. This is evident by the collaborative work between landowners and SANDAG to agree upon the Modified Saltwater Alternative, combining desires of property owners with the ability to meet key project goals and objectives. The private landowners have conceptually agreed to the project as currently proposed, and SANDAG will coordinate with them to acquire easements and agreements for implementation of the project during the final design and permitting phase.

2. Has the applicant completed the environmental documents (including CEQA, which is required prior to WCB approval of funding) and obtained the necessary State, federal and local permits for the projects? If not, give the current status and expected completion date(s).

The Final EIR was certified by the SANDAG Board of Directors Friday, May 22, 2020. The SANDAG Board of Directors adopted a resolution to accept the Modified Saltwater Alternative with support from key stakeholders, including adjacent property owners.

With CEQA compliance completed, SANDAG, on behalf of the Cities of Carlsbad and Oceanside, is currently seeking funding to complete engineering and design, as well as project permitting, for the project. This effort will include additional modeling of the refined project, permitting, and NEPA compliance, as required. Permitting and engineering efforts are anticipated to begin once funding has been secured.

3. Are there complications (hazardous materials, mosquito abatement, etc.) associated with the project that could delay the completion of the project? If so, please explain.

With implementation of the project, dredging of materials with the lagoon would occur to lower elevations in order to establish the proposed habitat distribution. While pesticide

and metal levels were detectable in lagoon material, concentration levels were all below the defined ERM thresholds and there are very limited exposure pathways for humans. Contaminants levels would not pose an adverse effect on human health during dredging and materials disposal operations (Everest 2014a, b), and are not anticipated to result in project delays.

The project is anticipated to improve vector control/mosquito abatement due to the conversion of the lagoon's hydraulic regime to saltwater, with enhanced circulation. Mosquito abatement is not anticipated to delay the project since ongoing efforts can be implemented in discrete areas during construction, as needed. Overall, implementation of the project would facilitate the control of vectors at the lagoon and reduce the public health and safety risk associated with vector-borne diseases.

4. Have you contacted the Department of Fish and Game regarding this project (a DFG letter of support is required – contact the WCB project manager for assistance)?

Yes, letters of support have been provided for the project, including a letter from DFG. These letters are included with this application (Attachment B). As mentioned previously, SANDAG has solicited engagement and support from CDFW throughout preliminary scoping opportunities and the environmental review process. This partnership has continued in support of overall project implementation and success.

VII. Importance of Prompt Implementation

1. Is there a significant risk that the site or resource could be lost to development or other human uses? Explain.

There is not a significant risk that the site could be lost to development or other human uses. The project site is designated as a State Ecological Reserve and lands will be maintained as this designation in perpetuity.

However, sedimentation from the watershed upstream of the lagoon has accumulated within the lagoon basins, leading to decreasing water depths, increasing nutrient levels, and decreased salinity. These stressors have led to the conversion of the wetland to freshwater marsh, characterized by continuously expanding stands of dense cattails resulting in vector issues. Additional stressors to the site include urbanization affecting the water quality, due to runoff from adjacent roadways and development, and sewage. The lagoon is currently identified as an impaired water body for indicator bacteria, nutrients, and sedimentation/siltation on the State 303(d) list (SWRCB 2011). The lagoon has been progressively degrading in terms of benefits and value to biological communities, habitats, and human uses. The Feasibility Study conducted for the Project in 2004 found that between 2030 and 2050 the lagoon was expected to become a vegetated freshwater marsh or riparian woodland-meadow (Everest 2004). The continued degradation could reduce coastal habitat biodiversity or eliminate coastal wetland functions and values, and result in decreased water circulation, leading to increased concerns about vectors and water quality impairments.

2. Will the project solve a problem that, if allowed to continue, would be significantly more expensive to fix in the future? Explain.

The project would halt current ongoing conversion of open water/subtidal areas to a vegetated freshwater marsh or riparian woodland-meadow (Everest 2004). Not only would the continued degradation reduce coastal habitat biodiversity, and eliminate coastal wetland functions and values, but the continued decreased water circulation would lead to more severe vector concerns and water quality impairments. Enhancement is critical to restoring wetland functions to the lagoon. If the project were not implemented, and issues were addressed in the future, it would be more costly to remove additional accumulated sediments within the project site and could result in longer-term losses to T&E and migratory bird species. As mentioned, vector concerns would continue to plague the project site until implementation, resulting in potential safety risks associated with vector-borne diseases. As dense cattails expand into open water areas, further reductions in circulation and more difficulty in aerial application of treatment (e.g., treatment gets stuck in the cattail canopy and cannot reach the water surface as necessary) will further exacerbate vector concerns and risks.

3. Are other funds available and/or secured that may be at risk if the project is delayed?

Other funds have not been secured for the project; therefore, there is no risk in project delay.

VIII. Complete this question only if requesting funds for the enhancement or restoration of wetlands in the Central Valley. See Inland Wetlands Conservation Program.

Which of the six objectives of the Central Valley Habitat Joint Venture is the project designed to address and how will this project contribute to the achievement of that (those) objective(s)?

The project site is not located in the Central Valley; therefore, this question is not applicable.

IX. Funding Sources

Provide a complete line-item budget for the proposed project (see Sample Budgets, below and typical task descriptions at the end of this application). Include a complete list of all partners contributing toward the project and include: 1) all sources of cash; 2) landowner's contribution; and 3) in-kind services. If in-kind services are to be used as part of the matching requirement, please explain the type of service that will be provided, the number of hours the service will be provided, and the hourly rate associated with the service. Project proposals with matching funds and/or services will be given priority. Also, be sure to identify any funding that is available for long-term

operation and maintenance costs. Submit budget electronically as a spreadsheet, preferably.

Task	WCB	SANDAG	Total
Task 1. Project Management	\$100,000	\$100,000	\$200,000
Task 2. Conceptual Design Refinement	\$100,000		\$100,000
Task 3. Technical Investigations	\$600,000		\$600,000
Task 4. Engineering and Design	\$2,200,000		\$2,200,000
Total	\$3,000,000	\$100,000	\$3,100,000

¹SANDAG will provide in-kind services for the Project Management Task. SANDAG Staff time includes a Senior Planner estimated at 840 hours at \$119/hr.

Project management includes procurement and contracting, contract management, scheduling, coordination, meetings, communications, technical reviews, quality control, and tracking of engineering design tasks, timelines, and budgets.

Grants administration tasks will include development and processing of quarterly progress reports and invoices and submission of all deliverables in accordance with WCB grant agreement requirements, and completion and submittal of all project close-out documentation per the executed grant agreement.

The Conceptual Design refinement task includes working with includes working with resource agency staff, inlet, and project area owners, and interested public on refinements to the Conceptual Design for the Modified Saltwater Alternative.

Technical Investigations include topography/bathymetric surveys, vegetation surveys and geotechnical engineering investigation. The geotechnical investigation includes gathering data to evaluate sediment/consolidation of the overdredge pit cap and it will be used to refine potential beach sand placement. ...

Engineering and Design includes conducting 30% engineering modeling/analyses for the Modified Saltwater Alternative to update the conceptual design. This will also include preliminary engineering design of the Weir Basing water control system.

IX Experience

Describe your organization’s experience and qualifications for implementing this project with specific examples of similar projects.

SANDAG has extensive experience with management and implementation of large-scale wetland and coastal restoration projects. The Regional Beach Sand Projects I and II were implemented in 2001 and 2012, respectively, and included a multi-disciplinary team for sand replenishment on beach receiver sites throughout San Diego County. SANDAG also contracted for implementation of the San Elijo Lagoon Restoration Project, which has recently completed substantive construction activities. That project included many similar components, including construction of an overdredge pit to enable beneficial reuse of sediment in the littoral zone, work within an existing wetland using both land and water-based equipment (e.g., dredging), and work within the

context of sensitive habitats and the presence of sensitive species, including the light-footed Ridgway's rail. SANDAG has been involved in the planning, permitting, and design of the San Dieguito Lagoon W-19 Restoration Project. The San Dieguito Lagoon has also experienced changes to the hydrologic function of the lagoon system, including reduced frequency and/or duration of an open inlet lagoon that diminish tidal influence and reduce the ecological function of the tidal marsh ecosystem components. That project is anticipated to start construction in the fall of 2021. SANDAG has a significant breadth of knowledge and experience implementing large-scale restoration and beach nourishment projects within San Diego County. A majority of the projects listed have received accolades from various stakeholders within the transportation industry and among resource agencies, further supporting SANDAG's experience and qualifications to implement the project.

CHECKLIST

NOTE: The following information should be provided electronically to the WCB project manager a minimum of four months prior to the desired board meeting date.

- Full project description – [Included in this application.](#)
- Firm cost estimates (Please indicate cost-share matches by other funding partners. Include in-kind contributions.) Provide as electronic spreadsheet. – [Attachment C](#)
- Management plan
- Time line
- Project location map showing project area – [Included with figures.](#)
- GIS shape files – [Provided with this application.](#)
- Site map or other maps that may more fully describe the project – [Included with figures.](#)
- Detailed project drawing (a sketch showing relevant features of the proposed restoration project) – [Included with figures.](#)
- Photos of proposed project site – [Attachment D](#)
- CEQA document or notice of exemption (Required prior to Board approval - contact WCB for assistance) – [Attachment E; link provided to access Final EIR.](#)
- If the restoration project is to be located on private lands, a legal description of the lands is required, including the assessor's parcel number. – [Attachment A](#)
- Resolution from applicant's governing board – [Attachment E](#)
- Support letters (if available) – [Attachment B](#)
- A recommendation letter from the Department of Fish and Game (contact WCB for assistance) – [In process](#)

Mail one hard copy of the completed application to:

Executive Director

Wildlife Conservation Board
 PO Box 944209
 Sacramento, California 94244-2090

1/14/2016

DEVELOPMENT TASKS

Typical Riparian Habitat Restoration Tasks/Cost Categories:

Task Category	Description
Mobilization/Demobilization	Self-explanatory
Site Preparation	Could include removal of old structures, fencing, vegetation, etc., and disking soil or weed control for planting.
Plant Propagation	Collect cuttings or seeds; establish, construct, and maintain nursery.
Planting	Acquire and plant trees and shrubs, upland seeding, container stock, cuttings.
Fencing	New, replaced or renovated.
Infrastructure	Include acquisition and installation of weirs, pipelines, culverts, fittings, valves, etc.
Earthmoving	Cut and fill, swale work, levee construction, road base, etc.
Plant establishment	Include irrigation costs, plant survival monitoring, plant replacement, weeding.
Invasive Species Control	Cutting, digging, spraying, biomass removal, burning, disking, grazing. Can include acquisition of materials (small tools, gloves, herbicides, etc.)
Weed control	Rarely separate line item - usually included in "Site Preparation" or "Plant Establishment" line items, as appropriate.
Irrigation	Acquisition of materials, installation, and operation during establishment period.
Signs	Monument, interpretive or partner recognition signs, trails, blinds.
Contingencies	Self-explanatory
Project Management	One category for all project staffing for all project development: Survey and Design, planning, site evaluations, soil and water evaluations, project design, permits, construction oversight, volunteer oversight. Some of these costs could be included in other line items as well (staff time for plant establishment for example)
Project Administration	Costs for incidental and directly related activities.

DEVELOPMENT TASKS**Typical Inland Wetlands Conservation Program Tasks/Cost Categories:**

Task Category	Description
Mobilization/Demobilization	Self-explanatory
Site Preparation	Could include removal of old structures, fencing, vegetation, etc., and disking soil or weed control for planting.
Pumps	New or renovation of lift pumps or pumps for deep wells, with electrical hookups or diesel motors. Can be combined with "Well" where appropriate
Well	New or renovated. Can be combined with "Pumps" where appropriate.
Water Control Structures	Include acquisition and installation of weirs, pipelines, culverts, fittings, valves, etc.
Earthmoving	Cut and fill, swale work, levee construction, road base, etc.
Pipelines	Includes fittings and valves. Can be combined with Water Structures where appropriate.
Gravel	Could be for road base, roads, parking areas.
Planting	Acquire and plant trees and shrubs, upland seeding, container stock, cuttings
Fencing	New, replaced or renovated.
Plant establishment	Include irrigation costs, plant survival monitoring, plant replacement, weeding.
Herbicide	Acquisition of herbicide. Can be included in Weed Control.
Weed control	Cutting, digging, spraying, biomass removal, burning, disking, grazing. Can include acquisition of materials (small tools, gloves, herbicides, etc.). Should be included in "Site Preparation" or "Plant Establishment" line items, as appropriate.
Signs	Monument, interpretive or partner recognition signs.
Contingencies	Self-explanatory
Project Management	One category for all project staffing for all project development: Survey and Design, planning, site evaluations, soil and water evaluations, project design, permits, construction oversight, volunteer oversight. Some of these costs could be included in other line items as well (staff time for plant establishment, for example)
Project Administration	Costs for incidental and directly related activities.

DEVELOPMENT TASKS

Typical Habitat Enhancement and Restoration Program Tasks/Cost Categories:

Task Category	Description
Mobilization/ Demobilization	Self-explanatory
Site Preparation	Could include removal of old structures, fencing, vegetation, etc., and disking soil or weed control for planting.
Pumps	New or renovation of lift pumps or pumps for deep wells, with electrical hookups or diesel motors. Can be combined with "Well" where appropriate
Well	New or renovated. Can be combined with "Pumps" where appropriate.
Infrastructure	Include acquisition and installation of weirs, pipelines, culverts, fittings, valves, etc. Can include pumps and wells.
Earthmoving	Cut and fill, swale work, levee construction, road base, etc.
Pipelines	Includes fittings and valves. Can be combined with Water Structures where appropriate.
Gravel	Could be for road base, roads, parking areas.
Plant Propagation	Collect cuttings or seeds; establish, construct, and maintain nursery.
Planting	Acquire and plant trees and shrubs, upland seeding, container stock, cuttings
Fencing	New, replaced or renovated.
Plant establishment	Include irrigation, plant survival monitoring, plant replacement, weeding.
Irrigation	Acquisition of materials, installation, and operation during establishment period.
Herbicide	Acquisition of herbicide. Can be included in Weed Control.
Invasive Species Control	Cutting, digging, spraying, biomass removal, burning, disking, grazing. Can include acquisition of materials (small tools, gloves, herbicides, etc.)
Weed control	Cutting, digging, spraying, biomass removal, burning, disking, grazing. Can include acquisition of materials (small tools, gloves, herbicides, etc.). Should be included in "Site Preparation" or "Plant Establishment" line items, as appropriate.
Signs	Monument, interpretive or partner recognition signs.
Contingencies	Self-explanatory
Project Management	One category for all project staffing for all project development: Survey and Design, planning, site evaluations, soil and water evaluations, project design, permits, construction oversight, volunteer oversight. Some of these costs could be included in other line items as well (staff time for plant establishment for example)
Project Administration	Costs for incidental and directly related activities.

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