CHAPTER 5.0
CUMULATIVE IMPACTS

CEQA Guidelines require a discussion of cumulative impacts of a project "when the project's incremental effect is cumulatively considerable" (2011 CEQA Guidelines, Section 15130). As defined by Section 15065 (a)(3) "cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects (2011 CEQA Guidelines, Section 15065 (a)(3)). These cumulative impacts are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (CEQA Guidelines Section 15355).

The discussion of cumulative impacts is further guided by CEQA Guidelines Section 15130(a) and (b), which states the following:

- An EIR shall not discuss impacts which do not result in part from the project evaluated in the EIR.
- When the cumulative effect of the project's incremental contribution and the effect of the other projects are not significant, the EIR shall briefly indicate why and not discuss it further.
- An EIR may identify a significant cumulative effect, but determine that a project's contribution is less than significant. That conclusion could result if the project is required to implement or fund its fair share of a mitigation measure designed to alleviate the cumulative impact.
- The discussion of cumulative impacts shall reflect the possibility of occurrence and severity of the impacts and focus on cumulative impact to which the identified other projects could contribute.

In general, effects of a particular action or a group of actions would be considered cumulative impacts under the following conditions:

- effects of several actions in a common location,
- effects are not localized (i.e., can contribute to effects of an action in a different location),
- effects on a particular resource are similar in nature (i.e., they affect the same specific element of a resource), and

- effects are long term (short-term impacts tend to dissipate over time and cease to contribute to cumulative impacts).

5.1 DESCRIPTION OF CUMULATIVE ENVIRONMENT

The study area for this cumulative analysis varies somewhat by issue area but for most issues is the north county coast, with a focus on Oceanside and Carlsbad given their proximity, plus key lagoons from Oceanside to Del Mar. One key exception is air quality, which is addressed at a regional (county-wide) level because standards are set by ARB at this more gross scale (Figure 5-1).

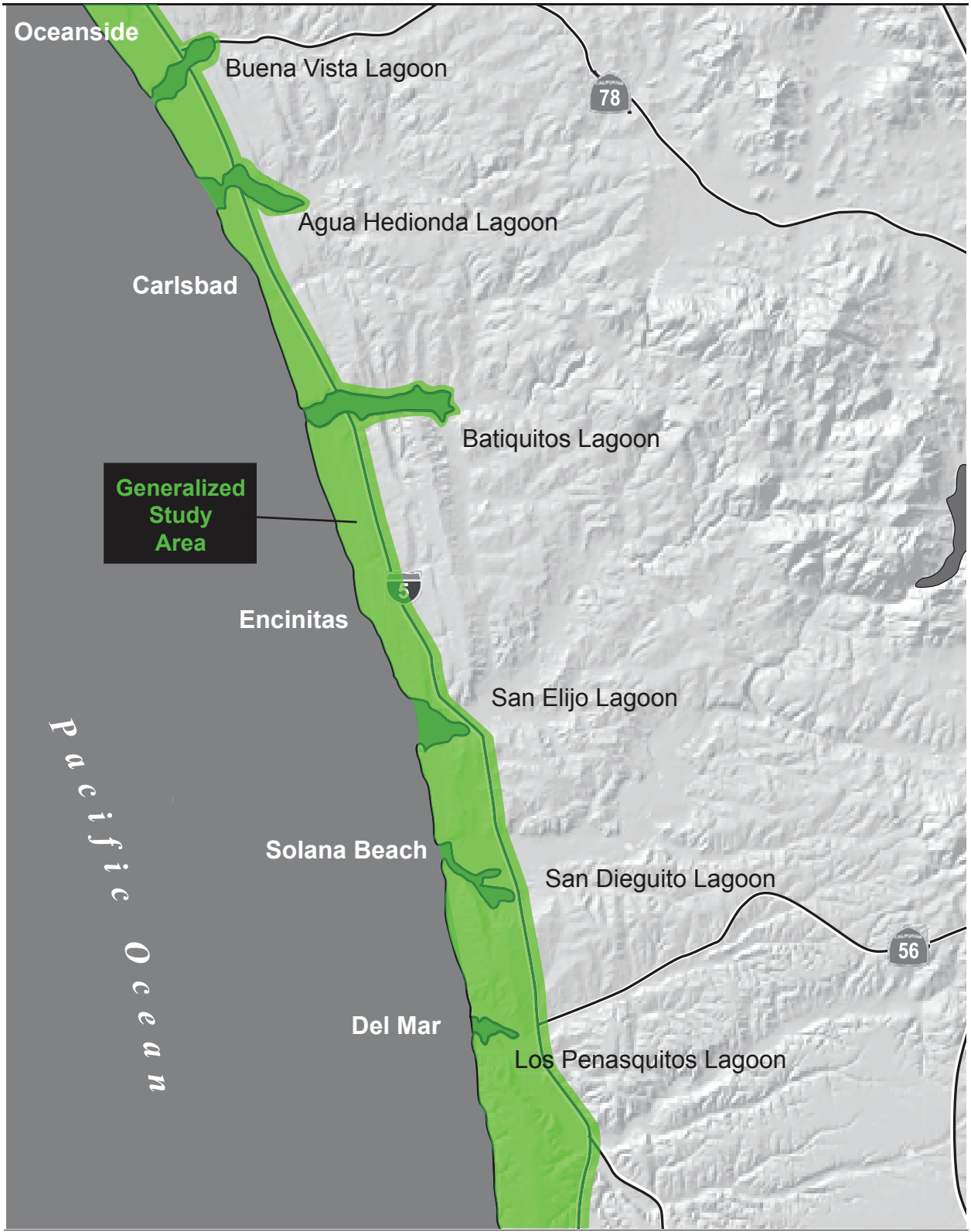
There are six lagoons in northern San Diego County with a long history of human modifications, particularly infrastructure construction like roads and rail that run perpendicular to lagoon features. Only in the past few decades has the focus been on ecological enhancement of those lagoons. The most recent is restoration at San Dieguito Lagoon where planning and implementation occurred between 1997 and 2011. Here, fill was removed to transform upland/farmland acreage to wetland habitat. Restoration of Batiquitos Lagoon was implemented over 15 years ago to create a more tidally open system. Substantial beach nourishment efforts were associated with restoration at Batiquitos Lagoon (over 1.8 mcy more than 15 years ago) and lagoon functional improvements for infrastructure facilities at Agua Hedionda Lagoon (500,000+ cy). Plans for lagoon restoration at San Elijo Lagoon are currently under environmental review.

Additionally, there have been many projects involving materials placement on local beaches along the San Diego region coastline. Several involved placing sand from large- and small-scale inlet maintenance or maintenance dredging onto nearby beaches. There was also the large-scale 2001 RBSP offshore dredging effort, which placed 2 mcy of sand along 12 locations from Oceanside to Imperial Beach. The 2012 RBSP placed 1.5 mcy of material on eight receiver sites along this same coastline, including locations within the current project study area. Much smaller replenishment actions have resulted from opportunistic projects from upland coastal development.

Thus, the cumulative environment has a long history of project actions (enhancement and beach nourishment) at lagoons and along the coast.

5.2 PROJECTS CONSIDERED IN THE CUMULATIVE IMPACTS ANALYSIS

The cumulative projects considered in the following analysis are listed in Table 5-1 and the cumulative study boundary is noted in Figure 5-1. Most of the projects are located along the Oceanside and Carlsbad coastlines; however, some key infrastructure projects are inland and



Note: Air Quality is addressed at the regional APCD level

No Scale

Figure 5-1
Generalized Cumulative Study Area

Table 5-1
Cumulative Projects List

Project Name	General Location/Jurisdiction	Project Type	Description	Project Status/Schedule
Various Jurisdictions				
2012 RBSP	Oceanside, Carlsbad, Encinitas, Del Mar, Solana Beach, San Diego, Imperial Beach	Sand Nourishment	The project involved beach replenishment of the San Diego region's eroding beaches with 1.5 mcy of dredged sediment from three offshore borrow sites. This project involves four main functions: (1) to replenish the littoral cells and receiver sites with suitable beach sand; (2) to provide enhanced recreational opportunities and access at the receiver sites; (3) to enhance the tourism potential of the San Diego region; and (4) to increase protection of public property and infrastructure. Several receiver sites from this 2012 project, and a similar regional project in 2001, are within the cumulative study area. Monitoring of the 2001 RBSP confirmed no long-term significant impacts to beach or offshore resources.	The project was completed in the fall of 2012 and the EIR/EA determined no long-term significant or adverse impacts. Post-construction physical monitoring is underway for 4 years after completion. Monitoring of the 2001 RBSP noted sand volumes at receiver locations were negligible 5 years post-project.
Sand Compatibility and Opportunistic Use Program (SCOUP)	Oceanside, Carlsbad, Encinitas, Solana Beach, Coronado, and Imperial Beach. (See also Oceanside and Carlsbad below for city-specific details.)	Opportunistic Sand Nourishment Program	Implementation of opportunistic sand replenishment program to allow for the processing of multiple beach replenishment projects over a 5-year period as material may become available from other active projects. For each jurisdiction, this program authorizes the issuance of a General Lease – Public Agency Use of Lands in the Pacific Ocean for a term of 5 years, but the start and end dates vary. Details regarding permitted placement volumes and receiver sites are noted in Oceanside and Carlsbad below. The other programs are either too distant (Coronado and Imperial Beach), or	Plans approved by local jurisdictions; initially for 5-year terms that expired in 2013. However, City of Carlsbad extended their program until 2016 and Solana Beach for an additional 5 years. Extensions are in process for Oceanside and Encinitas, with the addition of new receiver sites.

Project Name	General Location/Jurisdiction	Project Type	Description	Project Status/Schedule
			they have not implemented any actions to date (Oceanside).	
I-5 North Coast Corridor Project	San Diego north coast region, from San Diego to Oceanside	Highway Facility Improvements	Caltrans - District 11 proposes improvements to a 27-mile stretch of I-5 in San Diego County. The proposed project begins at La Jolla Village Drive in the City of San Diego and ends at Harbor Boulevard in the City of Oceanside (post mile 28.4/55.4). Currently, I-5 is an eight-lane freeway with some auxiliary lanes that are frequently over capacity and subject to traffic congestion and travel delays. This project proposes four build alternatives to add a combination of features that include High Occupancy Vehicle/Managed Lanes (HOV/ML) that support multiple occupancy vehicle travel, auxiliary lanes to reduce traffic weaving and congestion, a possible additional general purpose lane in each direction of travel, and Direct Access Ramps (DARs) to improve access to the HOV/MLs. The project is expected to be constructed in phases through 2040. The Public Works Plan (PWP)/Transportation Restoration Enhancement Program (TREP) identifies mitigation and enhancement actions for the entire coastal corridor to mitigate for I-5 and railroad improvements. Measures may include completion of bicycle and pedestrian connections, improving trails, upgrading new and existing transportation facilities, re-creation of habitat (upland and wetland), plus compensatory mitigation projects that would provide "functional lift" to coastal resources. The PWP/TREP identifies enhancement of San Elijo Lagoon and/or Buena Vista Lagoon as opportunities. The stated intent is to	Notice of Preparation (NOP) October 2004 Draft EIR/EIS July 2010. Supplemental Draft EIS/EIR released August 2012. Final EIR/EIS issued October 2013. Permitting still ongoing. PWP/TREP was approved in August 2014.

Project Name	General Location/Jurisdiction	Project Type	Description	Project Status/Schedule
			improve ecological heath and hydrological connectivity as well as enhance critical coastal resources and habitats.	
I-5/SR-78 Interchange	On the border of Carlsbad and Oceanside	Highway Facility Improvements	Proposed interchange improvements being studied include adding direct freeway-to-freeway connectors from southbound I-5 to westbound SR-78 and westbound SR-78 to southbound I-5; building direct access ramps that connect to future carpool and transit vehicle lanes on I-5 and SR-78; reconfiguration of the existing interchange to accommodate the new connections is outlined above.	Caltrans is currently evaluating alternatives. NOP scheduled to go out at the end of 2015~~4~~. Public scoping meeting scheduled for end of 2015~~4~~.
Los Angeles to San Diego Rail Corridor Improvements Project (LOSSAN) Rail Corridor Improvements	Throughout San Diego coastal region	Railway infrastructure improvements	During the next 20 years, SANDAG plans to construct nearly $820 million in improvements in the San Diego County section, including a primary effort to double-track the corridor from Orange County to downtown San Diego. To date, approximately half of the San Diego corridor has been double-tracked. Other infrastructure improvements include bridge and track replacements, new platforms, pedestrian undercrossings, and other safety and operational enhancements. The bridge in Buena Vista Lagoon would be double-tracked.	Portions of the project ongoing. Coastal corridor impacts from LOSSAN are also addressed in the PWP/TREP described above for I-5 North Coast Corridor Project. Consistent with state legislation, improvements to I-5 bridge crossing and LOSSAN rail bridge in Buena Vista Lagoon must be performed at the same time.
Buena Vista Creek Channel Maintenance Project	Carlsbad, Oceanside	Maintenance and flood control	The City of Carlsbad plans to continue maintenance and flood control activities within Buena Vista Creek. The proposed project would implement flood control activities in areas not previously considered in the 2003 Project EIR (PEIR), including adding the area east of the Jefferson Street bridge. The City is proposing to continue to remove vegetation by hand over a 10-year period.	NOP prepared February 2012. Maintenance scheduled to commence 2014.

Project Name	General Location/Jurisdiction	Project Type	Description	Project Status/Schedule
Oceanside				
Sand Compatibility & Opportunistic Use Program (SCOUP)	Oceanside	Opportunistic Sand Nourishment	Implementation of a sand replenishment program to allow for the processing of multiple beach replenishment projects over a 5-year period. The project allows the annual placement of up to 150,000 cy of opportunistic sand along the beach at the 5,000-foot receiver site, located south of Forster Street.	No material has yet been placed at this site under this program. The City is in the process of obtaining a new SCOUP permit to place material on Oceanside beaches, and environmental work has begun, which is scoped to be a Mitigated Negative Declaration. Documents in internal draft form.
Oceanside Coastal Rail Trail	Oceanside	Trail Construction	SANDAG, in cooperation with the City of Oceanside, completed a portion of the planned trail between Oceanside Boulevard and Wisconsin Avenue on the west side of railroad property.	Construction began in summer 2013 and was completed in spring 2014.
Buena Vista Audubon Society (BVAS) Nature Center Purchase Agreements	Oceanside	Land Purchase	BVAS has entered into purchase agreements with two landowners to buy properties: one adjacent to Buena Vista Lagoon, and one adjacent to the San Luis Rey River. The Buena Vista Lagoon Parcel is a 3.65-acre property bordering Buena Vista Lagoon and across the street from the BVAS Nature Center. BVAS would like to restore the land to its historical wetlands and edge habitat and incorporate it within the Buena Vista Lagoon Ecological Preserve.	BVAS has advanced $50,000 into escrow for the two purchases. BVAS is seeking partners to help with additional funding. In May 2014, the BVAS board voted to create the Ridgway's Rail Society Fund with the goal of raising $1 million toward land purchases. Initial donations are at $120,000 as of summer 2014.
Oceanside Harbor Maintenance Dredging	Oceanside	Maintenance Dredging/Sand Placement	Oceanside Harbor is dredged annually by the Corps to maintain sufficient depth for boat traffic. Dredged material is typically disposed of by placing it on Oceanside beaches south of Tyson Street. The average amount of material placed on the beach is 175,000 cy.	Ongoing; annually in spring.

Project Name	General Location/Jurisdiction	Project Type	Description	Project Status/Schedule
Carlsbad				
Sand Compatibility and Opportunistic Beach Fill Program (SCOUP)	Carlsbad	Opportunistic Sand Nourishment Program	Implementation of a sand replenishment program to allow for the processing of multiple beach replenishment projects over a 5-year period. This project would allow for the placement of up to 150,000 cy per year of opportunistic beach fill along the Encinas Beach portion of South Carlsbad State Beach, with an initial maximum fill of 50,000 cy. To date, no material has been placed on this site under this program.	City of Carlsbad extended their program until 2016.
City of Carlsbad Trails Master Plan Update	Carlsbad	Trail Planning	The City of Carlsbad has initiated the process of updating the Trails Master Plan that will provide recommendations for enhancing the trail network. The Trails Master Plan will also include design guidelines, will identify priority projects, and will update the City of Carlsbad's Trails Map. There will also be a focus on improving access to trails and open space. The Hosp Grove Trail is the closest to Buena Vista Lagoon, and updates to this trail and potential additional trails to and around Buena Vista Lagoon may have an impact.	Project in early planning and visioning stages.
Carlsbad Coastal Rail Trail	Carlsbad	Road diet and roadway improvements	Vehicular lanes have been reduced from three to two across the lagoon to provide room for the Coastal Rail Trail, a sidewalk on the east side of Carlsbad Boulevard, and bicycle lanes in each direction. The changes do not encroach on the lagoon. The City of Carlsbad also completed construction of a new roundabout at the intersection of Carlsbad Boulevard and State Street just south of Buena Vista Lagoon, which marks the opening of the Coastal Rail Trail segment linking Oak Avenue in northern Carlsbad with southern Oceanside.	Construction began on roundabout in January 2014. Construction complete on road diet and roundabout in May 2014, and construction on roundabout artwork was completed in August 2014.

Project Name	General Location/Jurisdiction	Project Type	Description	Project Status/Schedule
Carlsbad Coastal Corridor	Carlsbad	Road realignment and roadway improvements	Carlsbad Boulevard will be moved slightly to the east, with its median reduced. New land uses under consideration include biking and walking paths, parking, scenic viewpoints, an improved state campground, beach-friendly shops and restaurants, and a linear park along the coast. The project also includes a state-city land exchange along south Carlsbad Boulevard.	Project in early planning and visioning stages.
Agua Hedionda Lagoon Maintenance Dredging	Carlsbad	Maintenance Dredging/Sand Placement	Routine maintenance dredging of the Agua Hedionda Lagoon outer basin occurs every 2 years. This lagoon has undergone maintenance dredging since 1954. This dredged material has been placed on adjacent beaches in Carlsbad. Maintenance dredging of the outer lagoon was completed in April 2009 and resulted in the removal of 299,000 cy of sand. Dredge volumes in 2011 were approximately 500,000 cy. Of that total, approximately 100,000 cy was placed north of Tamarack Avenue. The remainder was placed south of the north jetty. Approximately 500,000 cy is planned for removal in 2015.	Sand placement completed April 2011, planned again for spring 2015.
Batiquitos Lagoon Maintenance Dredging	Carlsbad	Maintenance Dredging/Sand Placement	As a result of the Batiquitos Lagoon Enhancement Project completed in 1997, continued dredging and sand placement occur approximately every 2 years to maintain the lagoon (last performed in 2006). Maintenance dredging is designed to remove sand from flood shoals drawn into the lagoon by tidal action and redistribute it to nearshore areas of adjacent beaches. Whether sand placement will occur nearshore or on the beach is yet to be determined. Dredging and sand placement have occurred periodically over the last 10 years, yielding approximately	Ongoing; fall/winter 2011/2012 for 165,000 cy.

Project Name	General Location/Jurisdiction	Project Type	Description	Project Status/Schedule
			110,000 cy of dredged materials, which have historically been placed on local beaches north and south of the inlet channel. Future dredging is anticipated to provide approximately 165,000 cy, anticipated to be placed on City of Carlsbad and Encinitas beaches in fall 2011.	
Carlsbad Desalination Plant	Carlsbad	Development	Poseidon Resources Corp. (Channelside) LLC (Poseidon) will construct and operate a seawater desalination plant at the corner of Carlsbad Boulevard and Cannon Road with capacity of approximately 50 million gallons per day to produce potable water from sea water.	Currently under construction. Expected to be complete and delivering water in 2016.
Carlsbad Energy Center Project	Carlsbad	Development	Carlsbad Energy Center LLC proposes to develop a natural-gas-fired generating facility on a 23-acre site in the City of Carlsbad adjacent to Agua Hedionda Lagoon. The project will be a 600-megawatt gross combined-cycle generating facility with six General Electric LMS100 combustion turbines on the project site. The Carlsbad City Council agreement required NRG Energy to tear down the Encina Power Plant when the Carlsbad Energy Center opens in 2017. The City of Carlsbad will get 60 acres from the Encina site and 60 acres from the relocation of the North Coast Service Center, which are planned for recreational and commercial uses.	SDG&E filed resource procurement plan with California Public Utilities Commission (CPUC) July 18, 2014, and entered into power purchase agreement with CPUC on July 21, 2014. Project startup projected to be late 2017.
Lagoon Restoration Projects				
San Elijo Lagoon Restoration Project	Encinitas	Lagoon Restoration	The proposed project would restore the lagoon via major infrastructure changes (e.g., railroad tracks, Coast Highway 101, and I-5 bridge) and include dredging and vegetation restoration. The proposed project may also include relocation of the existing lagoon inlet to enhance tidal	Draft EIR/EIS released fall 2014.

Project Name	General Location/Jurisdiction	Project Type	Description	Project Status/Schedule
			influence under some of the alternatives. If excess dredged material is available and suitable, then it could be placed on the beach and/or in the nearshore zone.	
Batiquitos Lagoon Restoration Project	Carlsbad	Lagoon Restoration	In 1987, the Port of Los Angeles, City of Carlsbad, U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of Fish Game (now California Department of Fish and Wildlife [CDFW]), and State Lands Commission signed an agreement toward implementing the restoration of Batiquitos Lagoon. The restoration would serve as mitigation for loss of marine resources in the Outer Los Angeles harbor due to Port construction activities. Restoration began in March 1994 and, in December 1996, the restoration was completed when the mouth of the lagoon was opened to reestablish continuous tidal flushing. A long-term monitoring program was required for 10 years following the construction period. CDFW manages the lagoon using maintenance funds provided by the Port of Los Angeles.	Complete, restoration began in March 1994 and continued through December 1996.
San Dieguito Lagoon Restoration Project	Del Mar	Lagoon Restoration	The San Dieguito Wetlands Restoration Project revitalized 150 acres of coastal wetlands, creating a fish nursery and a refuge for migratory water fowl and endangered species. The project restored tidal flows, natural habitat, and vegetation.	Completed in 2011, being monitored for 40 years. Grading refinements implemented in 2014 to reduce elevations west of I-5 and improve wetland function.
SANDAG W19 Lagoon Wetland Restoration Project	Del Mar	Lagoon Restoration	The proposed site would restore areas south of the San Dieguito River and east of I-5. The proposed project would integrate and expand upon the San Dieguito Wetland Restoration Project.	Public scoping fall 2014.

parallel to the coast. Key lagoons to the south are noted as well because recreational and habitat resources are similar between these lagoons and can be somewhat interchangeable regionally for people and wildlife. If the geographic scope is expanded or narrowed for a specific topic area, it is described in the appropriate section.

Table 5-1 identifies the project name, the jurisdiction within which the action would occur or has occurred, a brief description, and the anticipated schedule for implementation. This list primarily includes planned projects that are on file with local jurisdictions or agencies. Relevant, known projects that have not yet begun the planning process may also be included in this list for the purposes of disclosure, although adequate information may not be available at this time to determine their potential cumulative contribution. Additionally, recently completed projects are also included on the list for informational purposes, even though the environmental effects of a previously completed project would be considered in existing conditions and included in the overall baseline. Programmatic policy documents (i.e., Coastal Regional Sediment Management Plan, Shoreline Preservation Strategy) are not included in the cumulative project list, as those are considered strategic planning documents that do not necessarily provide authority for implementation and generally do not identify specific projects. Although General Plan Updates (GPUs) typically do not include specific projects, the Carlsbad GPU is currently ongoing and has been included in the list of cumulative projects for consideration of cumulative impacts as changes to a general plan can influence patterns of development and land use policies.

5.3 CUMULATIVE IMPACT ANALYSIS

5.3.1 LAND USE AND RECREATION

Section 3.1 identifies potentially significant land use impacts as a result of policy inconsistencies related to coastal recreation access restrictions associated with the creation of a new tidal inlet across the beach area under the Saltwater and Hybrid Alternatives. However, the Enhancement Project proposes mitigation (Land Use-1) to construct a pedestrian bridge that spans the proposed tidal inlet at a height above the calculated high tidal and flood flows to provide north-south lateral access for beach users and would reduce this impact to less than significant. Cumulative projects within the lagoon area would not conflict with coastal access policies as the I-5 North Coast Corridor Project includes accommodation for trail connections under the I-5 bridge and there is currently no pedestrian access for crossing the railroad within the lagoon that could be impacted by the LOSSAN double-tracking project. Additionally, the Enhancement Project does include construction of the Boardwalk, which would serve to provide new pedestrian connectivity and north-south access across the lagoon as well as a new fishing area access trail.

The majority of the lagoon would generally maintain its current land use, would not create incompatible land uses, and would not be inconsistent with regulatory policies with implementation of the Enhancement Project. Many of the projects on the cumulative project list involve sand nourishment and beach replenishment projects that would also not create land use conflicts as they would be placing sand onto existing beach areas and would not substantially modify the land use of an area or create a new incompatible use. Additionally, many land use plans, including Carlsbad and Oceanside, encourage beach replenishment. Other cumulative projects, such as infrastructure improvements, are not generally of the nature to result in significant land use conflicts or incompatibilities and would improve or upgrade existing infrastructure such as I-5 or the railway corridor.

For these reasons, the project would not make a cumulatively considerable contribution to a direct or indirect significant cumulative impact related to land use. A less than significant cumulative impact would occur.

Similar to the land use impact described above, the Enhancement Project would result in a recreational impact due to periodic inlet safety conditions that could restrict access across the beach area, but is mitigated through Land Use-1. However, other cumulative projects on the cumulative list that impact beach areas would not cause additional permanent access restrictions. Beach nourishment projects might result in temporary recreational impacts to surfing, beach-going, and other water sports due to restricted areas for safety purposes while material is physically placed on the beach areas. However, these recreational impacts would be short term and the overall result would include improved recreational opportunities due to the increased volume of sand and available beach area. The sand nourishment projects have varying implementation timeframes and would not all occur at the same time, leaving ample local beach recreation areas available while project-related restrictions may be in place at other locations. Thus, these projects would not combine to create a cumulatively considerable impact to beach recreation access.

For these reasons, the less than significant recreational access impact that would result from the Enhancement Project would not make a cumulatively considerable contribution to a direct or indirect significant cumulative impact related to recreation. A less than significant cumulative impact would result.

As identified in Section 3.1, recreational freshwater angling opportunities would be totally eliminated under the Saltwater Alternative and partially eliminated under the Hybrid Alternative due to the conversion of the lagoon from a freshwater system to a saltwater system. However, as described above, the conversion to a saltwater system is anticipated to encourage saltwater fish species popular among recreational anglers to enter and utilize the lagoon in sufficient numbers

and size classes to provide viable recreational angling opportunities Therefore, even though the species of fish available within the lagoon would be modified from freshwater to saltwater species, recreational fishing would be expected to continue to be viable in the lagoon and implementation of the Saltwater Alternative is anticipated to provide opportunity to maintain continued fishing throughout the lagoon and provide a similar level of opportunity for recreational fishing within the new saltwater environment. Projects within the lagoon, such as the planned infrastructure improvements, would not permanently alter the fishing conditions within the lagoon and other cumulative projects, including beach nourishment projects, would not include the type of activities that would permanently limit or preclude recreational fishing. Thus, because no other projects are likely to result in permanent fishing impacts and implementation of the Saltwater Alternative or Hybrid Alternative would maintain recreational fishing opportunities in the lagoon **the Enhancement Project would not make a cumulatively considerable contribution to a cumulative recreational fishing impact.**

5.3.2 HYDROLOGY

Section 3.2 identifies no substantial impacts to hydrology as a result of the proposed implementation of any of the enhancement alternatives and impacts would be less than significant. The Enhancement Project would substantially change some of the lagoon's hydrology and tributary drainage patterns (varying in degree by alternative); however, the design-induced changes would cause a net beneficial impact to the hydrology by improving hydraulic efficiency, overall circulation, and channel networks, and by creating better flow regimes.

It is possible that other cumulative projects, specifically projects that require substantial earth-moving or surface alterations or projects that increase impervious surface area such as the I-5 North Coast Corridor Project, could also change and modify local hydrology. However, other cumulative projects would be required to adhere to all federal, state, and local regulatory requirements, and may include preparation of a SWPPP and implementation of BMPs to minimize impacts on surface drainage patterns, the amount of surface runoff, and the exposure of people or property to water-related hazards such as flooding. These regulations and requirements would further aid in minimizing the potential for project impacts that could combine to create cumulative hydrology impacts.

For these reasons, the Enhancement Project would not make a cumulatively considerable contribution to a direct or indirect significant cumulative impact related to hydrology. A less than significant cumulative impact would occur.

5.3.3 COASTAL PROCESSES

Project analysis found that less than significant impacts would result from any of the alternatives to littoral systems or risk of damage to coastal structures during the lagoon enhancement process or the materials disposal/reuse.

The majority of cumulative projects that would not include sand nourishment activities or other types of onshore or offshore materials removal or placement would not have any effect on coastal processes. However, multiple projects on the cumulative list are sand nourishment projects. The materials deposited on the neighboring beaches from other beach nourishment projects would add sand to the littoral cell in the vicinity of the project area, which could impact littoral processes. However, these sand nourishment projects are generally undertaken to bypass sand that has been temporarily removed from the littoral cell and trapped in locations such as within Oceanside Harbor or the various coastal lagoons. The replenishment of beach sand from the bypass projects can be considered as a cyclic redistribution of sand within the littoral cell and is not anticipated to result in adverse effects to littoral and coastal processes. Larger projects, such as the 2001 and 2012 RBSPs, supply the system because there is no longer an adequate supply of sediment from historic sources (upstream erosion, bluff erosion, etc.). Sand supplies from larger projects eventually distribute throughout the system and exit to canyons and outside depths of closure such that no long-term adverse cumulative effects occur. Additionally, cumulative sand nourishment projects throughout the region would not substantially reduce the 30-mcy deficit identified for the region (SANDAG 2011). Similar to the discussion of the Enhancement Project, onshore beach nourishment resulting from cumulative projects would be beneficial in reducing risks to coastal geology and structures from wave and storm erosion.

For these reasons, the Enhancement Project would not make a cumulatively considerable contribution to a cumulatively significant direct or indirect impact related to coastal processes under any alternative. A less than significant cumulative impact would result.

5.3.4 WATER AND AQUATIC SEDIMENT QUALITY

As detailed in Section 3.4, the enhancement alternatives would not create significant impacts to water or sediment quality because a variety of appropriate BMPs would protect water quality, minimize erosion, and minimize sediment transport during construction. Turbidity plumes may result from materials placement in offshore and nearshore locations, but would settle quickly. However, the potential water quality impacts associated with temporary turbidity due to dredging activities are considered potentially significant as the lagoon is a 303d listed water body. Mitigation, project design features, and regulatory requirements would serve to minimize potential turbidity effects. The Enhancement Project would provide a long-term water quality

improvement (to varying degrees dependent on alternative) throughout the lagoon by improving hydraulic efficiency within the lagoon system, which would improve lagoon circulation, decrease stagnation, and increase lagoon and coastal water quality. Cumulatively, beneficial improvements have already occurred at San Dieguito Lagoon and may occur at San Elijo Lagoon if restoration plans proceed.

Water quality and hydrology impacts can have widespread effects on an entire watershed, hydrologic unit, and downstream locations. For this reason, analysis of potential cumulative impacts to water quality must also consider development and projects that are occurring at upstream locations in the watershed. Many of the projects on the cumulative project list, such as beach nourishment and other smaller projects, would not be of the type or magnitude to create significant water quality impacts. However, larger projects, such as the I-5 North Coast Corridor project, LOSSAN project, or other large developments within the watershed, could result in degraded water quality. As described in Section 3.4, multiple federal, state, and local regulations must be complied with to protect water quality. Typically, projects under the Construction General Permit would be required to prepare a SWPPP that identifies BMPs that would be used to prevent pollutant discharge and minimize other water quality impacts. Additionally, projects would be implemented in accordance with RWQCB water quality certifications, which require compliance with applicable water quality standards, limitations, and restrictions. The required adherence to water quality regulations and implementation of required BMPs would minimize the potential for water quality impacts to result from cumulative projects and development throughout the watershed.

Turbidity plumes associated with materials placement would not be expected to overlap with other areas of turbidity caused by cumulative sand nourishment projects. The Enhancement Project turbidity plumes would be temporary, settle quickly, and be fairly localized. It is unlikely that cumulative sand nourishment projects that create temporary nearshore turbidity would be ongoing in the immediate vicinity at the same time as the Enhancement Project and would be subject to dispersion and dilution by ambient currents, wind, and wave action.

For these reasons, the Enhancement Project would not make a cumulatively considerable contribution to a direct or indirect cumulatively significant adverse impact related to water quality under any alternative. A less than significant cumulative impact would result.

5.3.5 BIOLOGICAL RESOURCES

Because the biological resources specific to the lagoon are unique and specialized, lagoon enhancement is discussed under a separate heading from the on-site materials placement sites.

Lagoon Enhancement

A limited number of lagoon resources are located throughout the San Diego coastline, including Buena Vista, Agua Hedionda, Batiquitos, San Elijo, San Dieguito, and Los Peñasquitos Lagoons. Because lagoon resources are specific to specialized conditions of each lagoon, the cumulative analysis for this project focuses on projects that might have the potential to impact biological resources also associated with Buena Vista Lagoon.

As described in Section 3.5, Enhancement Project construction would result in greater than 50 percent temporal loss of sensitive habitats that would be significantly impacted by construction activities, including sensitive riparian habitat (coastal and valley freshwater marsh, open water vegetation types) and sensitive upland habitat (coastal scrub and Diegan coastal sage scrub: *Baccharis*-dominated) and is considered a short-term significant and adverse direct impact to these types of habitats. Because the Enhancement Project would closely coincide with other cumulative projects occurring within the lagoon area, such as the I-5 North Coast Corridor and LOSSAN double-tracking projects, sensitive lagoon habitats could be further impacted. **This is considered a short-term significant and adverse cumulative impact.** However, the temporary loss of the habitat within the lagoon is unmitigable as it must occur for the enhancement activities to take place, and the potential for receiving recovery after all three projects are constructed is greater given the simultaneous construction, shortening the overall duration. This cumulative impact would be mitigated over time as the habitats are restored and beneficial habitat impacts would result from the enhanced lagoon function.

The San Dieguito and San Elijo lagoon restoration projects have the potential, when considered cumulatively with Enhancement Project, to result in temporary cumulative habitat losses should the project schedules overlap. Of issue is the loss of foraging, nesting, or over-wintering habitat as part of the relatively limited coastal wetlands in southern California. Long term, all three projects could serve to improve the ecology (functions and values) of these critical lagoon resources. When considering the potential for short-term impacts, it is important to consider the timing, along with the resources.

The San Dieguito project completed restoration in 2011, but in early 2014, a portion of the site was regraded as part of the ongoing adaptive management plan for the project. This project created/restored salt marsh, mudflat, subtidal and upland habitats, and fisheries resources, on what was most recently farmed and upland habitat. It created more than 100 acres of coastal wetlands that is already functioning for the intended fish resources, and many birds as well. While vegetation at San Dieguito will likely not be fully established prior to the Enhancement Project implementation, habitat will already be of higher biological resource value than the pre-

project condition and will be available for migratory birds seeking stop-over habitats. Therefore, no cumulative temporal impacts are anticipated when considered with this project.

The San Elijo Lagoon Restoration Project (SELRP) is currently undergoing environmental review. If implemented, it is anticipated that construction would start in fall 2016. Buena Vista Lagoon currently supports a different habitat mix than habitats that would be impacted by the SELRP. San Elijo Lagoon does support freshwater habitats in the east basin; however, project construction would affect a limited amount of freshwater habitat areas relative to the entire lagoon, consisting predominantly of salt marsh. After full tidal opening at San Elijo Lagoon, it is possible that increased tidal flow may result in the conversion of additional habitat away from freshwater/brackish marsh. However, this is anticipated to be limited to the transitional monitoring area above the restored high water elevation.

If the Saltwater or Hybrid Alternative were selected for implementation, a reduction/elimination of freshwater habitats within the lagoon would result. However, the loss of freshwater habitats associated with these two alternatives of the Enhancement Project would not be cumulatively considerable when considered with the limited transition of freshwater habitat at San Elijo Lagoon, for the following reasons:

- Conversion of one habitat type to another is not in itself a significant biological impact, as the enhancement of degraded habitat (regardless of type) would be ecologically beneficial to sensitive species and the lagoon ecosystem as a whole.
- Saltwater habitats that would be created at the lagoons are regionally far more limited than freshwater marsh habitats.
- Sensitive species relying on freshwater habitats within the lagoons are not expected to be significantly impacted by the transition.
- Habitat impacts at San Elijo Lagoon would be limited in acreage, and the majority of freshwater wetland habitats at San Elijo Lagoon would remain available for resident and migratory species.

Therefore, no cumulative significant impacts are anticipated.

Light-footed Ridgway's rail is a year-round resident of the lagoon and would experience temporary loss of greater than 50 percent of its nesting habitat. This sensitive bird species has the potential to be further disturbed or impacted by other cumulative projects such as the I-5 North Coast Corridor and LOSSAN double-tracking projects taking place in the lagoon within a similar timeframe. It is likely that those cumulative projects would not impact habitat at the same

magnitude as the Enhancement Project as they would be generally more localized, **but the cumulative impacts to light-footed Ridgway's rail would be significant and adverse in the short term.**

The Enhancement Project results in the potential for short-term noise impacts to sensitive species as a result of construction activities. When in proximity to wildlife, the effects of dredge and other construction noise may disrupt foraging or breeding behavior of sensitive birds. The dredge is slow and would be operating in one basin at a time; as such, birds could always relocate to quieter habitat. However, relocation during the breeding season is not feasible for nesting birds and this is considered a significant and unavoidable impact. If the I-5 North Coast Corridor Project or LOSSAN double-tracking project were to occur simultaneously and in proximity to the active dredging footprint, it is possible that ambient noise levels would increase to even higher levels. The lagoon enhancement dredging activities would play a substantial role in these increased noise levels.

Multiple mitigation options were considered to reduce noise levels that may impact nesting birds during breeding seasons; however, none were found feasible. The use of noise walls was also eliminated as a feasible mitigation option for reasons including habitat concerns that would result from the long-term placement of a noise wall and the substantial length of the noise wall that would be required because the dredge would be moving. A mitigation measure limiting work to outside the breeding season was also considered. However, this would extend the overall construction duration, prolong the overall period of disruption to foraging birds, and add to habitat recovery time. This was determined to be biologically undesirable and therefore infeasible. **For this reason, implementation of the Enhancement Project could make a cumulatively considerable contribution to an adverse temporary significant cumulative biological impact due to noise effects on sensitive birds.**

Multiple cumulative projects that could also include construction are located within the lagoon itself and therefore have the potential to adversely impact sensitive biological resources. Adverse biological impacts resulting from cumulative projects could include the disturbance of sensitive vegetation communities, habitat loss, impacts to nesting and/or foraging habitat of sensitive animal species, restrictions to wildlife movement, degraded water quality, and others. These projects would be subject to all federal, state, and local regulations regarding the avoidance, protection, and mitigation of adverse impacts to biological resources. While some similar adverse biological impacts would occur with the proposed lagoon enhancement, they are not considered to combine with other cumulative projects to create a significant adverse impact because of the overall positive beneficial biological results that would occur from the construction of this Enhancement Project. The Enhancement Project would result in improved hydrologic function and increased foraging habitat. The addition of cumulative projects and their

potentially adverse impacts on biological resources would not reduce the Enhancement Project's ability to create improved lagoon ecology, or increase foraging for species, and would result in no overall loss of lagoon resources. The Enhancement Project is, by design, a project for the long-term improvement of water quality and health/diversity of biological resources. **For these reasons, the Enhancement Project would not make a cumulatively considerable contribution to a long-term direct or indirect cumulatively significant adverse impact related to the overall loss of biological resources. A less than significant cumulative impact would result.**

Materials Disposal/Reuse

There are no known cumulative projects proposing offshore disposal, and disposal at LA-5 is limited to a specific volume controlled by EPA; thus, that topic is not discussed further. As noted in the list of cumulative projects, multiple beach placement/nourishment projects could occur along the San Diego coastline and at overlapping onshore locations as proposed by the Enhancement Project. Of the listed cumulative projects, only those involving beach placement/nourishment or associated with the ocean environment have the potential to contribute to cumulative impacts to nearshore and offshore biological resources. It is not reasonable to assume that onshore materials placement would occur simultaneously in areas of immediate proximity, but rather would be coordinated and occur at separated locations along the coast. Additionally, marine impacts from onshore or nearshore materials placement are typically temporary and localized, and dissipate rapidly with ambient conditions returning quickly. The largest of past sand nourishment projects, the 2012 RBSP, was completed and is in the monitoring phase. Thus, the potential for many cumulative adverse impacts, such as increased turbidity, aquatic wildlife displacement, and other potential biological impacts, would likely not combine as these impacts would have ceased prior to implementation of the Enhancement Project. Other cumulative beach nourishment projects are of a much lesser volume, resulting in even lesser potential for impacts to combine in a cumulative manner. These projects would also be subject to all federal, state, and local regulations regarding the avoidance, protection, and mitigation of biological resources. Environmental documents, such as those for the 2012 RBSP and the Encinitas-Solana Beach Coastal Storm Damage Reduction Project, found that no significant cumulative biological impacts were anticipated from the projects. Overall, the proposed materials placement, in combination with cumulative beach nourishment projects, would enhance sandy beach habitat to the benefit of numerous species. The potential for cumulative impacts to sensitive nearshore habitat areas due to increased material in the coastal process is anticipated to be less than significant based on Enhancement Project model predictions. For these reasons, the Enhancement Project would not make a cumulatively considerable contribution to a direct or indirect significant cumulative biological impact during

onshore or nearshore materials placement. **A less than significant cumulative impact would result.**

5.3.6 GEOLOGY AND SOILS

Enhancement activities involving removal and or placement of sediment and other material from the generally flat lagoon basins or the previously disturbed access roads and staging areas would not occur in locations that provide stability for other natural features, such as slopes or hillsides, and would not create increased geologic hazards as described in Section 3.5 for any of the alternatives.

Offshore and nearshore placement of materials is considered to have no geologic or soils impacts. The placement of sand at onshore locations would not cause geologic hazards and may actually reduce the potential for geologic hazards as it would serve to protect against the undercutting or erosion of cliffs or other areas subject to wave-induced erosion, thus resulting in the beneficial outcome of reducing slope instability and landslide potential. There would be similar positive geologic results for the cumulative sand nourishment projects included on the cumulative list.

Both the Boardwalk component and the replacement and expansion of the Carlsbad Boulevard bridge as part of the Enhancement Project would be designed and constructed in accordance with the latest versions of all applicable federal, state, and local codes relative to seismic criteria. All planned infrastructure projects within the lagoon, including the I-5 bridge improvements planned by Caltrans and railroad bridge structure that would be constructed by NCTD as part of the LOSSAN double-tracking project, would be subject to multiple regulatory codes and requirements to ensure structures are properly designed and engineered to achieve high safety standards when being constructed in unstable geologic conditions. Similar to the Enhancement Project, the implementing agencies for these infrastructure projects would be required to perform necessary geologic investigations and meet engineering and design requirements to ensure appropriate design for geologic safety. Adhering to regulations and requirements aids in minimizing the potential for project impacts that could combine to create cumulative geologic and soils impacts.

For these reasons, the activities associated with lagoon enhancement and materials placement under any of the alternatives would not increase geologic hazards. **Thus, the Enhancement Project would not make a cumulatively considerable contribution to a cumulatively significant impact related to geology and soils. A less than significant cumulative impact would result**.

5.3.7 CULTURAL RESOURCES

Section 3.7 identifies potential significant CEQA impacts to cultural resources under all three enhancement alternatives because the potential exists to encounter currently unknown cultural deposits during mobilization and use of land-based equipment for soils and/or vegetation removal in the densely vegetated stable surfaces along the lagoon margins. CEQA mitigation is proposed that would provide for a Monitoring and Discovery Plan to monitor areas with the potential to contain intact cultural resource deposits, and, if necessary, the recovery, curation, and documentation of any resources identified. Training sessions for construction personnel would be conducted, and mitigation and regulatory requirements would require that work be suspended or redirected if human remains were encountered and would also include consultation with local Native American Tribes per CEQA and a protocol for handling the inadvertent discovery of human remains. These measures would ensure that any cultural resources encountered during construction would be treated in accordance with applicable regulations and guidance and would minimize/mitigate the potential for the project to add to the cumulative loss or destruction of significant cultural resources.

Other cumulative projects that involve ground disturbance would also have the potential to impact buried cultural resources. Similar to the Enhancement Project, these cumulative projects would also be subject to all federal, state, and local regulations mandating the protection of cultural resources. If cumulative projects identify a potential to impact cultural resources, the impact would typically be mitigated through measures such as site preservation or data recovery. These types of mitigation measures allow the cultural resources data to be protected and preserved to ensure that the critical information necessary to the future study of cultural resource sites and artifacts is not lost or destroyed by the Enhancement Project or other cumulative projects.

Because the Enhancement Project and cumulative projects must comply with CEQA and all other cultural federal, state, and local regulations, which require adequate analysis and appropriate mitigation of cultural resource impacts, the cumulative impacts to archaeological resources would be expected to be fully avoided, minimized, or mitigated, and critical information regarding regional prehistory preserved and/or documented. **Thus, the Enhancement Project would not make a cumulatively considerable contribution to direct or indirect cumulative impacts for cultural resources. A less than significant cumulative impact would result.**

5.3.8 PALEONTOLOGICAL RESOURCES

As described in Section 3.8, most ground-disturbing activities associated with the Enhancement Project would occur only during dredging activities and would be limited to portions of the

lagoon basins that are generally underlain by fill soils and alluvial deposits. However, geologic material surrounding the inlet contains River and/or Marine Terrace Deposits, which have a high to moderate paleontological sensitivity. If excavation activities were to disturb the underlying sensitive formation, a potential would exist for paleontological resources to be damaged or destroyed and this is considered a significant impact under all three enhancement alternatives. Required mitigation would include a monitoring program if paleontological resources are encountered during ground-disturbing activities within River and/or Marine Terrace Deposits that would halt work, assess the resource, and perform recovery if necessary. This would ensure that any paleontological resources encountered during construction would be adequately treated and the important information retained and documented. This would minimize/mitigate the potential for the project to add to the cumulative loss or destruction of significant paleontological resources. **The Enhancement Project would not make a cumulatively considerable contribution to a cumulatively significant direct or indirect adverse impact related to paleontology. A less than significant cumulative impact would result.**

5.3.9 VISUAL RESOURCES

Section 3.9 identifies that, while there would be visual changes in the current patterns of vegetation and open water fluctuation within the lagoon, the overall vision of a natural, wetland system would remain and, thus, permanent visual impacts are considered less than significant. Infrastructure improvements would result in similar views as infrastructure elements currently exist and new elements, such as the Boardwalk or reconstructed bridge, would not be out of place or scale compared to the existing visual environment. However, the proposed pedestrian bridge as required by Land Use-1 would be in contrast with the public expectation of open views in this defined open space area, both toward the ocean and from the ocean back to the lagoon and implementation of Mitigation Measure Land Use-1 would result in significant unavoidable visual impacts.

When analyzing cumulative visual impacts, it is important to consider those projects that could alter the existing visual environment with the same viewshed as the project. Other cumulative projects, such as the I-5 North Coast Corridor and LOSSAN rail improvements projects may slightly change the look of the existing transportation facilities, but would likely not introduce substantial new modifications to the existing visual environment. Thus, while the proposed pedestrian bridge would cause a significant project level visual impact, there are not substantial visual changes as a result of cumulative projects within the same viewshed that would combine to create a significant cumulative visual change to the aesthetic environment. Therefore, **the Enhancement Project would not make a cumulatively considerable contribution to a permanent significant cumulative visual impact as a result of enhancement activities. A less than significant permanent cumulative visual impact would result.**

During construction, some activities would be visible, such as cutting and removing the cattails and construction staging, and some would be underwater (bottom contouring) with the only a boat/dredge, pipes, and some construction trucks visible. The visual analysis found that these temporary construction activities would appear cluttered and out of place within the natural lagoon setting and would result in a temporary significant and unavoidable visual impact. While mitigation, such as screening around construction staging areas is required, the impact would not be reduced to less than significant. Other cumulative projects, such as the I-5 North Coast Corridor and LOSSAN double-tracking projects, could add to the short-term temporary construction visual impacts within the lagoon by adding more construction equipment operating in the area, increasing vegetation removal, landform modifications, stockpiling, and other construction-related activities if the project were to occur simultaneously. These visual intrusions would last only for the duration of each project's construction period and, ultimately, the lagoon character would be returned similar to existing pre-construction conditions. **However, the Enhancement Project would make a cumulatively considerable contribution to a significant cumulative visual impact as a result of enhancement activities. A temporary significant cumulative visual impact would result.**

Potential beach placement locations all have various sensitive viewers, ranging from beachgoers, residences, recreationalists, and others. Construction equipment would be temporarily visible during materials placement, typically 2 to 4 weeks and no more than 60 days. Additionally, construction equipment would be mobile and not located in one area for a long period of time as the work progresses along the shore. All potential onshore placement locations have been recipients of beach nourishment in the past and the visual occurrence of construction equipment on these beaches is not highly uncommon. Because few projects can actually be constructed on the sandy beach areas, a limited potential exists for construction of other cumulative projects to occur simultaneously in the vicinity of the materials placement operations. Once onshore materials placement is completed, the placement material would be similar to the existing beach and not a substantial degradation of the overall sandy beach appearance. Similarly, other cumulative beach nourishment projects typically result in positive overall visual impacts as they enhance the sandy beach aesthetic through the creation of additional sand to cover and supplement the existing beach environment. **Because of the short-term and continuous mobile nature of the operations, the materials placement activities would not make a cumulatively considerable contribution to a significant cumulative visual impact. A less than significant cumulative visual impact would result.**

5.3.10 TRAFFIC AND CIRCULATION

As outlined in Section 3.10, no short-term or long-term significant traffic impacts related to vehicular traffic would result from any of the enhancement alternatives. The temporary

pedestrian access impact that would occur during construction of the Carlsbad Boulevard bridge would be reduced through the mitigation measure requiring the Boardwalk to be completed first to provide continued safe pedestrian access. However, a short-term significant impact would occur associated with the decrease in performance and/or safety of bicycle facilities during replacement of the proposed Carlsbad Boulevard bridge under the Saltwater Alternative and the Hybrid Alternative as a result of closure of the existing multi-use pathway located on the west side of Carlsbad Boulevard for approximately 9 months. Mitigation would include implementation of a traffic control plan, inclusion of a shared bicycle lane throughout construction, and advanced notification of bicyclists; however, this would not fully mitigate the impact. Additional mitigation measures were considered, but none were found feasible to mitigate the temporary bicycle access impacts due to bridge replacement and impacts would remain significant and unavoidable. It is possible that other cumulative projects in the area could also necessitate temporary road closures or bicycle travel restrictions during their construction periods as well. **For this reason, temporary impacts to bicycle facilities from reconstruction of the Carlsbad Boulevard bridge would make a cumulatively considerable contribution to a temporary significant cumulative traffic impact.**

5.3.11 AIR QUALITY

Air quality is typically considered a regional issue, as pollutants can travel long distances, regardless of jurisdictional boundaries. For this reason, the cumulative analysis considers regional air quality throughout the SDAB. However, localized air quality impacts can also result from numerous construction projects in a small area.

The analysis in Section 3.11 found that temporary construction-related emissions would exceed the recommended levels of significance for NOX for all enhancement alternatives and could lead to a violation of an applicable air quality standard. Implementation of mitigation measures requiring reduced-emission equipment and technology would partially reduce anticipated emissions, but not to levels below the applicable thresholds. Thus, NO_X emissions impacts for the Freshwater Alternative (LA-5 disposal scenario), Saltwater Alternative, and Hybrid Alternative would remain significant and unavoidable. Additionally, unhealthful pollutant concentrations could be generated at the Railroad Basin staging area and expose sensitive receptors to substantial construction pollutant concentrations. Mitigation would reduce localized emissions but would not fully mitigate the impact, and it would remain significant and unavoidable.

The SDAB currently meets NAAQS for all criteria air pollutants except ozone and meets the CAAQS for all criteria air pollutants except ozone, PM10, and PM2.5. Construction and operation of cumulative projects and general growth and development throughout the region

would further degrade the local air quality, as well as the air quality of the air basin. Air quality would be temporarily degraded during construction activities that occur separately or simultaneously. As shown through the cumulative project list, multiple construction projects, including those recently completed as well as projects planned for the future, could have the potential to exceed criteria emission thresholds. Similar to the Enhancement Project, cumulative projects would also be subject to regional air quality regulations and project-specific mitigation measures would be required if thresholds were exceeded. The required adherence to air quality regulations and implementation of mitigation, if necessary, would reduce the potential for significant adverse cumulative air quality impacts to occur throughout the SDAB due to cumulative projects.

A project that produces a significant air quality impact in an area that is out of attainment is considered to significantly contribute to the cumulative air quality impact. Conversely, projects that do not exceed the threshold criteria or can be mitigated to less than criteria threshold levels are considered insignificant contributors and would not substantially add to the overall cumulative impact. Because emission levels from all Enhancement Project alternatives could not be mitigated such that pollutant emissions would be below appropriate thresholds, **the Enhancement Project would make a cumulatively considerable contribution to a significant cumulative air quality impact.**

5.3.12 GLOBAL CLIMATE CHANGE, GREENHOUSE GAS EMISSIONS, AND SEA LEVEL RISE

A single project is unlikely to have a significant impact on global climate change. However, the cumulative effects of worldwide GHG emissions have been clearly linked to changes in the atmosphere and identified as the main cause of global climate change. For this reason, analysis of GHG emissions from the project, as provided in Section 3.12, is considered a cumulative impact analysis. Section 3.12 provides a complete analysis of GHG emissions for the Enhancement Project and alternatives. The impact determination for the County of San Diego threshold for all enhancement alternatives is based on the combined amortized construction-related and operational emissions per year. The total amortized construction and operational emissions for all alternatives would not exceed the County of San Diego threshold of 900 MT CO_2e per year.

The approach to developing a threshold of significance for GHG emissions is to identify the level of emissions for which a project would not be expected to substantially conflict with existing California legislation that has been adopted to reduce statewide GHG emissions. Therefore, because no alternative would exceed the threshold, construction of Enhancement Project would not conflict with existing plans, policies, or regulations adopted for the purpose of reducing GHG emissions.

Therefore, implementation of any of the three enhancement alternatives would not result in a cumulatively considerable contribution to GHG emissions or global climate change.

Specific to sea level rise and extreme events, all enhancement alternatives (to varying degrees) would provide a benefit by lowering flood water elevations or enhancing tidal exchange with the ocean. These benefits would increase the ability of the lagoon to adapt slowly to changes in sea level over time. Additionally, lowered flood elevation would provide resiliency against floods, other extreme events, and sea level rise. The Enhancement Project would provide additional protection within the lagoon against the future implications of sea level rise and would provide offsetting benefits relative to GHG emissions. **Therefore, the Enhancement Project would not result in a cumulatively considerable direct or indirect contribution to sea level rise.**

5.3.13 NOISE

As detailed in Section 3.13, activities associated with the lagoon enhancement and materials placement would result in temporary increased daytime noise levels in the immediate vicinity. However, none of these increased noise levels would be in violation of appropriate daytime noise thresholds and would not exceed allowable noise levels as determined by the local jurisdictions.

Noise is a localized issue and potential impacts extend only as far as noise from a project is audible. For this reason, cumulative impacts would only result when two projects are in proximity and occurring concurrently. It is not reasonable to assume that an additional beach nourishment project would take place at the same time and location as materials placement from the Enhancement Project on a proposed onshore site. However, it is possible that another cumulative project could occur during the same timeframe as lagoon dredging. The I-5 North Coast Corridor and LOSSAN double-tracking projects are examples of cumulative projects that would cross the lagoon in proximity to the Enhancement Project and could potentially overlap with the dredging period. Though these cumulative projects are anticipated to occur within the general lagoon area at some point during dredging operations, it is unlikely that the two projects would occur in such proximity to each other and also within 100 feet of a residential property line that their noise could combine and result in an exceedance of noise level thresholds. While background ambient noise levels might be temporarily increased during simultaneous construction of multiple projects, this increase is not anticipated to be above significant levels at nearby receptors. If construction of two projects were ongoing at the same time, construction managers would be working in coordination to maintain appropriate distances between active construction areas to ensure the safety of workers and equipment, which would also limit the potential for their noise to combine in excess of daytime noise limits.

However, due to nighttime dredging and materials placement activities, significant impacts have been identified for the Enhancement Project. Project design features have been incorporated to limit nighttime noise levels, but even with implementation of these measures nighttime construction outside of allowed hours would result in significant impacts. It is possible that cumulative projects in the lagoon area, such as the I-5 North Coast Corridor Project, may also require nighttime construction outside of permitted daytime hours. **Because the nighttime noise impact outside of allowed construction hours cannot be avoided and other cumulative projects may also require nighttime construction, the Enhancement Project would make a cumulatively considerable contribution to a significant cumulative nighttime noise impact.**

5.3.14 PUBLIC SERVICES AND UTILITIES

The Enhancement Project would not result in significant impacts to public services and utilities under any alternative. Minimal amounts of utility provision or other public services would be required for the Enhancement Project. The Enhancement Project has been designed to avoid interference with existing utilities, such as the gas line and transmission lines along Coast Highway/Carlsbad Boulevard and, if determined that relocation of infrastructure may be required, coordination with the service provider would minimize potential for substantial service interruptions. A detailed utility investigation in advance of Enhancement Project implementation would ensure that all known utilities are specifically located so that the project can fully avoid the existing utilities or initiate early coordination with the utility provider to reduce and limit interruption of service; this would serve to minimize potential for unanticipated impacts.

Generally, the listed cumulative projects would not result in new construction with substantial increase in demand for utilities or public services. Similar to the Enhancement Project, the cumulative sand nourishment projects would also have a fairly minimal demand for the provision of utilities and would generally not have permanent need for service. A large project such as the I-5 North Coast Corridor or LOSSAN double-tracking projects would likely require extensive coordination with public service providers due to necessary infrastructure relocations to avoid interrupted service; however, these projects are not the type of project that necessitates a substantial increase in the long-term demand for public services or utilities.

Because the Enhancement Project would not result in the need for new systems or substantial alterations to existing systems that would have environmental impacts, the Enhancement Project would not make a cumulatively considerable contribution to a cumulative direct or indirect impact to utilities or public services.

5.3.15 PUBLIC HEALTH AND SAFETY

As outlined in Section 3.15, significant impacts to public recreational safety would result from operation of the Saltwater and Hybrid Alternatives with the new inlet crossing of the beach that could create a safety threat to recreational users during certain tidal conditions of high water volume and velocities. However, based on cumulative projects known to the area, it is unlikely that another project would also create beach safety impacts in this area. Even if a beach nourishment project were to occur in the immediate beach area, as demonstrated with the Enhancement Project, public safety hazards are avoidable through appropriate signage, closures, fencing, barricades, and safety personnel. Additionally, the public safety impact associated with the new inlet is an extremely localized impact, affecting only the immediate area of beach. **Thus, while the new inlet crossing under the Saltwater and Hybrid Alternatives would create a significant and unavoidable project impact, the Enhancement Project would not make a cumulatively considerable contribution to a cumulative public safety impact.**

Other cumulative projects, such as the I-5 North Coast Corridor and LOSSAN double-tracking projects, may also occur within the lagoon basin in an overlapping timeframe with the San Elijo Lagoon Restoration Project and would also be required to comply with all regulatory safety requirements regarding hazardous materials. The mandatory adherence to regulatory requirements limits potential for cumulative risks associated with the use of hazardous materials.

Implementation of the other cumulative sand nourishment projects could have similar public safety hazards during materials placement. However, as outlined above, these safety hazards are avoidable through appropriate signage, closures, fencing, barricades, and safety personnel. Additionally, development of cumulative projects would be subject to all regulatory requirements specific to the safe handling and transport of hazardous materials, thus minimizing potential for increased public safety hazards. **Thus, the Enhancement Project does not make a cumulatively considerable contribution to a direct or indirect cumulative public health or safety impact.**

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