

**Initial Study/Mitigated Negative Declaration
No. PP-24-0054**

**Orange County
Sand Compatibility and
Opportunistic Use Program**

May 2026

Prepared for:

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LIST OF ACRONYMS AND ABBREVIATIONS

ASBPA	American Shore & Beach Preservation Association
AQMD	Air Quality Management District
BMP	Best Management Practice
CAP	Climate Action Plan
CARB	California Air Resources Board
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CDFW	California Department of Fish and Wildlife
CHRIS	California Historical Information System
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
CY	Cubic Yards
dBA	A-Weighted Decibels
DPM	Diesel Particulate Matter
EIR	Environmental Impact Report
EOP	Emergency Operations Plan
FAA	Federal Aviation Administration
FHSZ	Fire Hazard Severity Zones
GHG	Greenhouse Gas
HCP	Habitat Conservation Plan
IS	Initial Study
IS/MND	Initial Study/Mitigated Negative Declaration
LHMP	Local Hazard Mitigation Plan
MHTL	Mean High Tide Line
MM	Mitigation Measure
MND	Mitigated Negative Declaration
MPA	Marine Protected Area
NCCP	Natural Community Conservation Plan
ND	Negative Declaration
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NAHC	Native American Heritage Commission
NRHP	National Register of Historic Places
OC SCoup	Orange County Sand Compatibility and Opportunistic Use Program
OC	Orange County
OCHCA	Orange County Health Care Agency
OCPW	Orange County Public Works
OCTA	Orange County Transportation Authority
OSHA	Occupational Safety and Health Administration

PGM	Program Guideline Measures
PPV	Peak Particle Velocity
Program	Orange County Sand Compatibility and Opportunistic Use Program
RCM	Regulatory Compliance Measure
SC	Standard Conditions
SCAQMD	South Coast Air Quality Management District
SR	State Route
VMT	Vehicle Miles Traveled
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency

1.0 INITIAL STUDY / ENVIRONMENTAL CHECKLIST

1.1 Project Title

Orange County Sand Compatibility and Opportunistic Use Program (OC SCOUP)

1.2 Lead Agency

County of Orange

1.3 Project Contact

Giles Matthews
Regulatory Permitting Manager
OC Infrastructure Programs,
Orange County Public Works (OCPW)

1.4 Project Sponsor

Giles Matthews
Regulatory Permitting Manager
OC Infrastructure Programs, OCPW

1.5 Project Location

The Program sites are located along the Orange County coast and inland in the following Cities (listed north to south): City of Seal Beach, City of Huntington Beach, City of Costa Mesa, City of Newport Beach, City of Irvine, City of Dana Point, and City of San Clemente. For the purpose of this document, locations are grouped by the entities who manage (are responsible for) the beach receiver and stockpile sites. The Costa Mesa stockpile site is managed by OCPW and the Dana Point beach receiver site locations are managed by Orange County Parks and California State Parks. These Costa Mesa and Dana Point locations are included under the Orange County Parks and California State Parks managing entities for location identification purposes but are also included in analysis for Costa Mesa and Dana Point city ordinances where appropriate. The other Cities manage the receiver and stockpile sites located within their boundaries and will continue to be analyzed as managing entities where appropriate. See Table 2-1 and Table 2-2 and Figure 2-1 and Figure 2-2 for a full list of beach receiver and stockpile sites, listed by managing entities, that are associated with The Program.

1.6 General Plan / Zoning Designations

Land Use Designations: The Program would be implemented at beach receiver sites and stockpile sites in cities throughout Orange County. The specific zoning designations which are applicable to OC SCOUP are listed below by the cities in which The Program sites are located and in Table 2-1 and Table 2-2. Zoning designations are written as they appear in the respective City's general plan and zoning documents.

- **Costa Mesa:** public/institutional
- **Dana Point:** recreational/open space
- **Huntington Beach:** park, open space/shoreline, no designation
- **Irvine:** open space preservation, institutional
- **Newport Beach:** shoreline public, parks and recreation, open space
- **San Clemente:** shoreline private, shoreline public, open space public
- **Seal Beach:** beach

1.7 Summary

The County of Orange has determined that the proposed Orange County Sand Compatibility and Opportunistic Use Program (OC SCOUNP or The Program), and the required discretionary actions of the County of Orange for The Program, require compliance with the guidelines and regulations of the California Environmental Quality Act (CEQA). This Initial Study and Mitigated Negative Declaration (IS/MND) addresses the direct, indirect, and cumulative environmental effects associated with The Program.

This IS/MND has been prepared in conformance with the California Environmental Quality Act of 1970, as amended (Public Resources Code Section 21000 *et seq.*); Section 15070 of the State Guidelines for Implementation of the California Environmental Quality Act of 1970 (“CEQA Guidelines”), as amended (CCR, Title 14, Chapter 3, Section 15000 *et seq.*), and applicable requirements of the Lead Agency.

This IS/MND has determined that The Program would result in potentially significant environmental impacts; however, mitigation measures are proposed that would reduce any potentially significant impact to less than significant levels. As such, an IS/MND is deemed as the appropriate document to provide the necessary environmental evaluations and clearance.

1.8 Statutory Authority and Requirements

In accordance with CEQA (Public Resources Code Sections 21000-21177) and pursuant to Section 15063 of the CEQA Guidelines set forth at Title 14 of the California Code of Regulations (CCR), the Lead Agency is undertaking environmental review of The Program in this document. Acting as CEQA Lead Agency, the County of Orange is required to prepare an Initial Study (IS) to inform its decision on whether an Environmental Impact Report (EIR), Negative Declaration (ND), or Mitigated Negative Declaration (MND) would be appropriate for providing the necessary environmental documentation for The Program.

The purpose of an IS is to: (1) identify potential environmental impacts; (2) provide the Lead Agency with information to use as the basis for deciding whether to prepare an EIR or ND; (3) enable The Program sponsor/applicant or Lead Agency to modify a project, mitigating adverse impacts before an EIR is prepared; (4) facilitate environmental assessment early in the design of a project; (5) provide documentation of the factual basis for the finding in a ND that a project would not have a significant environmental effect; (6) eliminate needless EIRs; (7) determine whether a previously prepared EIR could be used for a project; and (8) assist in the preparation of an EIR, if required, by focusing the EIR on the effects determined to be significant, identifying the effects determined not to be significant, and explaining the reasons for determining that potentially significant effects would not be significant.

Section 15063 of the CEQA Guidelines identifies global disclosure requirements for inclusion in an IS. Pursuant to those requirements, an IS must include: (1) a description of The Program, including the location of The Program; (2) an identification of the environmental setting; (3) an identification of environmental effects by use of a checklist, matrix or other method, provided that entries on a checklist or other form are briefly explained to indicate that there is some evidence to support the entries; (4) a discussion of ways to mitigate significant effects identified, if any; (5) an examination of whether The Program is compatible with existing zoning, plans, and other applicable land use controls; and (6) the name of the person or persons who prepared or participated in the preparation of the IS.

According to Section 15065(a) of the CEQA Guidelines, an EIR must be prepared for a project if any of the following conditions occur:

- The Program has the potential to: substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-

sustaining levels; threaten to eliminate a plant or animal community; substantially reduce the number or restrict the range of an endangered, rare, or threatened species; or eliminate important examples of the major periods of California history or prehistory.

- The Program has the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.
- The Program has possible environmental effects that are individually limited but cumulatively considerable. “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.
- The environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly.

According to Section 15070(a) of the CEQA Guidelines, an ND is deemed appropriate if the IS shows that there is no substantial evidence, in light of the whole record before the Lead Agency, that The Program may have a significant effect on the environment.

According to Section 15070(b), an MND is deemed appropriate if the IS identifies potentially significant effects, but:

- Revisions in The Program plans or proposals made by or agreed to by the sponsor/applicant before a proposed IS/MND is released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur; and
- There is no substantial evidence, in light of the whole record before the agency, that The Program as revised may have a significant effect on the environment.

1.9 Intended Uses of this Initial Study and Mitigated Negative Declaration

This IS/MND is intended to be an informational document for the County of Orange, the general public, and for responsible agencies to review and use when approving subsequent discretionary actions for The Program. The resulting documentation is not a policy document, and its approval and/or certification neither presupposes nor mandates any actions on the part of those agencies from whom permits and other discretionary approvals would be required.

The Notice of Intent (NOI) to Adopt an MND and supporting analysis is subject to a **30-day public and agency review period (June 1, 2026 – June 30, 2026)**. During this review, comments on the document should be addressed to the County of Orange. Following review of any comments received, County of Orange will consider these comments as a part of The Program’s environmental review and include them with the IS/MND documentation for consideration by County of Orange. This document is available at OC Public Works, OC Development Services/Planning: 601 N. Ross Street, First Floor, Santa Ana, CA 92701 and/or <https://pwds.oc.gov/service-areas/oc-development-services/planning-development/current-projects/1st-district-5th-0>.

Although findings herein are for the overall Program, they are based on specific information at each beach receiver and stockpile site which are part of the Program.

1.10 Supportive Documentation

1.10.1 Incorporation by Reference

Incorporation by reference is a procedure for reducing the size of environmental documents and is most appropriate for including long, descriptive, or technical materials that provide general background information but do not contribute directly to the specific analysis of The Program itself. This procedure is particularly useful when an EIR or ND relies on a broadly drafted EIR for its evaluation of cumulative impacts of related projects. (*Las Virgenes Homeowners Federation v. County of Los Angeles* (1986) 177 Cal.App.3d 300.) If an EIR or ND relies on information from a supporting study that is available to the public, the EIR or ND cannot be deemed unsupported by evidence or analysis (*San Francisco Ecology Center v. City and County of San Francisco* (1975) 48 Cal.App.3d 584, 595.). This document incorporates by reference the Orange County General Plan, Orange County Great Park Final EIR, City of Huntington Beach General Plan, City of Newport Beach Local Coastal Program Implementation Program, City of Newport Beach Local Coastal Program Implementation Program, and Seal Beach General Plan.

When an EIR or ND incorporates a document by reference, the incorporation must comply with Section 15150 of the CEQA Guidelines as follows:

- The incorporated document must be available to the public or be a matter of public record (CEQA Guidelines Section 15150(a)).
- This document must summarize the portion of the document being incorporated by reference or briefly describe information that cannot be summarized (CEQA Guidelines Section 15150(c)).
- The material to be incorporated in this document will include general background information (CEQA Guidelines Section 15150(f)).

1.10.2 Technical Studies

This IS/MND also uses information provided in the following document(s), which are included in the appendices:

- **Preliminary Implementation Guidelines: Orange County Sand Compatibility and Opportunistic Use Program (Appendix A; <https://pwds.oc.gov/service-areas/oc-development-services/planning-development/current-projects/1st-district-5th-0>)**
 - Prepared by Moffatt & Nichol, August 2025
 - The term “preliminary” in the document title is to recognize that specific implementation protocols (such as specific sediment testing and monitoring protocols) may need to be revised once final regulatory permits are obtained. It is assumed though that these regulatory permit requirements will result in fewer impacts than analyzed herein, i.e., the Preliminary Implementation Guidelines document represents the highest potential impacts that may result from The Program.
- **Marine Biological Technical Study and Essential Fish Habitat Assessment**
 - Prepared by Merkel & Associates, July 2025
- **Terrestrial Biological Resources Assessment Report**
 - Prepared by Merkel & Associates, August 2025

1.11 Environmental Setting and Surrounding Land Uses

The Orange County Sand Compatibility and Opportunistic Use Program (OC SCOUNP) is located in multiple areas of Orange County, California. These areas are surrounded primarily by mixed use areas, with single family and multifamily residential, public parks, and roadways in adjacent areas for most of the sites affiliated with The Program.

1.12 Environmental Factors Potentially Affected

All potential environmental impacts listed below are addressed in this IS. Those that are checked below have been identified as involving at least one impact that is a “Potentially Significant Impact” as indicated by the checklist on the following pages, for which mitigation measures have been identified to reduce the impact to less than significant.

<input type="checkbox"/> Aesthetics	<input type="checkbox"/> Mineral Resources
<input type="checkbox"/> Agriculture and Forestry Resources	<input checked="" type="checkbox"/> Noise
<input type="checkbox"/> Air Quality	<input type="checkbox"/> Population/Housing
<input checked="" type="checkbox"/> Biological Resources	<input type="checkbox"/> Public Services
<input type="checkbox"/> Cultural Resources	<input checked="" type="checkbox"/> Recreation
<input type="checkbox"/> Energy	<input checked="" type="checkbox"/> Transportation
<input type="checkbox"/> Geology/Soils	<input type="checkbox"/> Tribal Cultural Resources
<input type="checkbox"/> Greenhouse Gas Emissions	<input type="checkbox"/> Utilities/Service Systems
<input type="checkbox"/> Hazards & Hazardous Materials	<input type="checkbox"/> Wildfire
<input type="checkbox"/> Hydrology/Water Quality	<input checked="" type="checkbox"/> Mandatory Findings of Significance
<input type="checkbox"/> Land Use/Planning	<input type="checkbox"/>

1.13 Environmental Determination (To be completed by the Lead Agency)

On the basis of this initial evaluation:

- I find that The Program COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although The Program could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described in Section 4.0 Mitigation, Monitoring, and Reporting Program (MMRP) have been added to The Program. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that The Program MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that The Program MAY have a “potentially significant impact” or “potentially significant unless mitigated” on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets, if the effect is a “potentially significant impact” or “potentially significant unless mitigated.” An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although The Program could have a significant effect on the environment, there WILL NOT be a significant effect in this case because all potentially significant effects (a) have been analyzed adequately in an earlier EIR pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon The Program, nothing further is required.

Signature:	DocuSigned by:  EB76DCA50AD94B6...	Date: 5/29/2026 8:14 AM PDT
Printed Name:	Virginia Gomez	Title: Senior Planner

2.0 PROJECT DESCRIPTION

2.1 Project Background

One of the goals of the *California Coastal Sediment Management Master Plan*¹ is to develop regional, system-wide solutions for sediment management. Orange County (OC) beaches provide many benefits to local residents, communities, and the State, including recreation, flood protection, habitat, and economic value. However, many OC beaches have heavily eroded due to lack of sediment inputs to the shoreline and lack of beach nourishment.

Sediment that would otherwise be transported naturally to the ocean by creeks and rivers, ultimately replenishing the County’s beaches, is instead trapped in debris basins and frequently disposed of at upland sites as part of maintenance activities. This “short-stopping” of sediment occurs throughout the OC watershed. It is critical to find suitable alternatives to replenish Orange County’s beaches that are central to the County’s recreational, infrastructure, habitat, and economic viability.

Orange County beaches generated \$15.8 billion in visitor spending in 2023. Studies show that for every \$1 spent on beach nourishment annually, Orange County beach tourists generate about \$3,000 in economic output, \$1,400 in direct spending and \$200 in taxes.² The *Journal of Shore & Beach* cites that, at the national level, beach tourists generate \$100 in taxes annually to local, state, and federal governments for every dollar spent on beach nourishment by these governments.³ Additionally, the County’s beaches provide buffers against coastal storm damage to shoreline infrastructure and ecological benefits that are more difficult to quantify in dollars.

Historically, (~1990 and before), nourishments (artificial or human-induced sand supply) provided equal or more sand inputs to Southern California beaches than natural inputs.⁴ These historic nourishments helped to sustain many Southern California beaches in the past but the frequency, volume, and funding for nourishment events have decreased significantly in recent decades. While large, planned beach nourishment projects have been successful in combatting erosion, there are typically long gaps between these large projects. Only recently (2024), U.S. Army Corps of Engineers (USACE) nourishment projects were performed along Surfside-Sunset and San Clemente beaches; although the USACE Surfside-Sunset nourishments are supposed to occur every 5-7 years, the last previous event was in 2009.

¹ California State Parks. *California Coastal Sediment Master Plan*. accessed December 11, 2024. https://dbw.parks.ca.gov/?page_id=29330#californiaCSMP

² Wilson and Foley, 2024. *Economic Impact of Beaches & Coastal Areas in Southern California and Capo Beach and the Santa Ana River*, presentations at Assembly representative Diane Dixon’s Workshop Economics and Resilience of Orange County’s Beaches. Presentation by Martin R. Wilson, California Chamber of Commerce – Tourism & California Business and Beaches and Orange County Supervisor Katrina Foley.

³ Houston, 2022. *Beach nourishment provides resilient protection for critical coastal infrastructure*, James R. Houston, U.S. Army Research and Development Center, Shore & Beach, Journal of the American Shore & Beach Preservation Association, Spring 2022.

⁴ Flick, 1993. *The Myth and Reality of Southern California Beaches*, Reinhard E. Flick, California Department of Boating and Waterways and Scripps Institution of Oceanography, Shore & Beach, Journal of the American Shore & Beach Preservation Association January 1993.

Opportunistic beach nourishment is provided by material which becomes available as a surplus from upland projects. The opportunistic material (sand) is available at little cost on a more frequent basis compared to the cost of material commonly used for large-scale beach nourishment projects. Additionally, material from these smaller-scale upland projects can be mobilized and placed on beaches more quickly through opportunistic beach nourishment when there is an urgent/emergency need, such as before or after a large storm event.

In order to address these issues and challenges, the County of Orange proposes to implement OC SCOUP, hereinafter “The Program”, with pre-established criteria, that opportunistically and beneficially uses sediment, from various sources located within and just outside of Orange County, for beach nourishment purposes. The Program will enhance and sustain the many valuable benefits that beaches provide. Sediment and sand are used interchangeably throughout this document.

2.2 Project Description

Purpose

The Program is designed to capitalize on opportunities to obtain beach-quality sand which arise as surplus material from inland sources (opportunistic sand). The purpose of The Program is to obtain regulatory approvals in advance to allow for beach nourishment projects to occur as sediment source opportunities arise. The Program is only to obtain approvals for transporting and placing the source material on public City, State Parks, and County beaches. The basic premise of The Program is the reuse of the source sediment for sand replenishment on beaches along the Orange County coastline. The removal and collection of source sediment will have already been approved through permits and environmental processes by local, state, and federal agencies, and this material, if not for OC SCOUP, would be sent to a landfill or utilized in construction, but now will be repurposed for beach conservation.

To date, there have been few authorizations allowing for upland sediment to be used for beach nourishment on beaches in Orange County. The Program would provide sediment managers in OC the ability to obtain regulatory approvals in advance, by working with the County to jointly seek approvals from the various regulatory agencies, to allow for beach nourishment projects to occur as sediment source opportunities arise. Having pre-approval will eliminate the need for individual permits for each project, helping sediment managers provide faster responses when opportunistic sources (or stockpiled sources) are available. Quicker response times would avoid the current situation in which the OCPW maintenance sediment (and presumably sediment managed by other government entities) is disposed of in upland areas rather than replenishing eroding beaches simply because timely approval for beach nourishment use was not possible. The current problem is source sediment opportunities typically arise quickly and the receiving beach entity does not have environmental and regulatory approvals in place to immediately accept the material. Due to the lack of advance regulatory approvals the source material cannot be beneficially used on beaches.

The County will work with each of the beach managing entities (see Table 2-1: Beach Receiver Site Locations for The Program and Table 2-2: Stockpile Site Locations for The Program) to obtain the regulatory permits required for this Program, i.e., permits/approvals from the California Coastal Commission, U.S. Army Corps of Engineers, State Water Resources Control Board, and State Lands Commission. The County and each of the managing entities will be co-applicants/co-permittees on these permits/approvals. Each of the beach managing entities have already provided approvals for the required permit applications. Some cities do have existing Local Coastal Programs which could result in issuance of a CDP by the managing city for certain areas of the Program, but those cities have chosen to provide authorization for a “Consolidated CDP”, whereby the California Coastal Commission takes over issuance of the CDP for the entire Program. By obtaining these regulatory approvals in advance, the County and beach managing entities are able to take advantage of sand source opportunities as they arise.

Program Characteristics

Many aspects of The Program are novel because they intend to provide Orange County and participating local municipalities in Orange County with a larger degree of flexibility that will ultimately allow for greater success in implementation, i.e. participating receiver beach entities will be able to place sand on their beaches as opportunities arise in a timely and efficient manner, without having to go through environmental reviews and permitting on a case-by-case basis. The Program provides a framework that conforms to regulatory requirements and streamlines the approval process for beach nourishment activities that may provide a model for future SCOUNP programs. Specifically, The Program is intended to:

- Cover a wide geographic range and large number of potential beach receiver sites to maximize program flexibility and opportunistic use;
- Provide a more efficient approval process that lays out requirements based on resources at the individual beach receiver sites and sand placement size and location, thus expediting the timeline between when sand becomes available and its placement on the beach; and
- Include practical and actionable monitoring, e.g., identifying monitoring for the purposes of identifying any needed remediation or adaptive management measures;

Other jurisdictions have adopted similar programs, which help to facilitate the beneficial use of opportunistic sand to replenish eroding beaches (i.e., cities within San Diego County, City of San Clemente, Beach Erosion Authority for Clean Oceans and Nourishment (BEACON) in Santa Barbara and Ventura counties, and Los Angeles County Department of Beaches and Harbors). The Program takes inspiration from what these other jurisdictions have done and applies a similar framework to the unique areas of Orange County included in the Program.

All events where opportunistic sand is used for beach nourishment within the scope of The Program will have to demonstrate compliance with a pre-determined set of science-based criteria based on sediment and water quality guidelines from the U.S. Environmental Protection Agency (USEPA) and others. These criteria are defined in the OC SCOUNP Sampling and Analyses Plan (SAP) of the Preliminary Implementation Guidelines (Appendix A) and will be approved by the USEPA and other agencies as part of the regulatory permitting process. The criteria for source sand suitability for placement on receiver beaches include chemical characteristics, grain size, color, debris content, vegetation content, taking precautions against invasive *Caulerpa* (a group of nonindigenous green algae that pose a significant threat to eelgrass and other marine ecosystems), timing of sand placement, fill design and monitoring. See the Preliminary Implementation Guidelines (Appendix A; Sections 4.0 and 5.0) for criteria and monitoring protocols, also referred as Project Design Features (PDFs).⁵ The monitoring framework is designed to protect biological and other resources and balance economic feasibility with environmental sensitivity for projects (beach nourishment events) of varying size and location.

The opportunistic sand will be sourced from a variety of inland sources, including sediment detention basins, lakes, dams, rivers, creeks, channels, storm drains, wetlands, marshes, ocean outlets, quarries, and construction sites. The activities at these source sites must be separately reviewed and approved by local, state, and federal agencies as appropriate, i.e., separate from The Program approvals. Only stockpiling of

⁵ The Preliminary Implementation Guidelines is a document that provides the blueprint for the managing entities to implement The Program. It includes guidance on the placement of sand for each location, as well as monitoring requirements based on the presence of biological and other resources. It will be updated and finalized upon issuance of regulatory permits, i.e., it will ultimately include all regulatory permit conditions. The Preliminary Implementation Guidelines are available in Appendix A.

sand at designated stockpile sites, transport to fill beach receiver sites, and actual deposition of material at receiver sites is included in The Program.

The Program's scope includes stockpile sites throughout the County that would serve as sand holding facilities between the locations of the source sites and receiver sites, if needed. Although typically sand will be transported directly from the source site to the beach receiver site, these stockpile sites are important for the success of The Program in the cases in which: a) upland source sites yield limited quantities of beach quality material and it may be more efficient to accumulate a greater volume of material before hauling to a beach receiver site, or b) the source opportunity timing does not align with the beach receiver site environmental and recreational windows, or c) the managing entity needs time to obtain funding for sand placement and monitoring when a sand source opportunity arises. The stockpile sites would provide a storage option for the sand so it can be used when the receiver sites can accept it. There are multiple factors that will affect the frequency and duration that a specific stockpile site is used. The frequency of use of these sites will vary, depending on the time it takes to accumulate sand and the need from receiver sites within their respective distribution areas (see figures in Appendix B). The frequency of sand transport from any one stockpile site to a beach receiver site would likely not exceed once every 5 years based on source sand availability and because typically source sand will be transported directly from the source site to receiver site (most cost-effective in comparison to double-handling sand at the stockpile site). While all currently identified stockpiled sites are included in the Guidelines there may be additional temporary stockpile sites that become available. These sites will be assessed for their suitability as and when they are identified and will only be deemed appropriate for use if they meet the strict environmental criteria.

Receiver sites are the beach sites where the opportunistic sand will eventually be placed to help replenish beaches that are experiencing erosion or potential for flooding. Construction staging areas at each receiver site are also included as part of The Program.

The scope for the remainder of this document will include activities at the 25 potential beach receiving sites (Table 2-1: Beach Receiver Site Locations for The Program), and 10 potential stockpile sites (Table 2-2: Stockpile Site Locations for The Program), including haul routes to the furthest receiver site likely to receive the sand (Appendix B).

Locations

The potential receiving sites for the opportunistic sand are public beaches within Orange County, which are owned and managed by California State Parks, OC Parks, and OC coastal cities (from north to south: Seal Beach, Huntington Beach, Newport Beach, and San Clemente) (Table 2-1 and Figure 2-1). Note that there are beach receiving sites located within the City of Dana Point, but those beaches are owned and managed by California State Parks and OC Parks. Stockpile sites will be located throughout the region, providing options to store and sort opportunistic sand from source locations as needed before it reaches the beach receiver sites (Table 2-2 and Figure 2-2). These stockpile locations are owned and managed by Orange County and the Cities of Huntington Beach, Irvine, Newport Beach, and San Clemente. Location descriptions for all receiver and stockpile sites are available in Appendix C.

Beach nourishment activities are not new and have occurred and will continue to occur on many of the potential receiver sites on a semi-regular basis through existing programs, such as the OCPW Ocean Outlets Maintenance Program (Appendix D) and U.S. Army Corps of Engineers projects. While these beaches are nourished through other programs, it would not preclude them from being considered for The Program, as the need to combat erosion requires a multi-pronged approach and more frequent nourishment than what is presently available through other programs alone.

The following tables include the locations that are potential receiver sites (Table 2-1) or stockpile sites (Table 2-2) under The Program. Both Tables are categorized by managing entity (federal, state, local), with specific beach and stockpile locations listed in geographic order from north to south under the entity that manages the site. The location IDs are used throughout this document to identify what criteria or design functions apply to what locations. Unless otherwise indicated, the location IDs are listed in geographic order from north to south. Table 2-1 also indicates the level of urgency, or 'need' for beach nourishment at each location, which may be useful for selecting the most appropriate beach receiver site when opportunistic sand becomes available. The need is based on a combination of beach conditions and recreational opportunities offered. The most eroded beaches with the highest recreational use and the greatest potential for storm damage have a high need and the widest beaches with lower recreational use or lower potential for storm damage have a low need. Table 2-2 includes coordinates for the stockpile sites since the locations do not have specific addresses.

Table 2-1: Beach Receiver Site Locations for The Program
(listed geographically from north to south under respective managing entities)

Location ID	Location	City/County Jurisdiction	Need	Land Use Designation ⁶⁷
California State Parks				
CA.1	Bolsa Chica State Beach	Huntington Beach	Medium	Open Space Reserve
CA.2	Huntington Beach State Beach	Huntington Beach	Low	Shore
CA.3	Crystal Cove State Park	OC-Unincorporated	High	Open space
CA.4	Doheny State Beach	Dana Point	High	Recreational/Open space
CA.5	San Clemente State Beach	San Clemente	Medium	Open Space Public
Orange County Parks				
OC.1	Newport Dunes	Newport Beach	Low	Parks and Recreation
OC.2	Salt Creek Beach	Dana Point	Medium	Open Space and Recreation
OC.3	Baby Beach	Dana Point	Low	No designation
OC.4	Capistrano Beach County Park	Dana Point	High	Open Space and Recreation
OC.5	Poche Beach	Dana Point	High	Open Space and Recreation
City of Huntington Beach				
HB.1	Sunset Beach	Huntington Beach	Medium	Open Space - Shoreline
HB.2	Huntington Harbour Beaches	Huntington Beach	Low/Medium	Open Space - Shoreline
HB.3	Huntington Beach Bluffs	Huntington Beach	High	Open Space - Shoreline
City of Newport Beach				
NB.1	West Newport Beach	Newport Beach	Medium	Parks and Recreation
NB.2	Newport Harbor Beaches	Newport Beach	High/Medium	Open Space

⁶ Zoning designations use the same language presented in the source materials (i.e., zoning maps listed below).

⁷ City of Dana Point. Community Viewer. Accessed August 14, 2025.

<https://danapoint.maps.arcgis.com/apps/webappviewer/index.html?id=61e136868b284e2bbe40b3c0a4a79235>

City of Costa Mesa. Zoning Districts Map. Accessed August 14, 2025. <https://www.costamesaca.gov/home/showdocument?id=7259>

City of Huntington Beach. Zoning Viewer. Accessed August 14, 2025

<https://huntingtonbeach.maps.arcgis.com/apps/webappviewer/index.html?id=7ab822c02ded4940acd7e4593bba7cb7>

City of Irvine.2025. Zoning Map. Accessed August 14, 2025.https://gis.cityofirvine.org/pdf/Map%20Gallery/Zoning_Map.pdf

City of Newport Beach. Interactive Zoning Maps. Accessed August 14.

<https://nbgis.newportbeachca.gov/NewportHTML5Viewer/?viewer=publicsite>

City of San Clemente. Community Map. Accessed August 14.

<https://experience.arcgis.com/experience/99dcf9f350944f0b909c853ddbdf76d6/>

City of Seal Beach.2010. Zoning Map – Old Town & Bridgeport.<https://www.sealbeachca.gov/Portals/0/Documents/Zoning%20Map%20-%20Old%20Town-Bridgeport.pdf>

City of Seal Beach.2010. Zoning Map – Surfside.<https://www.sealbeachca.gov/Portals/0/Documents/Zoning%20Map%20-%20Surfside.pdf>

Location ID	Location	City/County Jurisdiction	Need	Land Use Designation ⁶⁷
NB.3	Balboa Beach	Newport Beach	Medium	Parks and Recreation
NB.4	Corona del Mar Beach	Newport Beach	Low	Parks and Recreation
NB.5	Little Corona del Mar Beach	Newport Beach	Low	Parks and Recreation
City of San Clemente				
SC.1	Capistrano Shores	San Clemente	High	Shoreline Private
SC.2	San Clemente North Beach	San Clemente	High	Shoreline Public
SC.3	San Clemente Central City Beaches	San Clemente	High	Open Space Public
SC.4	Cyprus Shore/Cottons	San Clemente	High	Shoreline Private; Shoreline Public
City of Seal Beach				
SB.1	West Beach	Seal Beach	Low	Beach
SB.2	East Beach	Seal Beach	High	Beach
SB.3	Surfside Beach	Seal Beach	High	Beach

Table 2-2: Stockpile Site Locations for The Program
 (listed geographically from north to south under respective managing entities)

Location ID	Site Location	Coordinates	City/County Jurisdiction	Land Use Designation
California State Parks				
CA.S.1	Huntington Beach State Beach parking lot	Lat: 33°38'18.70"N Long: 117°58'18.55"W	Huntington Beach	Shore
Orange County Public Works				
OC.S.1	Lot at Confluence (Bolsa Chica & Edinger)	Lat: 33°43'50.55"N Long: 118° 2'31.87"W	Huntington Beach	No designation
OC.S.2	Lot adjacent to the Santa Ana Bike Trail and Greenville Banning Channel	Lat: 33°41'27.31"N Long: 117°56'11.29"W	Costa Mesa	Public/Institutional
OC.S.3	Audubon Basin	Lat: 33°35'18.98"N Long: 117°45'6.06"W	Irvine	Open Space Preservation
City of Huntington Beach				
HB.S.1	Lot adjacent to Gothard Street, Huntington Beach	Lat: 33°41'53.35"N Long: 118° 0'10.66"W	Huntington Beach	Park
City of Irvine				
I.S.1	Lot within Great Park (MCAS El Toro)	Lat: 33°40'17.70"N Long: 117°45'0.09"W	Irvine	Institutional
City of Newport Beach				
NB.S.1	North Star beach parking lot	Lat: 33°37'26.91"N Long: 117°53'36.48"W	Newport Beach	Parks and Recreation
City of San Clemente				
SC.S.1	Lot at Avenue Vista Hermosa and Avenida La Pata	Lat: 33°27'47.20"N Long: 117°36'16.95"W	San Clemente	Neighborhood Commercial
SC.S.2	San Clemente Water Reclamation Plant yard	Lat: 33°26'5.40"N Long: 117°37'46.30"W	San Clemente	Public
SC.S.3	Lot near North Beach	Lat: 33°25'56.91"N Long: 117°37'56.92"W	San Clemente	Mixed-Use

* The projected distribution range for each stockpile site is 10 miles, with the exception of stockpile sites I.S.1 and OC.S.4, which are located further inland and are projected to serve receiver sites up to 15 miles away (see distribution ranges for stockpile sites in Appendix B).

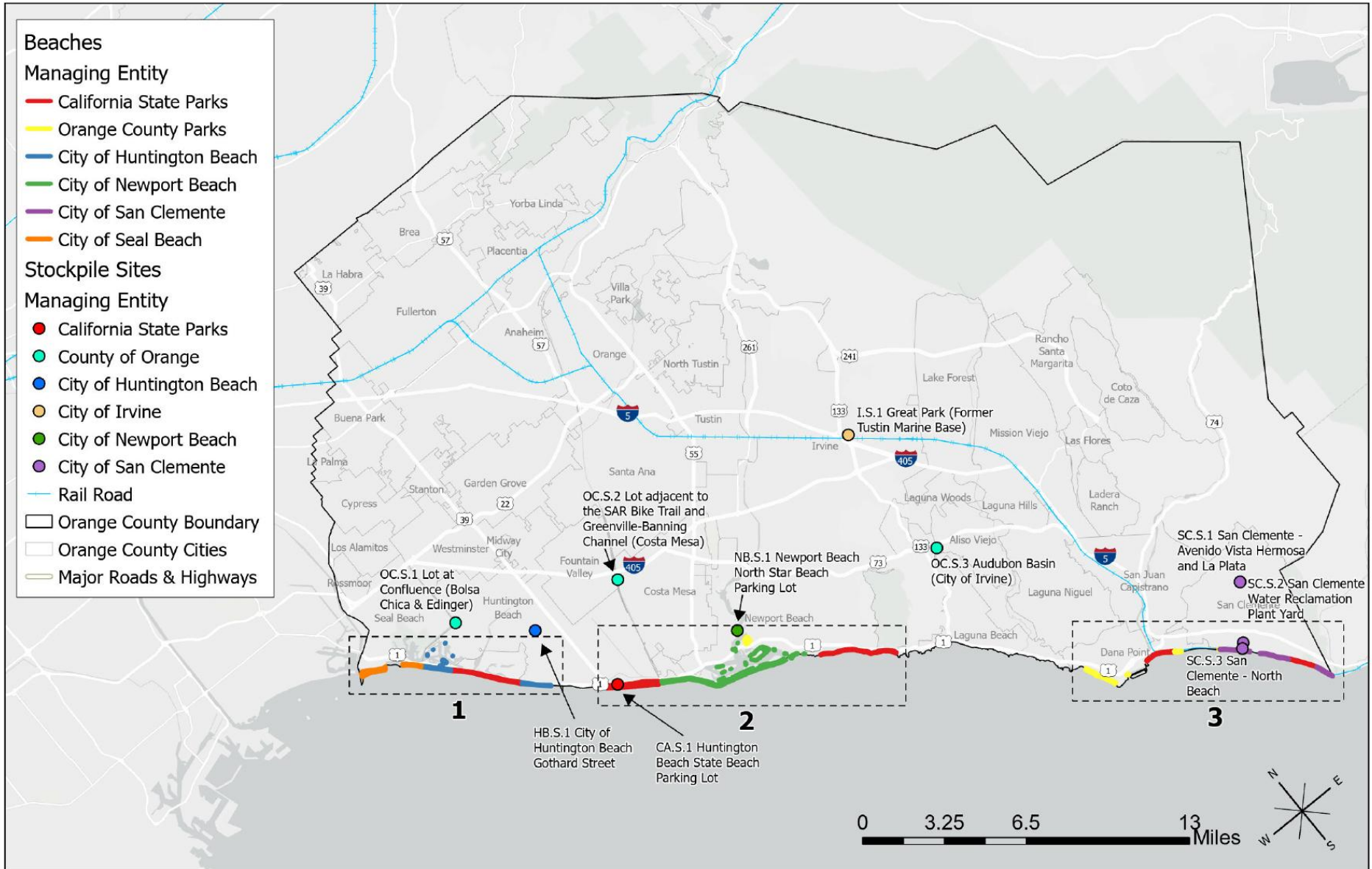


Figure 2-1: Overview of Beach Receiver and Stockpile Sites included in The Program (color coded by managing entity)

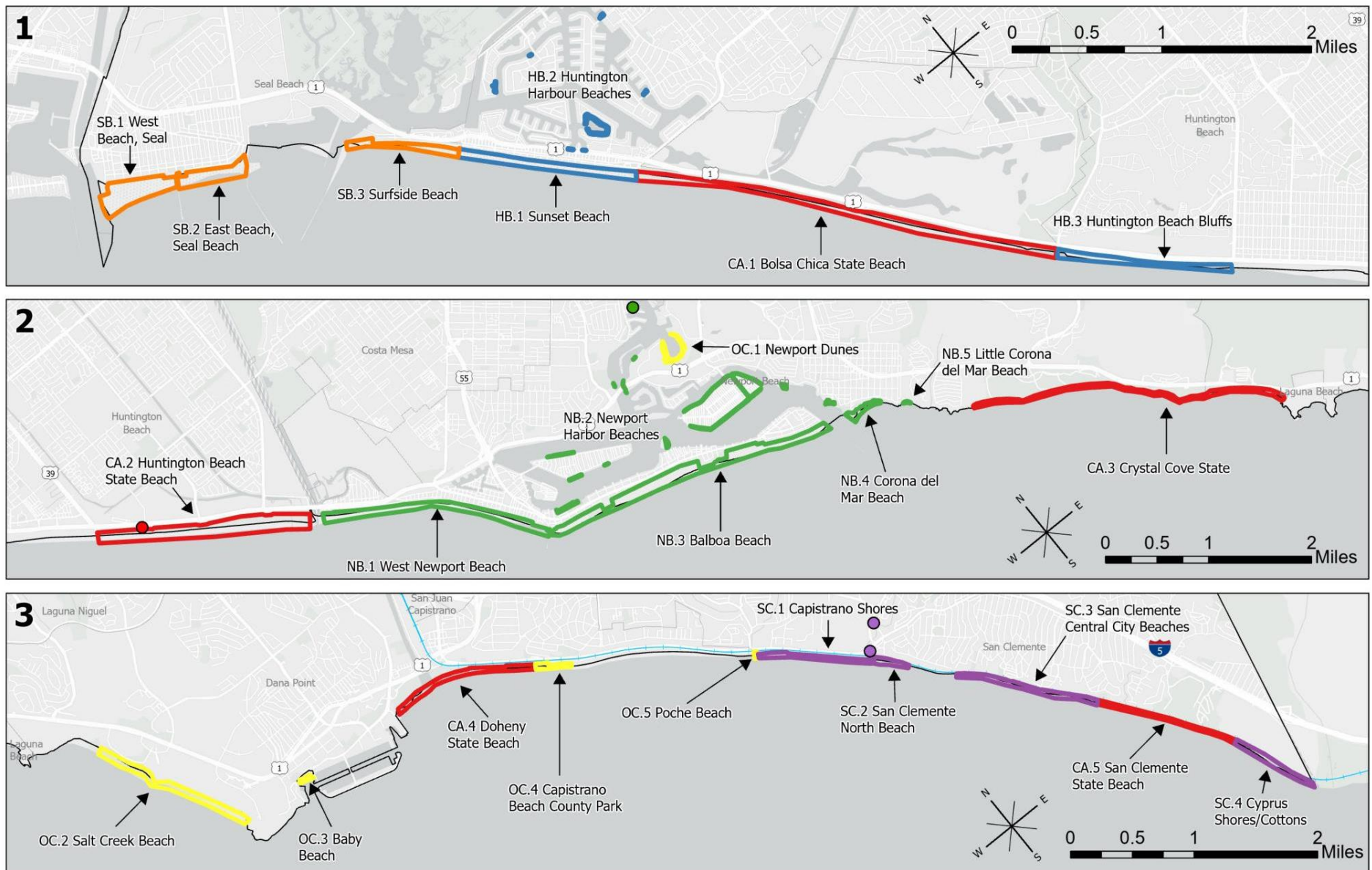


Figure 2-2: Closeup Snapshot of North (Frame 1), Central (Frame 2), and South (Frame 3) Locations

Beach Nourishment and Stockpile Quantities

To approximate maximum beach nourishment (“fill”)⁸ quantities for The Program, a target beach width was determined based on a natural shoreline condition at the receiver site, typically 50-100 feet. The fill volume was first estimated by a rule of thumb factor of 1.5 cubic yards of sand per 1 foot of beach width for every 1 linear foot of a beach shoreline length for a beach berm fill in southern California and adjusted as needed to define a reasonable volume. For some beaches, such as West Seal Beach, fill estimates were based on estimates for dune creation/enhancement. To ensure these estimates were reasonable and environmentally suitable, a review of historic and/or upcoming nourishment projects (when available) and environmental conditions were considered for each receiver site. Table 2-3 provides a summary of the typical fill quantities per event and maximum quantities per year at each beach receiver site. The maximum fill quantities are not likely to be met for most sites but will serve as the basis for analysis for the purposes of this document.

The maximum shoreline extent for opportunistic beach fill over time is shown by the black polygons in Appendix A; Section 3.0. The overall maximum footprint (black polygon) for each site is based on the potential fill placement design(s) at that site, e.g., beach berm or backbeach dunes (Table 2-5: Beach Fill Design). Individual opportunistic projects (events) would occur within the bounds of this maximum footprint. The actual fill footprint per opportunistic nourishment event will be much smaller as shown by the representative/typical sand fill blue polygon but can occur anywhere within the bigger maximum extent (black polygon) envelope. The maximum footprints are not likely to be used for most receiver sites but provide the most conservative basis for analysis for the purposes of this document.

Sand holding capacities and acreage for stockpile sites are included in Table 2-4: Stockpile Site Size and Volume Capacity. The frequency of use of these sites will vary, depending on the time it takes to accumulate sand and the need from receiver sites within their respective distribution areas (see figures in Appendix B). The frequency of sand transport from any one stockpile site would likely not exceed once every 5 years based on source sand availability and because typically source sand will be transported directly from the source site to receiver site (most cost-effective in comparison to double-handling sand at the stockpile site). However, for the purposes of analysis in this document, the transport from stockpile sites to receiver sites were analyzed at distances of 10 and 15 miles, with a frequency based on the most conservative estimate for the number of truck trips required as dictated by the max fill volume for receiver beaches. See Appendix E for more detailed information on how transport from stockpile sites to receiver sites were used to analyze potential impacts. Transport of sand from source sites must be separately reviewed and approved by local, state, and federal agencies as appropriate, i.e., separate from The Program approvals. Thus, only stockpiling of sand at designated stockpile sites, transport to fill beach receiver sites, and actual deposition of material at receiver sites are included in The Program.

⁸ For the purpose of this document, the term ‘fill’ is intended to be a general term referring to the material appropriate for use in beach nourishment projects. It does not imply fill of Waters of the U.S.

Table 2-3: Beach Receiver Site Fill Quantities (Typical and Max Fill Volumes)

Location ID	Location	Typical Fill Volume Per Event (cubic yards)	Maximum Fill Volume Per year (cubic yards)
California State Parks			
CA.1	Bolsa Chica State Beach	100,000	300,000
CA.2	Huntington Beach State Beach	50,000	200,000
CA.3	Crystal Cove State Park	100,000	300,000
CA.4	Doheny State Beach	100,000	300,000
CA.5	San Clemente State Beach	100,000	300,000
Orange County Parks			
OC.1	Newport Dunes	50,000	50,000
OC.2	Salt Creek Beach	50,000	200,000
OC.3	Baby Beach	5,000	10,000
OC.4	Capistrano Beach County Park	50,000	150,000
OC.5	Poche Beach	1,000	1,000
City of Huntington Beach			
HB.1	Sunset Beach	100,000	200,000
HB.2	Huntington Harbour Beaches	1,000 - 5,000	1,000 - 5,000
HB.3	Huntington Beach Bluffs	100,000	300,000
City of Newport Beach			
NB.1	West Newport Beach	100,000	300,000
NB.2	Newport Harbor Beaches	1,000 – 10,000	1,000 – 10,000
NB.3	Balboa Beach	100,000	300,000
NB.4	Corona del Mar Beach	50,000	100,000
NB.5	Little Corona del Mar Beach	5,000	5,000
City of San Clemente			
SC.1	Capistrano Shores	100,000	300,000
SC.2	San Clemente North Beach	50,000	150,000
SC.3	San Clemente Central City Beaches	100,000	300,000
SC.4	Cyprus Shore/Cottons	100,000	300,000
City of Seal Beach			
SB.1	West Beach	50,000	100,000
SB.2	East Beach	50,000	200,000
SB.3	Surfside Beach	100,000	300,000

Table 2-4: Stockpile Site Size and Volume Capacity

Location ID	Site Location	Approximate Site Size (acres)	Approximate Stockpile Volume Capacity (cubic yards)
California State Parks			
CA.S.1	Huntington Beach State Beach Parking Lot (City of Huntington Beach)	1.0	15,000
Orange County			
OC.S.1	Lot at Confluence of Bolsa Chica and Westminster Flood Channels (City of Huntington Beach)	4.8	77,000
OC.S.2	Lot adjacent to the Santa Ana Bike Trail across from OC Sanitation District (City of Costa Mesa)	0.2	3,000
OC.S.4	Audubon Basin, I02B01 (City of Irvine)	1.1	18,000
City of Huntington Beach			
HB.S.1	Huntington Beach - Gothard Street Lot	0.9	15,000
City of Irvine			
I.S.1	Great Park Lot (MCAS El Toro)	9.8	60,000
City of Newport Beach			
NB.S.1	Newport Beach North Star Beach Parking Lot	2.5	40,000
City of San Clemente			
SC.S.1	San Clemente – Avenue Vista Hermosa and Avenida La Pata	1.9	30,000
SC.S.2	San Clemente Water Reclamation Plant Yard	0.7	10,000
SC.S.3	San Clemente – North Beach Lot	0.4	6,000

Source Sand Quality

Each source of potential beach sediment will be analyzed against a set of criteria to determine if the source sediment is suitable for beach placement. The following is a list of preliminary criteria for sand quality testing. These details of the specific criteria may need to be updated when final regulatory permits are issued to conform to the terms of those final permits but the general criteria will remain the same.

- Chemistry – Source sediment suitability is determined by comparing chemistry results from source sediment testing to established criteria/guidelines, such as those set forth in the: 1) USACE/USEPA Inland Testing Manual and 2) National Oceanic and Atmospheric Administration (NOAA) Sediment Quality Guidelines.
- Grain Size – Acceptable grain size distribution of the source material will be based on compatibility with the receiving beach's grain size distribution and the placement location within the beach profile (e.g., backbeach dune or within the intertidal zone).
- Color - Color compatibility will be at the discretion of the receiver beach entity (e.g., City entity). There are no known adverse physical or chemical effects to the coastal environment from color incompatibility. As a result, source material lacking in color compatibility may still be considered as a candidate for beach fill at the discretion of the receiver site managing entity.
- Non-sand Content – Source sediment with seashell and/or cobble content will only be placed on beaches which have similar content.
- Debris Content – Debris within the source material poses possible health and safety hazards and possible nuisance odors and visual impacts. Debris must be separated from the source sediment prior to placement on beaches.
- Riparian Vegetation Content – Large amounts of vegetation in the source material is not anticipated as, generally, vegetation is cleared at source sites prior to excavation. If the remaining amount of vegetation in the source material is unacceptable, it will be screened and separated from the source sediment prior to beach placement.
- Compactability/Moldability – Any material with the tendency to form a hardpan (visible component of iron oxides, brown/red color) will be placed seaward of the mean high tide line (MHTL) to be reworked by waves. Reworking by waves will result in rapid winnowing of fines from the beach fill leaving beach sand behind while fines are transported away from the site by currents. It should be noted that hardpan source material also likely would not meet grain size criteria so this is likely to be a non-issue.
- Caulerpa – *Caulerpa* is an invasive algae known to be present in Newport Bay. Therefore, any source sediments from the Newport Bay marine environment will need to adhere to the guidelines set forth in the *Caulerpa Control Protocol*⁹ prior to placement on beaches. This includes survey and reporting requirements as well as coordination with the appropriate regulatory agencies to ensure that the invasive algae is not spread elsewhere.

Sand Placement Timing

Existing sensitive biological resources (e.g., least terns, snowy plovers, grunion) and high-use recreational times of year (Spring and Summer months) have the potential to constrain the timing of sand placement on the proposed receiving beaches. Beach nourishment events within The Program will generally try to avoid these times of year to the extent feasible, however, source sand opportunities are likely to arise year-round.

⁹ National Marine Fisheries Service (NMFS), 2021. *Caulerpa Control Protocol*. October 2021.

Source sediment availability has the potential to overlap the spring/summertime period, especially given that flood facility maintenance, which generates potential replenishment sand, generally cannot occur during the rainy season. When/if sediment sources become available during Spring and Summer months for beaches with seasonal constraints, some or all of the following Program Guideline Measures (PGM) will be implemented to minimize impacts (PGMs are specific “project measures or features” required by The Program that will minimize adverse impacts on the environment and project area, and are therefore, not identified as CEQA mitigation measures. These measures are defined in the Preliminary Implementation Guidelines):

- Stockpile source sand at an offsite location (designated stockpile sites) until beach placement timing is suitable,
- Perform sensitive bird species and grunion monitoring, including pre-construction surveys, in areas where sensitive species are known to occur (see 3.4 Biological Resources).
- Avoid placement of sand on receiving site beach during weekends,
- Avoid placement of sand at especially popular (high-use) beaches, and
- Limit the volume to be placed on the beach to minimize the time required to place the material,

Additional placement timing constraints may be imposed by regulatory agencies as part of the permitting process; hence, the Preliminary Implementation Guidelines (Appendix A; Section 2.0) will be updated to incorporate these additional constraints as needed.

Beach Fill Design

The following table (Table 2-5: Beach Fill Design) defines the potential sand placement designs and locations within the beach profile for each beach receiver site (listed north to south). This set of designs and locations represents the maximum range of sand fill for analysis in this IS/MND; regulatory agencies may, as part of the permitting process, disallow a certain sand placement location at a given site. If that turns out to be the case, the Implementation Guidelines (Appendix A; Section 2.0) will be updated to incorporate those changes made by the relevant regulatory agency.

Table 2-5: Beach Fill Design

(Representative planview layouts and cross-sections for the placement designs are included in Appendix A; Section 2.0)

Placement Design Type/Description	Design /Recommended Implementation	Applicable Receiver Site for Design Implementation (see Table 2-1 for location IDs)
<p><u><i>Beach Berm</i></u></p> <p>For this placement scenario, fill material is placed as a layer over the existing beach as a berm to widen the sandy beach. The berm will be a level surface extending a certain distance from the back of the beach toward the ocean, then sloping gradually into the water. The elevation, width, length, and slope of the berm will vary for each sand placement opportunity, depending upon the quantity of material to be placed, its qualities and the condition of the beach at the time.</p>	<ul style="list-style-type: none"> • Beach berm crest height to match the natural beach berm elevation (typically +10' to +15' NAVD88). • Length and width of the berm based on dimensions of The Program area and volume of sediment available for placement. • Slope seaward of the berm with a constructed slope of approximately 5:1 Horizontal:Vertical (H:V), which will equilibrate over time to a flatter natural slope. 	<p>East Beach (SB.2), Surfside Beach (SB.3), Sunset Beach (HB.1), Huntington Harbour Beaches (HB.2), Bolsa Chica State Beach (CA.1), Huntington Beach Bluffs (HB.3),</p> <p>West Newport Beach (NB.1), Newport Harbor Beaches (NB.2), Newport Dunes (OC.1), Balboa Beach (NB.3), Corona del Mar Beach (NB.4), Little Corona del Mar Beach (NB.5), Salt Creek Beach (OC.2), Baby Beach (OC.3), Capitstrano Beach County Park (OC.4), Poche Beach (OC.5)</p> <p>Capistrano Shores (SC.1), San Clemente North Beach (SC.2), San Clemente Central City Beaches (SC.3), San Clemente State Beach (CA.5), Cyprus Shore/Cottons (SC.4)</p>

Placement Design Type/Description	Design /Recommended Implementation	Applicable Receiver Site for Design Implementation (see Table 2-1 for location IDs)
<p><u><i>Backbeach Storm Dike</i></u></p> <p>For this placement scenario, fill material is placed in a dike-type (linear mound) structure above the dry beach berm and serves to provide wave overtopping protection for landward infrastructure. This type of feature is typically constructed during the winter months when wave action is highest and beach usage is lower and then flattened in the spring/summer months when beach usage increases.</p> <p>The implementation criteria are similar to historic and ongoing dike construction at Seal Beach East Beach and Sunset Beach</p>	<ul style="list-style-type: none"> • Dike crest height to match the highest runup elevation (typically at least +20 ft NAVD88 for 100-year storm events). • Dike crest width of at least 5 feet; • Dike sideslopes of approximately 3:1 H:V. • Length of the dike based on dimensions of The Program area and volume of sediment available for placement. 	<p>East Beach (SB.2), Surfside Beach (SB.3), Sunset Beach (HB.1), Bolsa Chica State Beach (CA.1),</p> <p>Balboa Beach (NB.3), Newport Dunes (OC.1),</p> <p>Doheny State Beach (CA.4), Capistrano Beach County Park (OC.4), Poche Beach (OC.5), Capistrano Shores (SC.1), San Clemente North Beach (SC.2) San Clemente Central City Beaches (SC.3), San Clemente State Beach (CA.5), Cyprus Shore/Cottons (SC.4),</p>

Placement Design Type/Description	Design /Recommended Implementation	Applicable Receiver Site for Design Implementation (see Table 2-1 for location IDs)
<p><u><i>Below Mean High Tide Line (MHTL)</i></u></p> <p>For this placement option, fill is placed below the mean high tide line (MHTL), within the intertidal zone. This scenario is typically used if the source material is darker colored and finer grained than the native beach sand. Sand would be delivered to the beach and pushed by bulldozers to the water's edge. At low tide, the material is pushed as far seaward as possible so that it can be reworked by waves during the following rising tide. The fines would be gradually winnowed out by waves and currents, carried offshore, and sand would be left behind.</p> <p>This option differs from the previous berm placement approach in that, for this option, the fill is placed solely within the intertidal zone, e.g., from elevation +5 ft NAVD88 (approximate MHTL) to elevation 0 ft NAVD88, whereas for the berm option, the sand is placed much higher, e.g., at elevation +10 to +15 ft NAVD88.</p>	<ul style="list-style-type: none"> In order to mitigate invertebrate population decline and encourage quick recolonization of affected areas, linear gaps can be implemented systematically along the placement footprint. 	<p>East Beach (SB.2), Surfside Beach (SB.3), Sunset Beach (HB.1), Huntington Harbour Beaches (HB.2), Huntington Beach Bluffs (HB.3)</p> <p>Bolsa Chical State Beach (CA.1), Huntington Beach State Beach (CA.2), West Newport Beach (NB.1), Balboa Beach (NB.3),</p> <p>Salt Creek Beach (OC.2), Capistrano Beach County Park (OC.4), Poche Beach (OC.5), Capistrano Shores (SC.1), San Clemente North Beach (SC.2), San Clemente Central City Beaches (SC.3), San Clemente State Beach (CA.5), Cyprus Shore/Cottons (SC.4)</p>

Placement Design Type/Description	Design /Recommended Implementation	Applicable Receiver Site for Design Implementation (see Table 2-1 for location IDs)
<p><u><i>Backbeach Dunes</i></u></p> <ul style="list-style-type: none"> Finer-grained source sands may be suitable for placement along the backbeach for creation of vegetated dunes, for beach receiver sites with wide sandy fronting berms. These systems provide an aesthetically pleasing buffer between the beach and upland infrastructure. Additionally, the vegetated systems introduce habitat for native vegetation and animal species including foraging birds. Dunes would be created by placing and grading imported sediment onto the backbeach to form mounds and subsequently planting native vegetation species within the system. 	<ul style="list-style-type: none"> This dune placement option should be implemented in conjunction with beach berm construction if a wide sandy beach does not exist at the beach receiver site. Length and width of the dune based on dimensions of The Program area and volume of sediment available for placement. 	<p>West Beach (SB.1), Surfside Beach (SB.3), Sunset Beach (HB.1), Balboa Beach (NB.3), Huntington Beach Bluffs (HB.3), Huntington Beach State Beach (CA.2), West Newport Beach (NB.1), Bolsa Chica State Beach (CA.1), Corona del Mar Beach (NB.4), Little Corona del Mar Beach (NB.5), Salt Creek Beach (OC.2), Doheny State Beach (CA.4), Capistrano Beach County Park (OC.4), Capistrano Shores (SC.1), San Clemente State Beach (CA.5)</p>
<p><u><i>Backbeach Bluff/Cliff Stabilization</i></u></p> <p>Many segments of the Orange County coastline are backed by bluffs. Increased levels of beach erosion result in less of a buffer between the ocean and the bluffs, which can cause increased scour at the bluff base and subsequently result in an increased risk of bluff erosion. Sediment from sand sources managed under this program may be suitable for placement along the backbeach to help combat bluff erosion by creating a stabilizing layer of sand at the base of the bluff or as sand cover on bluff toe rock or seawall protection.</p>	<ul style="list-style-type: none"> Sand placed along the toe of the bluff with a crest width of 10-20 feet and seaward slope of approximately 5:1 H:V. Length and width of the bluff toe protection based on dimensions of The Program area and volume of sediment available for placement. 	<p>Huntington Beach Bluffs (HB.3), Crystal Cove State Park (CA.3)</p>

Construction and Transportation

Opportunistic sand for beach fill activities will be transported from the stockpile sites to the receiver sites. The sand will be primarily transported via truck and dumped directly on the beach, with some locations also possibly receiving sand transported via trains, conveyor belts, or hydraulic pipelines as appropriate based on the sediment source site location and excavation/dredging method and receiver beach location and accessibility. The removal of source sediment will have already been approved through permits and environmental processes by local, state, and federal agencies. The stockpile sites will support identified receiver beaches within a 10-mile radius (see Figures in Appendix B). The total sand haul distance traveled is calculated from the stockpile location to the receiver site. However, two stockpile sites (I.S.1 and OC.S.4) are further inland, so the haul distance to the furthest receiver site for these two stockpile locations is assumed to be 15 miles so these can serve more receiver sites.

Approximately 10 construction personnel are expected to be on site for each nourishment event, resulting in up to 10 round-trip commutes per day per worker from home to the job site. Construction activities at receiver and stockpile sites will be conducted during daylight hours, no more than 10 hours per day, six days per week (Monday – Saturday). Specific construction windows are shown in Table 2-6: Days and Times Approved for Construction by Jurisdiction.

Table 2-6: Days and Times Approved for Construction by Jurisdiction

Jurisdiction	Days and Times Approved for Construction
Orange County	Monday – Saturday: 7:00 a.m. – 8:00 p.m.
City of Costa Mesa	Monday – Friday: 7:00 a.m. – 7:00 p.m. Saturday: 9:00 a.m. – 6:00 p.m.
City of Dana Point	Monday – Saturday: 7:00 a.m. – 8:00 p.m.
City of Huntington Beach	Monday – Saturday: 7:00 a.m. – 8:00 p.m.
City of Irvine	Monday – Friday: 7:00 a.m. – 7:00 p.m. Saturday: 9:00 a.m. – 6:00 p.m.
City of Newport Beach	Monday – Friday: 7:00 a.m. – 6:30 p.m. Saturday: 8:00 a.m. – 6:00 p.m.
City of San Clemente	Monday – Friday: 7:00 a.m. – 6:00 p.m. Saturday: 8:00 a.m. – 6:00 p.m.
City of Seal Beach	Monday – Friday: 7:00 a.m. – 8:00 p.m. Saturday: 8:00 a.m. – 8:00 p.m.

For all transportation modes, sand will be redistributed along the beach and graded to the design template using earthmoving equipment such as bulldozers and scrapers. At this stage, the sand would be exposed to moisture, limiting the potential for dust generation. Activities on dry sand would be limited to transport from stockpile sites to receiver sites and from staging areas to beach fill activities at each receiver site. Potential staging areas where construction vehicles and equipment will be temporarily located have been designated for each receiver site. Figures included in Appendix A; Section 3.0 show construction areas for receiver sites, including beach fill areas, construction staging, and haul truck accessways.

See Table 2-7 for a summary of specific transportation methods, staging areas, and other construction considerations by receiver location. For some beach receiver sites, multiple potential staging areas are

identified but for a typical sand placement event, only one staging area would be used. Additional staging and access points may be leveraged for use by The Program.

Transportation Methods

Beach nourishment activities may occur on short notice when material becomes available. Transportation of the sediment will be by truck, train, hydraulic pipeline, and/or conveyor belt. Trucking to and from all receiver sites and from stockpile sites will be assumed; some receiver sites will also have the ability to receive sand via: a) train (CA.4 Doheny State Beach, OC.4 Capistrano Beach County Park, OC.5 Poche Beach, HB.1 Sunset Beach, SC.1 Capistrano Shores, SC.2 San Clemente North Beach, SC.3 San Clemente Central City Beaches, CA.5 San Clemente State Beach, and SC.4 Cyprus Shore/Cottons), b) hydraulic pipeline (CA.2 Huntington Beach State Beach, HB.3 Huntington Beach Bluffs, and NB.1 West Newport Beach), or c) conveyor belt (CA.3 Crystal Cove State Beach, CA.5 San Clemente State Beach, OC.5 Poche Beach, HB.1 Sunset Beach, HB.3 Huntington Beach Bluffs, NB.5 Little Corona del Mar Beach, SC.2 San Clemente North Beach, SC.3 San Clemente Central City Beaches, SC.4 Cyprus Shore/Cottons and other beaches in The Program as applicable). The installation of hydraulic pipelines are not within the scope of this CEQA evaluation as the pipeline installation would be covered by the source sediment dredge project environmental review and permitting.

Truck

Trucking will be the most efficient transportation method for most stockpile sites. Trucks would haul material from the stockpile site/s along a designated route to the receiver sites for placement. The projected haul capacity for the trucks to be used for The Program is 14 cy of sand per truck.

The frequency of construction for beach nourishment at most locations would likely not exceed once every three to five years, however for the purposes of impact calculations for this document, annual construction was considered for high need receiver sites to provide a conservative estimate. A five-year frequency was estimated for medium and low receiver sites (see Table 2-1 for a list of receiver sites and level of need).

Table 2-8 provides a breakdown of projected truck trips, volumes of sand transported, and associated locations (receiver and stockpile sites). To be conservative, truck traffic is estimated based on assuming the maximum fill volumes are fulfilled at each receiver location (see Table 2-3 and Table 2-4 for location-specific max fill capacities). However, because of the opportunistic nature of The Program, the likelihood of any receiver location getting the maximum sand quantity is low and truck traffic would thus be significantly less for most receiver sites during construction. The information provided in Table 2-8 assumes a 10-hour-day/6-day-work-week as allowed per the local ordinances for all jurisdictions in which receiver sites are located; actual construction periods may vary from this. For some of the larger receiver site locations, the potential for more than one beach accessway is possible (see Figures in Appendix A; Section 3.0), thus a higher number of trucks was assumed per hour. The actual frequency may vary, but is unlikely to exceed the conservative estimates provided in Table 2-8.

Train

Trains could be an option to transport sand in the future. The Los Angeles-San Diego-San Luis Obispo Rail Corridor (LOSSAN Corridor) runs adjacent to the coastline along the majority of southern Orange County (Dana Point Harbor to Cyprus/Cottons) and another train track is adjacent to the OC.S.2 Great Park/MCAS El Toro stockpile site. In certain situations, transportation of upland material to the receiver site may be more efficient by rail. Significantly higher quantities of material can be transported in a single trip as compared to trucking, and thus the train method could be more time and cost efficient when source material is located extremely far upland, or very close to the vicinity of the rail line. A typical aggregate railcar will transport up to

60 cy of material, thus each railcar of sand is equivalent to approximately four highway truckloads of sand. Similarly, a 40-car train would be equivalent to about 160 highway truck loads.¹⁰

The Orange County Transportation Authority (OCTA) manages the section of the LOSSAN Corridor within Orange County. Currently, there are limitations to train use for The Program, including the lack of sidetrack (second track) along the coastal areas that would allow additional trains to pass the unloading train (which can take 6-8 hours to unload) and tight schedules for existing train traffic (e.g., passenger trains and freight trains that carry cargo and support national commerce). Further, permission for use of the tracks for The Program would require permission from the operators and OCTA who might be impacted by limited or no access to the tracks during the sand unloading process.

Although train transport of sand to the receiver sites is currently not feasible, it may be in the future, especially if sidetrack is added to the LOSSAN Corridor tracks in Orange County. Additionally, there may be scenarios for train use for The Program without the addition of sidetrack, such as during an emergency situation where erosion threatens the integrity of the train tracks near the coast. Given this future possibility and the efficiency of train transport of sand, trains are thus included as a potential option for sand transport in this CEQA document.

Train transport for the purpose of The Program is assumed to be a potential future option for the following sites: CA.4 Doheny State Beach, OC.4 Capistrano Beach County Park, OC.5 Poche Beach, SC.1 Capistrano Shores, SC.2 San Clemente North Beach, SC.3 San Clemente Central City Beaches, CA.5 San Clemente State Beach, SC.4 Cyprus Shore/Cottons, and I.S.1 Great Park/MCAS El Toro. Based on planning and logistical challenges though, it is assumed train transport of sand would occur no more than once per ten years. It is estimated that each train would carry 5,500 cy of sand and it would take 6-8 hours for the trains to unload sand at each receiver site. A maximum of one train per week is anticipated and over the course of 54 weeks within a 10 year period if the max fill for the beaches relying on train transport (300,000 cy at CA.4 Doheny State Beach) is met. Material delivered to sites by train would be transferred from the railcars to the receiver site using appropriate off-loading and conveyance methods suitable for conditions at the time. Alternative methods to discharge sand from railcars that are cleaner and more efficient may be developed .

Conveyor Belt

Some receiver sites would be difficult to reach by truck, particularly those that are backed by cliffs with no or limited vehicular beach accessways (e.g., San Clemente State Beach and Crystal Cove State Beach). In these cases, a temporary conveyor belt may be used to move sand from the trucks at the nearest road or parking lot to the beach fill area during construction. The conveyor belt would be removed after sand placement is completed. Designs for conveyor belts vary, but the design would most likely include a convex middle or guardrails on the sides to prevent fugitive sand from falling off the belt before reaching the target drop site at the end of the belt. Water could also be sprayed on the sand as it is loaded on to the belt to further reduce the risk of fugitive sand. These devices are generally powered by generators which in turn are powered by diesel fuel.

¹⁰ GHD, 2021. Capistrano Beach Nourishment Route Preliminary Feasibility Study, January 2021.

Table 2-7: Construction and Transportation Information for Receiver Locations
 (listed by managing entity, in alphabetical order; See figures in Appendix A; Section 3.0 for visual graphics depicting this information)

Receiver Site Location	Mode of Transportation for Sand Delivery	Construction Staging Area(s)	Other Considerations and/or Constraints
California State Parks			
CA.1 Bolsa Chica State Beach	Truck	The staging area will be in the Bolsa Chica State Beach paved parking lot, in a location in close proximity to sand placement site.	A public pedestrian/bicycle path is between the parking lot staging area and beach receiver site; special precautions will need to be in place for trucks crossing the path.
CA.2 Huntington Beach State Beach	Truck	The staging area will be in the Huntington Beach State Beach paved parking lot, in a location in close proximity to sand placement site.	A public pedestrian/bicycle path is between the parking lot staging area and beach receiver site; special precautions will need to be in place for trucks crossing the path. The backbeach area along Huntington Beach State Beach will also be considered as a sand source site, as sand often builds up and blows over the bicycle/pedestrian path and into the parking lot.
CA.3 Crystal Cove State Park	Conveyor Belt, Truck	Crystal Cove State paved parking lot southeast of main entrance Beachcomber paved parking lot, northwest corner Paved parking lot southeast of Reef Point Drive	There is the potential for sand to be placed on the southern end of Crystal Cove beach via conveyor belt from the Moro Campground lower parking lot through the PCH underpass or from the Reef Point bluff-top parking lot via the ramp.
CA.4 Doheny State Beach	Train, Truck	Doheny State Beach paved parking lot (west of San Juan Creek), northeast corner adjacent to Park Lantern Doheny State Beach paved parking lot adjacent to Coast Highway, east of San Juan Creek.	Given this receiver beach's proximity to the railroad, there is the potential for the transportation of sand from upland sources via train and sidecar dumping of sand in a stockpile area adjacent to the beach.

Receiver Site Location	Mode of Transportation for Sand Delivery	Construction Staging Area(s)	Other Considerations and/or Constraints
CA.5 San Clemente State Beach	Train, Conveyor Belt, Truck	Northeast corner of the State Beach Parking Lot off of Avenida Calafia State Beach Parking Lot at Group Campsite #2	Given this beach's proximity to the railroad, there is the potential for the transportation of sand from upland sources via train and sidecar dumping of sand in a stockpile area adjacent to the beach and/or directly onto the beach. There is also the potential for sand to be placed via conveyor belt from the upper Group Campsite 2 parking lot. Sand haul over the railroad from the lower Calafia parking lot will require infrastructure improvements to the railroad at-grade crossing and the existing stairway on the beach side of the railroad. These infrastructure improvements would also greatly benefit State Parks lifeguard and beach maintenance services.
Orange County			
OC.1 Newport Dunes	Truck	Parking lot off of N Bayside Drive, west of Newport Dunes Bridge Parking Lot off of Back Bay Drive, east of Newport Dunes Bridge	There is currently no direct beach access for construction equipment from the Bayside Drive parking lot staging area.
OC.2 Salt Creek Beach	Truck, Conveyor Belt	Salt Creek Beach parking lot, northwest portion of the lot east of Ritz Carlton Drive	Beach nourishment at the southern extent of Dana Stands, south of the Selva Road parking lot ramp, will likely be restricted to only low tide conditions given the limited current beach width.
OC.3 Baby Beach	Truck	Pier parking lot, northeast of the Pier Ensenada Place Parking, north end adjacent to Dana Point Harbor Drive	N/A
OC.4 Capistrano Beach County Park	Train, Truck	Off of Beach Road, west of the Capistrano Beach parking lot Southwest corner of the Capistrano Beach parking lot	Given this receiver beach's proximity to the railroad, there is the potential for the transportation of sand from upland sources via train and sidecar dumping of sand in a stockpile area adjacent to the beach.
OC.5 Poche Beach	Train, Conveyor Belt	Capistrano Beach County Park parking lot	There is no/limited space for construction staging in the areas adjacent to Poche Beach, thus the need to use the Capo Beach lot. Given this receiver beach's proximity to the railroad, there may be the potential for the transportation of sand from upland sources via train and sidecar dumping of sand in a stockpile area adjacent to the beach.

Receiver Site Location	Mode of Transportation for Sand Delivery	Construction Staging Area(s)	Other Considerations and/or Constraints
City of Huntington Beach			
HB.1 Sunset Beach	Truck, Train, Conveyor Belt	Parking spaces along and on median between N. and S. Pacific Avenues, off of Anderson Street Sunset Beach parking lot, off of Warner Avenue and Pacific Coast Highway	N/A
HB.2 Huntington Harbour Beaches	Truck	Adjacent streets	Due to limited space within the harbor, construction staging would be limited to along the streets.
HB.3 Huntington Beach Bluffs	Truck, Hydraulic Pipeline, Conveyor Belt	Huntington Bluffs Beach City parking lots	There is the potential for sand to be placed on Huntington Beach Bluffs site by hydraulic pipeline transporting sand from the Bolsa Chica Tidal Inlet maintenance dredging.
City of Newport Beach			
NB.1 West Newport Beach	Truck	OCPW maintenance yard off of Summit Street, adjacent to the Santa Ana River Parking lot north of Newport Pier, off of W Oceanfront	N/A
NB.2 Newport Harbor Beaches	Truck	Adjacent streets	Due to limited space within the harbor, construction staging would be limited to along the streets.
NB.3 Balboa Beach	Truck	Parking lot north of Newport Pier, off of W Oceanfront Balboa Pier Parking Lot 1, west of Balboa Pier Parking Lot A at Peninsula Park (926 E Ocean Front Parking), east of Balboa Pier	N/A
NB.4 Corona del Mar Beach	Truck	Corona Del Mar beach parking lot, adjacent to Heliotrope Ave (northwest corner)	N/A
NB.5 Little Corona del Mar Beach	Truck, Conveyor Belt	Corona Del Mar beach parking lot, adjacent to Heliotrope Ave (northwest corner)	Beach access is only via a narrow ramp from Poppy Avenue.

Receiver Site Location	Mode of Transportation for Sand Delivery	Construction Staging Area(s)	Other Considerations and/or Constraints
City of San Clemente			
SC.1 Capistrano Shores	Train, Truck	San Clemente Metrolink Station Parking Lot, south end	Given this receiver beach's proximity to the railroad, there is the potential for the transportation of sand from upland sources via train and sidecar dumping of sand in a stockpile area adjacent to the beach, although sidecar dumping in the immediate vicinity will likely be difficult due to the density of private residences.
SC.2 San Clemente North Beach	Train, Truck, Conveyor Belt	San Clemente Metrolink Station Parking Lot, south end	Special precautions may be needed for construction vehicles travel over the storm drain outlet to protect the outlet structure. Given this receiver beach's proximity to the railroad, there is the potential for transportation of sand from upland sources via train and sidecar dumping of sand in a stockpile area adjacent to and/or directly along the beach.
SC.3 San Clemente Central City Beaches	Train, Truck, Conveyor Belt	East parking lot off of N Alameda Lane	Special precautions will be necessary for haul trucks and construction equipment crossing the railroad. Given this receiver beach's proximity to the railroad, there is the potential for transportation of sand from upland sources via train and sidecar dumping of sand in a stockpile area adjacent to and/or directly onto the beach.
SC.4 Cyprus Shore/Cottons	Train, Truck, Conveyor Belt	Upper beach, near Trestles Beach Trail head	Special precautions will be necessary for haul trucks and construction equipment crossing the railroad. There are no adjacent parking or empty lots and so construction equipment will need to be staged along the back beach. Given this beach's proximity to the railroad, there is the potential for transportation of sand from upland sources via train and sidecar dumping of sand in a stockpile area adjacent to and/or directly onto the beach.
City of Seal Beach			
SB.1 West Beach	Truck	The parking lot to the west of the pier, behind Eisenhower Park The parking lot adjacent to the San Gabriel River, off of 1 st Street and Ocean Avenue.	N/A

Receiver Site Location	Mode of Transportation for Sand Delivery	Construction Staging Area(s)	Other Considerations and/or Constraints
SB.2 East Beach	Truck, Conveyor Belt	<p>The parking lot to the east of the pier, off of 10th Street behind Eisenhower Park.</p> <p>Another potential staging area is at Barney's Beach within the Naval Weapons Station Seal Beach; this area was used for a previous East Beach sand placement project. The use of Barney's Beach avoids construction vehicles traffic along local streets but requires special approval by the U.S. Navy.</p>	<p>Truck access to East Beach is limited. In order to avoid impact to the public, trucks could enter the East Beach placement site by approaching from Seal Beach Boulevard, entering the U.S. Naval Weapons Station via its western entry gate, and continuing to the nourishment site using the Navy's western perimeter road. However, special permissions and security arrangements must be made in advance with the Navy to use this access route.¹¹</p>
SB.3 Surfside Beach	Truck, Conveyor Belt	Lot adjacent to the Naval Weapons Station, southwest of Pacific Coast Highway	N/A

¹¹ Noble, 2017. *Orange County Sand Compatibility and Use Program, Final Report*, Prepared for County of Orange OC Parks, Prepared by Noble Consultants-G.E.C., Inc, August 2017

Table 2-8: Truck Trips

Maximum Fill Volume Per Year ¹² (cubic yards)	Assumed Max Fill per Week (cubic yards)	Maximum Fill Volume Per Day (cubic yards)	Project Duration (weeks)	Number of Individual Trips per Year	Maximum Monthly Truck Trips	Maximum Weekly Number of Truck Trips Projected ¹³	Maximum Daily Number of Truck Trips Projected	Maximum Hourly Number of Truck Trips Projected	Approximate Time Interval Between each Truck (minutes)	Applicable Project Sites
300,000	13,440	2,240	22	21,400	3840	960	160	16	4	High Need Receiver Sites: Crystal Cove State Park (CA.3), Doheny State Beach (CA.4), Huntington Beach Bluffs (HB.3), Capistrano Shores (SC.1), San Clemente Central City Beaches (SC.3), Cyprus Shore/Cottons (SC.4), Surfside Beach (SB.3) Medium/Low Need Receiver Sites: Bolsa Chica State Beach (CA.1), San Clemente State Beach (CA.5), Sunset Beach (HB.1), West Newport Beach (NB.1), Balboa Beach (NB.3) Stockpile Site/s: ¹⁴ N/A
200,000	6,720	1,120	30	14,300	1920	480	80	8	8	High Need Receiver Sites: East Beach (SB.2) Medium/Low Need Receiver Sites: Huntington State Beach (CA.2), Salt Creek Beach (OC.2), Sunset Beach (HB.1) Stockpile Site/s: N/A
150,000	6,720	1,120	22	10,700	1920	480	80	8	8	High Need Receiver Sites: Capistrano Beach County Park (OC.4), San Clemente North Beach (SC.2) Medium/Low Need Receiver Sites: N/A Stockpile Site/s: N/A
100,000	6,720	1,120	15	7,100	1920	480	80	8	8	High Need Receiver Sites: N/A Medium/Low Need Receiver Sites: Corona Del Mar Beach (NB.4) Stockpile Site/s: N/A
100,000	13,440	2,240	7	7,100	3840	960	160	16	4	High Need Receiver Sites: N/A Medium/Low Need Receiver Sites: West Beach (SB.1) Stockpile Site/s: Lot at Confluence – Bolsa Chica & Edinger (I.S.1)
50,000	6,720	1,120	15	7,100	1920	480	80	8	8	High Need Receiver Sites: N/A Medium/Low Need Receiver Sites: Newport Dunes (OC.1) Stockpile Site/s : Newport Beach North Star Beach Parking Lot (NB.S.1); Great Park – MCAS El Toro (OC.S.2); San Clemente – Avenue Vista Hermosa and Avenida La Pata (SC.S.3)
10,000	6720	1,120	7	3600	1920	480	80	8	8	High Need Receiver Sites: Newport Harbor Beaches (NB.2) Medium/Low Need Receiver Sites: Baby Beach (OC.3) Stockpile: City of Huntington Beach Gothard Street (HB.S.1); Audubon Basin (OC.S.1) (+8,000); San Clemente Water Reclamation Plant Yard (SC.S.2)
5,000	6720	1,120	1	700	1920	480	80	8	8	High Need Receiver Sites: N/A Medium/Low Need Receiver Sites: Huntington Harbour Beaches (HB.2), Little Corona del Mar Beach (NB.5) Stockpile Site/s: Lot adjacent to the Santa Ana Bike Trail across from OC Sanitation District (OC.S.4) (-2,000); San Clemente – North Beach (SC.S.1) (+1,000)
1,000	5040	840	1	400	1440	360	60	6	10	High Need Receiver Sites: Poche Beach (OC.5) Medium/Low Need Receiver Sites: Newport Dunes (OC.1) Stockpile site/s: N/A

Calculations based on the following assumptions: 6-day work week and 10-hour workday (allowed under local noise ordinances for all jurisdictions); A carrying capacity of 14 cy dry sand per truck; Truck traffic may be split between 2 or 3 haul routes; Storage volume capacity at the stockpile sites range from 3,000 cy to 77,000 cy. These were included in the category with the closest volume (difference +/- 10,000 or less or the next highest volume if the difference is greater than 5,000 cy). The traffic from these sites will likely be much less than the traffic at the receiver sites; Maximum Monthly Truck Trips are rounded to the nearest 100.

¹² See Tables 3 and 4 for Max Fill (receiver sites) and Capacity (stockpile sites) Volumes by Location

¹³ Storage volume capacity at the stockpile sites range from 3,000 cy to 77,000 cy. These were included in the category with the closest volume (difference +/- 10,000 or less or the next highest volume if the difference is greater than 5,000 cy). The traffic from these sites will likely be much less than the traffic at the receiver sites

2.3 Project Permitting/Entitlements List

This IS/MND is intended to analyze the potential environmental impacts of The Program in advance of its consideration and as an informational document for the County of Orange and other agencies to review and use when approving subsequent discretionary actions for The Program. Table 2-9 provides a list of other agencies that may rely upon this IS/MND to grant subsequent discretionary approvals and/or permits related to The Program's implementation.

Table 2-9: Permitting and Agency Review for The Program

Regulatory Agency	Permit/Approval/Review	Description
California Coastal Commission (CCC)	Coastal Development Permit (CDP)	Work (sand placement and construction staging) within the California Coastal Zone
U.S. Army Corps of Engineers (USACE)	Section 10/404 Permit (Section 10 of the federal Rivers and Harbors Act and Section 404 of federal Clean Water Act)	Sand placement and construction activity within jurisdictional Waters of the U.S. (work seaward of the Highest Tide Line)
U.S. Fish and Wildlife Service (USFWS)	Consultation to USACE for Section 10/404 Permit	Review of compliance with Section 7 of the federal Endangered Species Act
NOAA National Marine Fisheries Service (NMFS)	Consultation to USACE for Section 10/404 Permit	Review of compliance with Magnuson-Stevens Act for Essential Fish Habitat, Marine Mammal Protection Act, and Section 7 of the Endangered Species Act
U.S. Environmental Protection Agency (USEPA)	Consultation to USACE for Section 10/404 Permit	Review of compliance with sediment quality ecological and human health criteria
State Water Resources Control Board* (SWRCB)	Section 401 Water Quality Certification / Waste Discharge Requirement (Section 401 of federal Clean Water Act and State Porter-Cologne Water Quality Act)	Sand placement and construction activities within jurisdictional Waters of the U.S. and State (work seaward of the Highest Tide Line)
California State Lands Commission (CSLC)	Lease(s) of State Lands	Sand placement within Tidelands and Submerged Lands of California (work seaward of the Ordinary High Water Mark)

* Since OC SCOUP falls across two Regional Water Quality Control Boards (Santa Ana and San Diego), the 401 Certification will be issued by the State Board.

As defined by CEQA Statute and Guidelines, a “Responsible Agency” means a public agency, other than the lead agency, which has responsibility for carrying out or approving a project.” In the case of OC SCOUP, the receiver beach managing entities (California State Parks, OC Parks, City of Seal Beach, City of Huntington Beach, City of Newport Beach and City of San Clemente) will have the responsibility for carrying out the individual SCOUP beach nourishment events (projects) and thus they are Responsible Agencies under CEQA. In addition, the beach managing entities are co-applicants on each the permits listed in the table above. The City of Dana Point is not a beach managing entity, however five OC SCOUP beaches (Salt Creek, Baby, Doheny, Capistrano and Poche) are located within the City of Dana Point; the City has an approved Local Coastal Program and could issue a CDP for portions of The Program but has provided authorization to the CCC to issue a “Consolidated CDP”, i.e. the CCC will issue the CDP and not the City of Dana Point.

2.4 Consultation with California Native American Tribe(s)

The County of Orange initiated formal AB52 consultation requests on April 4, 2025 and concluded consultation on May 7, 2025. Letters were sent to the Tribes listed below.

- Gabrieleño Band of Mission Indians - Kizh Nation
- Juaneño Band of Mission Indians
- San Gabriel Band of Mission Indians
- Soboba Band of Luiseño Indians

These Tribes did not request formal consultation.

3.0 ENVIRONMENTAL ANALYSIS

The environmental analysis provided in this Section 3.0 is patterned after the Appendix G Checklist recommended by the CEQA Guidelines, as amended, and used by the lead agency in its environmental review process. For the environmental review undertaken as part of this IS preparation, a determination that there is a potential for significant effects indicates the need to more fully analyze The Program's impacts and to identify mitigation for the identified impact.

For the evaluation of potential impacts for The Program, the questions in the IS Checklist are stated and accompanied by analysis and an answer. The analysis considers the short-term, long-term, direct, indirect, and cumulative impacts of The Program. There are four possible responses to each question, each with the following meanings:

- **No impact.** The Program would not have any measurable environmental impact on the environment.
- **Less than significant impact.** The Program would have the potential to impact the environment, although this impact would be negligible, it would be below established thresholds that are considered to be significant and/or would be reduced to less than significant with the implementation of established plans, policies, procedures and/or regulations (including measures identified in the Preliminary Implementation Guidelines).
- **Less than significant with mitigation.** The Program would have the potential to generate impacts, which may be considered a significant effect on the environment, although mitigation measures or changes to The Program's physical or operational characteristics would reduce these impacts to levels that are less than significant.
- **Potentially significant impact.** The Program could have impacts that may be considered significant and, therefore, additional analysis is required to identify mitigation measures that could reduce potentially significant impacts to less than significant levels.

The following is a discussion of potential Program impacts as identified in the Initial Study/Mitigated Negative Declaration (IS/MND). Explanations are provided for each item.

In addition to the analysis, Program Guidelines Measures (PGM) recommended mitigation measures (MM), regulatory compliance measures (RCM), and Standard Conditions/best management practices (SCs) are specified in this IS/MND. Mitigation measures are specific actions required to avoid, reduce, or offset significant environmental impacts identified in the environmental review. Regulatory compliance measures refer to mandatory actions that ensure adherence to existing laws, regulations, and standards, and while not CEQA mitigation, they contribute to environmental safeguards. Standard Conditions are the best management practices required by the County and are voluntary or project-specific strategies that promote sustainability and minimize potential environmental effects, often implemented as part of standard operating procedures. PGMs identified in the Preliminary Implementation Guidelines are specific "project measures or features" required by The Program that will minimize adverse impacts on the environment and project area, and are therefore, not identified as CEQA mitigation measures. See Table 4-1: Mitigation, Monitoring, and Reporting Program for more details.

3.1 Aesthetics

Would The Program:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) Would the Project have a substantial adverse effect on a scenic vista?

Less Than Significant Impact. Views of the ocean, sandy beach, coastal bluffs, piers, or natural features that would be considered ‘scenic vistas’ would not be permanently affected by The Program. Designated scenic resources at or near The Program locations include Huntington Beach Pier, Huntington Beach Bluffs, Bolsa Chica Ecological Reserve, Balboa Beach Pier, Dana Point Harbor, the Bluff Top Trail, and Sunset Beach.¹⁵ Scenic resources that have been identified as important scenic vistas by the State and local jurisdictions and are listed by proximity (within 1 mile) to specific receiver sites in Table 3-2 and stockpile sites Table 3-3.

Nourished beach heights, widths, and lengths are comparable to, and compatible with, underlying and surrounding beach areas. Stockpile heights would reach a maximum of 10 feet. Construction equipment and activities, such as dump trucks unloading sand and earthmoving equipment placing and moving sand on the beach, may be seen in the immediate vicinity of The Program sites by residents and recreational users along the parking lots, bikeways, roadways, and private residences adjacent to the sites and may be considered unpleasant to the viewer with a potential to temporarily diminish the perceived scenic quality of the beach sites.

¹⁵ City of Dana Point. 1991. General Plan. https://www.plandanapoint.com/_files/ugd/db9256_b7de4d9e6cef4496b1f5ee5c7df657f5.pdf
 City of Huntington Beach. 2001 (amended 2011). General Plan: Coastal Element. https://cms3.revize.com/revize/huntingtonbeachca/Documents/Departments/Community%20Development/Planning%20Zonning/Coastal%20Element/Coastal_Elem_Tech_Synop.pdf?t=202404051223360&t=202404051223360
 City of Irvine. 2024. General Plan: Conservation and Open Space Element. <https://legacy.cityofirvine.org/civica/filebank/blobdload.asp?BlobID=35717>
 City of Newport Beach. 2005 (amended October 2018). Local Coastal Program: Coastal Land Use Plan. https://www.newportbeachca.gov/PLN/LCP/Internet%20PDFs/CLUP_Part%204_Coastal%20Resource_Protection.pdf
 City of San Clemente. 2014 (amended October 2022). Centennial General Plan. <https://www.san-clemente.org/home/showpublisheddocument/48385/638924187583400000>
 City of Seal Beach. 2023. DRAFT Local Coastal Program Land Use Plan. https://www.sealbeachca.gov/Portals/0/Documents/Seal%20Beach%20LUP_DRAFT%20compressed.pdf?ver=2023-05-09-154143-560

Construction would occur during daylight hours, no more than 10 hours per day Monday – Saturday (as allowed by local ordinances – See Table 3-1: Days and Times Approved for Construction by Jurisdiction). The duration of construction would vary by location and the amount of sand available, but would not exceed 30 weeks per year at any location. For most locations, construction duration would be between 7 weeks and 22 weeks in any given year and a construction event would not occur more than once every 2-5 years. Long-term, The Program would permanently improve the beach views at the receiver beach sites due to the wider beach areas. All impacts to scenic vistas would be temporary and views would return to pre-Program conditions once maintenance is completed and ultimately views would be improved by The Program; thus impacts would be less than significant.

Table 3-1: Days and Times Approved for Construction by Jurisdiction¹⁶

Jurisdiction	Days and Times Approved for Construction
Orange County	Monday – Saturday: 7:00 a.m. – 8:00 p.m.
City of Costa Mesa	Monday – Friday: 7:00 a.m. – 7:00 p.m. Saturday: 9:00 a.m. – 6:00 p.m.
City of Dana Point	Monday – Saturday: 7:00 a.m. – 8:00 p.m.
City of Huntington Beach	Monday – Saturday: 7:00 a.m. – 8:00 p.m.
City of Irvine	Monday – Friday: 7:00 a.m. – 7:00 p.m. Saturday: 9:00 a.m. – 6:00 p.m.
City of Newport Beach	Monday – Friday: 7:00 a.m. – 6:30 p.m. Saturday: 8:00 a.m. – 6:00 p.m.
City of San Clemente	Monday – Friday: 7:00 a.m. – 6:00 p.m. Saturday: 8:00 a.m. – 6:00 p.m.
City of Seal Beach	Monday – Friday: 7:00 a.m. – 8:00 p.m. Saturday: 8:00 a.m. – 8:00 p.m.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

¹⁶ City of Costa Mesa. 2025. City of Costa Mesa Code of Ordinances Title 13 Section 13-279 Exemptions for Construction accessed July 24, 2025 at <https://ecode360.com/42619123#42619125>

City of Dana Point. 2025. City of Dana Point Municipal Code: Noise Control Special Provisions. accessed on July 24, 2025 at <https://ecode360.com/42957309?highlight=noise&searchId=4199133278820013#42957309>

City of Huntington Beach. 2016. Noise Control. Accessed July 24, 2025. <https://www.nonoise.org/lawlib/cities/ordinances/Huntington%20Beach,%20California.pdf>

City of Newport Beach. 2025 Construction Activity Noise Regulations .Accessed July 24, 2025 <https://www.codepublishing.com/CA/NewportBeach/html/NewportBeach10/NewportBeach1028.html#10.28.040>

City of San Clemente. 2025. Noise Control. Accessed July 24, 2025. https://library.municode.com/ca/san_clemente/codes/code_of_ordinances?nodeId=TIT8HESA_CH8.48NOCO_8.48.090EXCH

City of Seal Beach. 2024. Noise-Exemptions. Accessed July 24, 2025. <https://ecode360.com/43955094?highlight=noise&searchId=4199842164208452#43955094>

b) Would the Project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Less Than Significant Impact. The Program would stockpile sand at stockpile sites and place compatible sand on receiver sites to replenish eroding beaches. Caltrans designates highways as scenic “depending on how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler’s enjoyment of the view.”¹⁷ Most of the receiver and stockpile locations are located within 1 mile of scenic resources (see Table 3-2 and Table 3-3 for a list of scenic resources near receiver and stockpile sites). Scenic routes, as defined by Caltrans, along Program sites are listed below:¹⁸

- Interstate 5 (I-5) from San Diego County near the City of Coronado to Orange County near San Juan Capistrano and State Route 1 (State Route 1, SR-1) from Orange County near San Juan Capistrano to Los Angeles County near Long Beach,
- Highway 1 (SR-1) from Orange County near San Juan Capistrano to Los Angeles County near Long Beach,

Additionally, public viewpoints and coastal views within the City of Newport Beach are protected under Natural Resource Policy NR 20.3 Public Views and defined as “views from public vantage points.”¹⁹ Activities conducted as part of The Program include stockpiling, transportation, and placement of sand using dump trucks and earth-moving equipment, such as bulldozers, and would occur no less than 25 feet away from historical buildings/structures. Trucks would transport sand from the source sites to the receiver beaches on these highways as part of The Program and would be consistent with current traffic, thus they would not introduce damaging impacts to scenic resources along their routes. The Program would have less than significant impact to scenic resources along the state scenic highways and surrounding areas.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

¹⁷ Caltrans. 2025. Scenic Highways – Frequently Asked Questions accessed July 28, 2025 at <https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways/lap-liv-i-scenic-highways-faq2>

¹⁸ California Department of Transportation. 2024. State Scenic Highway Map accessed on October 24, 2024 at <https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aaca>

¹⁹ City of Newport Beach. 2006. City of Newport Beach General Plan Chapter 10 accessed on July 28, 2025 at <https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways/lap-liv-i-scenic-highways-faq2>

Table 3-2: List of Scenic Resources Within 1.0 mi of Receiver Sites²⁰

Location ID	Location	Scenic Resources
California State Parks		
CA.1	Bolsa Chica State Beach	HWY 1
CA.1	Bolsa Chica State Beach	Bolsa Chica Ecological Reserves
CA.2	Huntington Beach State Beach	HWY 1
CA.2	Huntington Beach State Beach	Huntington Beach Pier
CA.3	Crystal Cove State Park	HWY 1
CA.4	Doheny State Beach	Coast Hwy
CA.4	Doheny State Beach	HWY 1
CA.4	Doheny State Beach	I-5
CA.5	San Clemente State Beach	I-5
Orange County Parks		
OC.1	Newport Dunes	HWY 1
OC.1	Newport Dunes	Coastal View Road
OC.2	Salt Creek Beach	HWY 1
OC.3	Baby Beach	HWY 1
OC.3	Baby Beach	Bluff Top Trail
OC.3	Baby Beach	Dana Point Harbor
OC.4	Capistrano Beach County Park	I-5
OC.5	Poche Beach	I-5
City of Huntington Beach		
HB.1	Sunset Beach	HWY 1
HB.1	Sunset Beach	Sunset Beach
HB.2	Huntington Harbour Beaches	HWY 1
HB.2	Huntington Harbour Beaches	Huntington Beach Harbor
HB.3	Huntington Beach Bluffs	HWY 1

²⁰ City of Dana Point. 1991. General Plan. https://www.plandanapoint.com/_files/ugd/db9256_b7de4d9e6cef4496b1f5ee5c7df657f5.pdf
 City of Huntington Beach. 2001 (amended 2011). General Plan: Coastal Element. https://cms3.revize.com/revize/huntingtonbeachca/Documents/Departments/Community%20Development/Planning%20Zoning/Coastal%20Element/Coastal_Elem_Tech_Synop.pdf?t=202404051223360&t=202404051223360
 City of Newport Beach. 2005 (amended October 2018). Local Coastal Program: Coastal Land Use Plan. https://www.newportbeachca.gov/PLN/LCP/Internet%20PDFs/CLUP_Part%204_Coastal%20Resource_Protection.pdf
 City of San Clemente. 2014 (amended October 2022). Centennial General Plan. <https://www.san-clemente.org/home/showpublisheddocument/48385/638924187583400000>
 City of Seal Beach. 2023. DRAFT Local Coastal Program Land Use Plan. https://www.sealbeachca.gov/Portals/0/Documents/Seal%20Beach%20LUP_DRAFT%20compressed.pdf?ver=2023-05-09-154143-560
 Caltrans. 2025. Scenic Highways – Frequently Asked Questions accessed July 28, 2025 at <https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways/lap-liv-i-scenic-highways-faq2>
 California Department of Transportation. 2024. State Scenic Highway Map accessed on October 24, 2024 at <https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aaca>

Location ID	Location	Scenic Resources
HB.3	Huntington Beach Bluffs	Beach bluffs
City of Newport Beach		
NB.1	West Newport Beach	HWY 1
NB.1	West Newport Beach	Newport Pier
NB.2	Newport Harbor Beaches	HWY 1
NB.2	Newport Harbor Beaches	Public viewpoints
NB.2	Newport Harbor Beaches	Upper Newport Bay Ecological Reserve
NB.3	Balboa Beach	HWY 1
NB.3	Balboa Beach	Balboa Pier
NB.4	Corona del Mar Beach	HWY 1
NB.4	Corona del Mar Beach	Public viewpoints
NB.5	Little Corona del Mar Beach	HWY 1
City of San Clemente		
SC.1	Capistrano Shores	I-5
SC.2	San Clemente North Beach	I-5
SC.3	San Clemente Central City Beaches	I-5
SC.3	San Clemente Central City Beaches	Del Mar/T-Street Corridor
SC.3	San Clemente Central City Beaches	San Clemente Pier
SC.4	Cyprus Shore/Cottons	I-5
City of Seal Beach		
SB.1	West Beach	HWY 1
SB.1	West Beach	Seal Beach Pier
SB.1	West Beach	San Gabriel River and River's End Park
SB.1	West Beach	Eisenhower Park
SB.2	East Beach	HWY 1
SB.2	East Beach	Seal Beach Pier
SB.2	East Beach	Eisenhower Park
SB.3	Surfside Beach	HWY 1

Table 3-3: Scenic Resources within 1 mi of Stockpile Sites²¹

Location ID	Site Location	Scenic Vistas
California State Parks		
CA.S.1	Huntington Beach State Beach parking lot (within City of Huntington Beach)	HWY 1
Orange County Public Works		
OC.S.3	Audubon Basin (within City of Irvine)	El Toro Road
City of Newport Beach		
NB.S.1	North Star beach parking lot, Newport Beach	HWY 1
NB.S.1	North Star beach parking lot, Newport Beach	San Joaquin Hills Road
NB.S.1	North Star beach parking lot, Newport Beach	Public viewpoints
NB.S.1	North Star beach parking lot, Newport Beach	Upper Newport Bay Ecological Reserve
City of San Clemente		
SC.S.2	San Clemente Water Reclamation Plant yard	I-5
SC.S.3	Lot near North Beach, San Clemente	I-5

c) Would the Project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the Project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less Than Significant Impact. The Program does not include any development and would not degrade existing visual character or quality of public views. Views from the receiver sites are the ocean, sandy beaches, coastal bluffs, harbors, parks, and landward urban infrastructure such as parking lots, roadways, buildings, and homes. Views from the stockpile sites are primarily the surrounding roadways, buildings, parking lots, and flood control channels. Operationally, The Program would replenish eroding beaches with sand, providing beneficial aesthetic effects to the existing visual character and quality of public views. During construction,

²¹ City of Huntington Beach. 2001 (amended 2011). General Plan: Coastal Element. https://cms3.revize.com/revize/huntingtonbeachca/Documents/Departments/Community%20Development/Planning%20Zonning/Coastal%20Element/Coastal_Elem_Tech_Synop.pdf?t=202404051223360&t=202404051223360

City of Irvine. 2024. General Plan: Conservation and Open Space Element. <https://legacy.cityofirvine.org/civica/filebank/blobload.asp?BlobID=35717>

City of Newport Beach. 2005 (amended October 2018). Local Coastal Program: Coastal Land Use Plan. https://www.newportbeachca.gov/PLN/LCP/Internet%20PDFs/CLUP_Part%204_Coastal%20Resource_Protection.pdf

City of San Clemente. 2014 (amended October 2022). Centennial General Plan. <https://www.san-clemente.org/home/showpublisheddocument/48385/638924187583400000>

Caltrans. 2025. Scenic Highways – Frequently Asked Questions accessed July 28, 2025 at <https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways/lap-liv-i-scenic-highways-faq2>

California Department of Transportation. 2024. State Scenic Highway Map accessed on October 24, 2024 at <https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aaca>

equipment and activities may temporarily impact the quality of public views in the vicinity of The Program sites (both receiver sites and stockpile sites). These temporary impacts would include trucks, equipment, and workers being visible on receiver sites and large quantities of sediment being spread on the receiver site areas. Construction would occur during daylight hours, no more than 10 hours per day Monday – Saturday as allowed by local ordinances (see Table 3-1: Days and Times Approved for Construction by Jurisdiction). The duration of construction would vary by location and the amount of sand available, but would not exceed 30 weeks per year at any location. For most locations, the construction duration would be between 7 weeks and 22 weeks in any given year. The quality of public views and visual character of The Program sites and their surroundings would return to pre-Program conditions once construction is completed and would improve the beach views at the receiver beach sites due to the wider beach areas. Impacts to the visual character and quality of views would be less than significant.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

d) Would the Project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less Than Significant Impact. The Program would replenish sand on eroding beaches and does not propose development of any new light or glare sources and thus would not adversely affect day or nighttime views in the area, except for possibly temporarily during construction. Temporary increases in glare may occur from light reflection on chrome construction equipment during the construction period. Construction (i.e., placement of sand) would take place during the day only (see Table 3-1: Days and Times Approved for Construction by Jurisdiction) and therefore no nighttime construction lighting would be used. No significant long-term sources of substantial light or glare would result from The Program, thus impacts would be less than significant.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

3.2 Agricultural and Forest Resources

Would The Program:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing agricultural zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) Would the Project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact. The Program would not convert any Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a non-agricultural use. Per the California Department of Conservation’s California Important Farmland Finder (accessed July 24, 2025),²² there is no farmland within The Program’s receiver and stockpile sites. The Program would transport and place compatible sand on eroding beaches. It would also stockpile sand at locations that are already in use for urban and municipal purposes. The Program would not convert any farmland. Thus, it would have no impact.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

²² California Department of Conservation. *California Important Farmland Finder*. Farmland Mapping and Monitoring Program. Accessed July 26, 2025. <https://maps.conservation.ca.gov/DLRP/CIFF/>

b) Would the Project conflict with existing agriculture zoning for agricultural use, or a Williamson Act contract?

No Impact. The Program would transport and place sand on eroding beaches throughout Orange County. It would also stockpile sand at locations that are already developed and in use for urban and municipal purposes. Further, the stockpile and beach receiver sites, as well as the haul routes associated with The Program, are not zoned for agriculture and would not conflict with existing agriculture zoning. Further, the County has not reported any Williamson Act contracts to the California Williamson Act Enrollment Finder,²³ and the only jurisdiction within The Program that has agricultural zoning (i.e., the City of Irvine) does not have any Williamson Act Contracts per the City's 2045 General Plan Update EIR (2024),²⁴ Thus, The Program would have no impact.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

c) Would the Project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

No Impact. The stockpile and receiver sites associated with The Program are not zoned as forest land or timberland (see Table 2-1: Beach Receiver Site Locations for The Program and Table 2-2: Stockpile Site Locations for The Program for existing zoning for Program sites). Haul routes, construction staging areas, and stockpile locations are currently on built roads and existing disturbed parcels, none of which are zoned as forest land. The Program would transport and place compatible sand on eroding beaches. It would also stockpile sand at locations that are already in use for urban and municipal purposes. There is no forest land or timberland at or near The Program sites or haul routes. No impact would occur as a result of The Program.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

d) Would the Project result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. The stockpile and receiver sites associated with The Program are not zoned as forest land or timberland (see Table 2-1: Beach Receiver Site Locations for The Program and Table 2-2: Stockpile Site Locations for The Program for existing zoning for Program sites). Haul routes, construction staging areas, and stockpile locations are currently on built roads and existing disturbed parcels, none of which are zoned as forest land. There is no forest land located at the beach receiver or stockpile sites, or along the haul routes associated with The Program. The Program would transport and place sand on eroding beaches. It would also stockpile sand at locations that are already in use for urban and municipal purposes. There would be no loss or conversion of forest land due to activities performed within the scope of The Program. Thus, there will be no impact.

²³ California Department of Conservation. 2024. Williamson Act Enrollment Finder. Accessed October 27, 2025. <https://maps.conservation.ca.gov/dlrp/williamsonact/App/index.html>

²⁴ City of Irvine. 2024. Program Environmental Impact Report: City of Irvine 2024 General Plan Update. Accessed October 27, 2025. <https://legacy.cityofirvine.org/civica/filebank/blobload.asp?BlobID=35261>

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

e) Would the Project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

No Impact. The Program would transport and place compatible sand on eroding beaches. It would also stockpile sand at locations that are already in use for urban and municipal purposes. There is no farmland or forest land on the receiver and stockpile sites or haul routes associated with The Program. The Program would not involve any other changes that will result in the conversion of farmland or forest land into non-farm or forest use. No impact would occur.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

3.3 Air Quality

Would The Program:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in other emissions (such as those leading to odors adversely affecting a substantial number of people)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) Would the Project conflict with or obstruct implementation of the applicable air quality plan?

No Impact. The Program’s receiver and stockpile sites (Table 2-1 and Table 2-2) are located within the South Coast Air Quality Management District’s (SCAQMD) Air Quality Management Plan (AQMP). The SCAQMD regulates the emission of criteria air pollutants within the South Coast Air Basin in compliance with state and federal air quality standards. Criteria pollutants are those for which the EPA and the California Air Resources Board (CARB) have established health-based ambient air quality standards. These pollutants are monitored due to their known adverse effects on human health and the environment. The primary criteria pollutants regulated by SCAQMD include:

- **Ozone (O₃):** A secondary pollutant formed by photochemical reactions between reactive organic gases (ROG) and nitrogen oxides (NO_x) in the presence of sunlight. Ozone is a strong respiratory irritant and a major component of smog.
- **Nitrogen Oxides (NO_x):** A group of highly reactive gases, including nitrogen dioxide (NO₂), that contribute to ozone formation and particulate matter. NO_x is primarily emitted from combustion sources such as vehicles and industrial operations.
- **Carbon Monoxide (CO):** A colorless, odorless gas produced by incomplete combustion of carbon-based fuels. CO reduces the blood’s ability to carry oxygen and can be particularly harmful to people with cardiovascular conditions.
- **Sulfur Oxides (SO_x):** A group of gases including sulfur dioxide (SO₂) produced from burning sulfur-containing fuels. SO_x can irritate the respiratory system and contributes to the formation of fine particulate matter and acid rain.
- **Particulate Matter (PM₁₀ and PM_{2.5}):** PM₁₀ refers to particles with diameters of 10 microns or less, and PM_{2.5} refers to fine particles with diameters of 2.5 microns or less. These particles can penetrate deep into the lungs and are associated with respiratory and cardiovascular health effects.

- **Volatile Organic Compounds (VOCs):** Also referred to as Reactive Organic Gases (ROG), these are precursors to ozone formation. ROGs are emitted from motor vehicles, solvents, and industrial activities.

Lead (Pb) is also a pollutant of concern, but is not typically a significant pollutant associated with construction emissions because modern construction equipment uses ultra-low sulfur diesel fuel and operates under strict emissions standards that virtually eliminate lead emissions. Additionally, leaded gasoline and lead-based fuels have been banned for decades in the United States, significantly reducing airborne lead concentrations from mobile sources.

SCAQMD uses emission thresholds and modeling tools to evaluate whether a project’s emissions of these pollutants would cause or contribute to exceedances of applicable air quality standards. Consistency with the AQMP is determined by assessing whether a project would (1) exceed the regional emissions projections included in the AQMP, or (2) conflict with strategies intended to reduce air pollutant emissions.

An analysis of The Program’s activities were assessed (Moffatt & Nichol 2025a and Moffatt & Nichol 2025b; see Appendix E) to compare The Program’s emissions to the SCAQMD thresholds.²⁵ The assessment included the daily number of truck trips (based on the maximum annual sand volume; see Table 2-8: Truck Trips) and an assumed 15 mile distance traveled, which is the furthest distance trucks would travel from a stockpile location to a receiver site (see Appendix B). The removal and collection of source sediment will have already been approved through permits and environmental processes by local, state, and federal agencies. The full methodology for the assessment is available in Appendix E. The results of the analysis and SCAQMD thresholds of significance are shown in Table 3-4.

Table 3-4: Maximum Daily Program Emissions Compared to SCAQMD Thresholds (lbs/day)

	NO_x	PM_{2.5}	PM₁₀	VOC	SO_x	CO
Maximum Daily Emissions – Trucks ¹	6.13	0.07	0.07	3.76	0.08	3.40
Maximum Daily Emissions – Trains ²	52.81	2.02	2.08	3.23		11.93
SCAQMD Threshold of Significance	100	55	150	75	150	550
Significant Impact?	No	No	No	No	No	No

Nox = nitrogen oxides, PM₁₀ = particulate matter (10 microns or less); PM_{2.5} = particulate matter (2.5 microns or less); Sox = sulfur oxides; VOC = volatile organic compounds; CO = carbon monoxide

See Appendix E for the full emissions analysis

1) Assumes the maximum number of trucks per day (160 – See Table 2-8)

2) Assumes 15-mile trips (see stockpile site ranges in Appendix E)

3) Assumes current engine types and a frequency of 1 train per week over a total of 54 weeks every 10 years

The Program would replenish eroding Orange County beaches with sand. Any impacts would be short-term and temporary, associated only with the construction phase. There would be no air quality impacts from ongoing operations since there is no additional activity once the sand is placed on a receiver site or removed from/stocked at a stockpile site. The Program would not result in any local or regional population, employment, VMT, or economic growth, and would not exceed the applicable SCAQMD significance thresholds. Therefore, The Program would not interfere with or obstruct implementation of the AQMP and would have no impact to air quality plan consistency.

²⁵ South Coast Air Quality Management District. *Air Quality Significance Thresholds*. Revised March 2023. Accessed July 24, 2025. <https://www.aqmd.gov/docs/default-source/ceqa/handbook/south-coast-aqmd-air-quality-significance-thresholds.pdf>

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

b) Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment under an applicable federal or state ambient air quality standard?

Less Than Significant Impact. Orange County is located within the South Coast Air Basin and is regulated by the SCAQMD. According to the EPA Green Book (2025),²⁶ Orange County is currently designated as nonattainment for the following criteria pollutants:

- **Ozone (O₃):** Classified as extreme nonattainment under the federal 8-hour ozone standard (2015) and nonattainment under the California state ambient air quality standards. Construction emissions that contribute to O₃ are VOCs and NO_x.
- **Particulate Matter (PM₁₀):** Classified as serious nonattainment under the federal standards and nonattainment under California state standards.

For other criteria pollutants, including Particulate Matter (PM_{2.5}), Carbon Monoxide (CO), Sulfur Dioxide (SO₂), Nitrogen Dioxide (NO₂), and Lead (Pb), Orange County is designated as attainment or unclassified, indicating compliance with applicable air quality standards.

Per Table 3-4, emissions from The Program would be well below the SCAQMD thresholds for all criteria pollutants, including PM₁₀, VOCs, and NO_x. Because these thresholds are established to reflect levels at which a project's emissions could contribute substantially to regional air quality violations or hinder attainment of air quality standards, emissions below these thresholds are considered less than significant for both direct and cumulative impacts.

Further, The Program's emissions would be consistent with the growth assumptions used in the latest AQMP, which is designed to achieve attainment of state and federal air quality standards. Since The Program's emissions are accounted for within regional planning efforts and do not exceed established significance criteria, The Program would not result in a cumulatively considerable net increase in VOCs, NO_x, or other criteria pollutants. Therefore, The Program's contribution to cumulative air quality impacts would be less than significant.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

c) Would the Project expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. The SCAQMD has established two sets of air quality thresholds to evaluate potential impacts under CEQA: Localized Significance Thresholds (LSTs) and regional significance thresholds. These thresholds serve as screening criteria to determine whether a project's emissions may result in adverse effects to public health, especially for sensitive receptors, such as residences, schools, hospitals, daycare centers, parks, and long-term care facilities.

LSTs are developed to assess the potential for a project's on-site emissions of NO_x, CO, PM₁₀, and PM_{2.5} to cause or contribute to localized exceedances of state or federal air quality standards. These thresholds are

²⁶ U.S. Environmental Protection Agency. 2025. California Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants | Green Book | US EPA. Accessed July 24, 2025 at https://www3.epa.gov/airquality/greenbook/anayo_ca.html

specific to the project's location, size of the disturbed area (in acres), and the distance to the nearest sensitive receptor. Locations are represented in the context of Source Receptor Areas (SRA) for the purpose of evaluating air quality impacts. The Program's receiver and stockpile locations are located within the SCAQMD and fall within SRAs 18, 20, or 21. The LSTs are intended to ensure that localized concentrations of air pollutants from construction or operational activities do not expose nearby sensitive receptors to unhealthy air quality conditions. Table 3-5 and Table 3-6 show sensitive receptors that are within 25 meters of receiver and stockpile sites. They also show applicable SRAs for each location.

Regional significance thresholds (Table 3-7: Project Emissions Compared to Localized Significance Thresholds) on the other hand, assess the total mass emissions of pollutants generated from both on-site and off-site project activities (including mobile sources). These thresholds protect air quality on a broader scale and prevent projects from significantly contributing to regional pollution burdens that can affect the health of a larger population.

The Program's construction emissions for key pollutants (i.e., NO_x, PM₁₀, PM_{2.5}, and CO) were estimated and compared to the applicable SCAQMD LSTs²⁷ For the purposes of this analysis, the LSTs for a 2-acre disturbance area²⁸ and the most conservative (shortest) receptor distance of 25 meters (approximately 82 feet). VOCs and SO_x are not evaluated under the LST methodology. Instead, these pollutants are addressed using regional significance thresholds established by SCAQMD. The analysis of Program emissions compared to the LST and regional significance thresholds are shown in Table 3-7 below.

The Program would replenish sand on eroding beaches. The only emissions it would generate would be short-term and temporary, associated only with construction. There would be no air quality impacts once the sand has been placed on the receiver sites or stocked at/removed from the stockpile sites. The Program's emissions would be below both localized and regional significance thresholds. Therefore, The Program would not expose sensitive receptors to substantial pollutant concentrations during construction or operationally. Potential air quality impacts to sensitive receptors from localized and regional construction emissions would be less than significant.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

²⁷ South Coast Air Quality Management District. *Localized Significance Thresholds Methodology and Mass Rate Look-Up Tables*. Accessed July 23, 2025. <https://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/localized-significance-thresholds>

²⁸ The maximum amount of sand that could be placed on a receiver site or stockpile site per day would be 2,240 cubic yards (see Table 2-8: Truck Trips). Assuming the sand would be placed at a maximum of 1 foot deep, 2,240 cubic yards = 1.39 acres. Daily construction activities would not exceed 1.39 acres.

Table 3-5: Sensitive Receptors and Source Receptor Areas (SRA) - Receiver Sites

ID	Location	Sensitive Receptors Within 25 m of the Site	SRA
California State Parks			
CA.1	Bolsa Chica State Beach	Bolsa Chica State Beach Visitor Center	18
CA.2	Huntington Beach State Beach	N/A	18
CA.3	Crystal Cove State Park	Residences	20
CA.3	Crystal Cove State Park	Crystal Cove State Park	20
CA.4	Doheny State Beach	N/A	21
CA.5	San Clemente State Beach	Residences	21
Orange County Parks			
OC.1	Newport Dunes	Residences	18
OC.2	Salt Creek Beach	N/A	21
OC.3	Baby Beach	Dana Cove Park	21
OC.4	Capistrano Beach County Park	Residences	21
OC.5	Poche Beach	Residences	21
City of Huntington Beach			
HB.1	Sunset Beach	Residences	18
HB.2	Huntington Harbour Beaches	Residences	18
HB.2	Huntington Harbour Beaches	Seabridge Park	18
HB.2	Huntington Harbour Beaches	Trinidad Park	18
HB.2	Huntington Harbour Beaches	Humboldt Park	18
HB.3	Huntington Beach Bluffs	Bluff Top Park	18
City of Newport Beach			
NB.1	West Newport Beach	Residences	18
NB.2	Newport Harbor Beaches	Residences	18
NB.2	Newport Harbor Beaches	Castaway Park	18
NB.2	Newport Harbor Beaches	Genoa Park	18
NB.2	Newport Harbor Beaches	San Remo Park	18
NB.2	Newport Harbor Beaches	Marina Park	18
NB.3	Balboa Beach	Residences	18
NB.3	Balboa Beach	Peninsula Park	18
NB.3	Balboa Beach	West Jetty View Park	18
NB.3	Balboa Beach	Newport Elementary School	18
NB.4	Corona del Mar Beach	N/A	18
NB.5	Little Corona del Mar Beach	Residences	18
City of San Clemente			
SC.1	Capistrano Shores	Residences	21
SC.2	San Clemente North Beach	Residences	21
SC.3	San Clemente Central City Beaches	N/A	21
SC.4	Cyprus Shore/Cottons	N/A	21
City of Seal Beach			
SB.1	West Beach	Residences	18
SB.2	East Beach	Residences	18
SB.3	Surfside Beach	Residences	18

Table 3-6: Sensitive Receptors and Source Receptor Areas (SRA) - Stockpile Sites

Location ID	Site Location	Sensitive Receptors Within 25 m of the Site	SRA
California State Parks			
CA.S.1	Huntington Beach State Beach Parking Lot (City of Huntington Beach)	N/A	18
Orange County			
OC.S.1	Lot at Confluence (Bolsa Chica & Edinger)	N/A	18
OC.S.2	Lot adjacent to the Santa Ana Bike Trail across from OC Sanitation District (Costa Mesa)	Suburbia Park	18
OC.S.4	Audubon Basin, I02B01 (City of Irvine)	N/A	20
City of Huntington Beach			
HB.S.1	City of Huntington Beach Gothard Street	N/A	18
City of Irvine			
I.S.1	Great Park (MCAS El Toro) (City of Irvine)	Great Park	20
City of Newport Beach			
NB.S.1	Newport Beach North Star Beach Parking Lot	Residences	18
City of San Clemente			
SC.S.1	San Clemente – Avenida Vista Hermosa and Avenida La Pata	Vista Hermosa Sports Park	21
SC.S.2	San Clemente Water Reclamation Plant yard	N/A	21
SC.S.3	San Clemente – North Beach	N/A	21

Table 3-7: Project Emissions Compared to Localized Significance Thresholds

Pollutant	Project Emissions (lb/day)	LST Threshold SRA 18 (lb/day)	LST Threshold SRA 20 (lb/day)	LST Threshold SRA 21 (lb/day)	Regional Threshold (lb/day)	Impact Determination
NO_x	58.4	197	137	128	100	Below all LST thresholds — Less than significant
PM₁₀	2.15	14	7	6	150	Below all LST thresholds — Less than significant
PM_{2.5}	2.09	5	4	3	55	Below all LST thresholds — Less than significant
CO	15.3	883	704	682	550	Below all LST thresholds — Less than significant
VOC	6.99	N/A	N/A	N/A	75	Below regional threshold — Less than significant
SO_x	0.08	N/A	N/A	N/A	150	Below regional threshold — Less than significant

d) Would the Project result in other emissions (such as those leading to odors adversely affecting a substantial number of people)?

Less Than Significant Impact. Potential sources of odors that would be emitted as a result of activities performed as part of The Program include diesel fumes from construction exhaust and placement of sand which contains decaying organic material, (i.e. material derived from living matter). Although larger vegetation and debris would be removed at the source site prior to placement of sand on the beach, there is the potential for remaining organic material (i.e., plant matter and microorganisms) to be present in the placed sand, in which case there may be an odor during the decaying process of the organic material. However, exposure to air and wave action would disrupt the oxygen-poor conditions and/or flush out the organic compounds that generate the odors. The odor may persist over the duration of the construction (sand placement) period but it would not remain longer than approximately one week following completion of construction, based on experience from other beach nourishment projects. Thus, odors would be short-term and temporary. No odor producing activities would occur on a permanent basis as there are no activities beyond the stockpiling, transporting, and placement of sand associated with The Program. Thus, there would be less than significant impact.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

3.4 Biological Resources

Would The Program:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The information in this Biology Section was derived from the **Essential Fish Habitat Assessment and Terrestrial Biological Resources Assessment** (Merkel & Associates, 2025a) and **Marine Biological Technical Study** (Merkel & Associates 2025b) reports prepared by Merkel & Associates. The full reports are available in Appendix F and Appendix G respectively and summarized herein. The reports identify biological resources with the potential to be present at each of the beach receiver and stockpile sites. Although the following is intended to provide an analysis of the overall Program, it is based on specific biological resources information at each beach receiver and stockpile site.

a) Would the Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?

Less Than Significant Impact With Mitigation.

Stockpile Sites

Given the developed nature of the upland stockpile sites, the presence of special status species is anticipated to be limited (Merkel and Associates 2025a, Appendix F). One singular plant that is a special status species, the paniculate tarplant (*Deinandra paniculata*), a California Rare Plant Rank (CRPR) 4.2 species,²⁹ was detected within disturbed habitat at the upland stockpile site OC.S.4 Audubon Basin. This species is not expected to occur at any other upland stockpile site due to a lack of habitat. In order to avoid impacts to paniculate tarplant, a survey will be performed by a qualified biologist prior to any storage event at this site and, if found, paniculate tarplant will be fenced off and stockpiling will be avoided in that area (PGM BIO-1).

PGM BIO-1: At the stockpile site OC.S.4 (Audubon Basin), in order to avoid impacts to paniculate tarplant, a sensitive species, a survey will be performed by a qualified biologist prior to any sand storage. If found, any paniculate tarplant will be fenced off with ribbon or yellow rope and t-posts and stockpiling and construction activities should be avoided in the fenced-off area.

According to CDFW's California Natural Diversity Database (CNDDDB) records, 27 flora and 45 fauna sensitive species occur regionally within the vicinity (approximately two miles) of the stockpile sites (Merkel & Associates 2025). Of these 72 species, none have at least a moderate potential of occurring at any of the locations. More information regarding special status species at the upland stockpile sites including sensitivity codes, habitat requirements, and likelihood of occurrence can be found in the Terrestrial Biological Resources Assessment Report prepared for The Program (Appendix F). Given the developed nature of the upland stockpile sites, lack of identified special status species with potential to occur in the area, and proposed monitoring for paniculate tarplant, the placement, removal, and/or stockpiling of sand at the stockpile sites would not result in significant impacts to special status species.

To avoid direct impacts to migratory birds and/or raptor active nests protected under the Migratory Bird Treaty Act (federal) and CFG Code Sections 3503 and 3513 (state), removal of habitat (i.e., stockpiled material) that supports active nests within The Program's impact area, should occur outside of the breeding season for applicable species. If removal of habitat (i.e., stockpiled material) outside the breeding season is not feasible, then an active bird nest survey is required (MM BIO-1).

MM BIO-1: At stockpile sites, to avoid direct impacts to migratory birds and/or raptor active nests protected under the federal MBTA and CFG Code Sections 3503 and 3513, removal of stockpiled material that supports active nests within The Program's impact area should occur outside of the breeding season for applicable species, as far as is reasonably feasible. Where removal during the nesting season is unavoidable, a suitably qualified biologist will conduct nesting bird surveys prior to commencement. If nesting birds are identified, the biologist will implement a suitable buffer zone around the nest(s) and a biological monitor would be on site daily to ensure that adverse impacts to the sensitive resource do not occur.

Receiver Sites

Several special status species have the potential to be present within the vicinity of the receiver sites. These species are summarized in Table 3-8. California grunion (*Leuresthes tenuis*) and Pismo clams (*Tivela stultorum*) are not listed in the table as special status species, but they are ecologically significant and CDFW-managed wildlife species that also have the potential to occur at the receiver sites. Additional information can be found in Appendix G (Merkel & Associates 2025b).

²⁹ CRPR 4 indicates plants with limited distribution or infrequent throughout California. They are considered 'watch list' species, but are not formally endangered or threatened.

Table 3-8. Special Status Species with Potential to Occur within The Program Sites

Common Name	Scientific Name	Status	Occurrence in Project Site
Reptiles			
Green Sea Turtle	<i>Chelonia mydas</i>	FT	Resident population occur in San Gabriel River and Seal Beach National Wildlife Refuge. Low potential in Program Area.
Birds			
California Least Tern	<i>Sternula antillarum browni</i>	FE, SE	Least terns are a migratory species found in the Program Area from approximately April 1 through September 1. Nests and forage in The Program Area. Nesting occurs at Bolsa Chica State Beach and Huntington Beach State Beach
Western Snowy Plover	<i>Chardrius alexandrinus nivosus</i>	FT	Present year around. Nests and forage in Program Area. Nesting occurs at Bolsa Chica State Beach and Huntington Beach State Beach
Brown Pelican	<i>Pelecanus occidentalis</i>	Delisted; MBTA	Present year around. Nest at Channel Islands. No known nesting sites in The Program area.
Mammals			
Pacific Harbor Seal	<i>Phoca vitulina richardsi</i>	MMPA	Occur in harbors or bays hauled out on buoys, moorings, docks, or breakwaters. Low potential on sandy beaches in region. Low potential in Program Area.
California Sea Lion	<i>Zalophus californianus</i>	MMPA	Occur in harbors or bays hauled out on buoys, moorings, docks, or breakwaters. Low potential on sandy beaches in region. Low potential in Program Area.
Common and Bottlenose Dolphins	<i>Delphinus delphis; Tursiops truncatus</i>	MMPA	Travel and feed in nearshore and offshore waters. Low potential in Program Area.
California Gray Whale	<i>Eschrichtius robustus</i>	MMPA	Very Low Potential – Regular migrant in offshore waters, but uncommon in bay and nearshore waters. Low potential in Program Area.

Notes: FE – Federally Endangered; SE – State Endangered; FT – Federally Threatened; MMPA – species protected by the Marine Mammal Protection Act; MBTA - Migratory Bird Treaty Act

Benthic Habitat Disturbance and Forage Reduction, Alteration, or Modification

The sandy beach ecosystem is a dynamic system and biota are generally tolerant of a high degree of physical change. The primary direct impact associated with beach nourishment is the burying of beach invertebrate animals (e.g., clams, sand crabs, worms) living on or in the beach sand. This would temporarily reduce infauna availability for benthic feeders including Western snowy plover which have the potential to occur foraging in the intertidal for benthic organisms within the vicinity of The Program. The loss of benthic organisms within the receiver site footprint is an expected and unavoidable impact. Most studies have reported rapid recovery of intertidal benthic invertebrates within 1 year or less after nourishment events (SAIC 2012, Rosov et al. 2016 as cited in Merkel & Associates 2025b). The temporary reduction in invertebrates would be localized and temporary, and recovery would begin immediately following construction. Further, each receiver site has unaffected shoreline nearby that could be used for foraging during benthic recovery periods. Sensitive bird species monitoring (PGM BIO-2) would be anticipated to avoid the potential for adverse impacts to foraging individuals. Given the temporary nature of the proposed activity, rapid recovery of benthic organisms, adjacent available foraging habitat, and proposed monitoring, impacts to protected birds species would be expected to be less than significant.

PGM BIO-2: Sensitive bird species monitoring will be implemented if sand placement is anticipated to occur during the California least tern or Western snowy plover nesting seasons on beach receiver sites with the potential for least tern or snowy plover nesting. Sensitive bird species monitoring will also

occur if sand placement will occur during the snowy plover overwintering season on beach receiver sites with the potential for snowy plover overwintering. The monitoring protocol will be approved by the applicable regulatory agencies prior to permit issuance. The protocol is anticipated to include pre-construction surveys, recurring surveys, the establishment of buffers, and the authority to halt work to avoid or minimize impacts.

The receiver site footprints for The Project extend from the back of the beach to the intertidal zone, an area where marine mammals are not likely to occur and therefore, marine mammal impacts are not anticipated. The Program is not expected to result in impacts to eelgrass or surfgrass nearshore habitats of concern; and therefore, foraging impacts to green sea turtles are not anticipated. The Preliminary Implementation Guidelines' monitoring protocol of nearshore habitats additionally assure impact avoidance.

There is the potential for habitat disturbance to directly impact California grunion individuals or eggs. To avoid potential impacts, grunion monitoring would be required for any beach nourishment occurring within the grunion spawning season, on any sandy beach where spawning could potentially occur, and where The Program's activities would potentially affect spawning habitat (PGM BIO-3). With the proposed monitoring, The Program's impacts to grunion would be less than significant.

PGM BIO-3: Grunion monitoring will be implemented for any beach nourishment event occurring within the spawning season (per the CDFW published grunion spawning schedule for the year of the placement event) on any sandy beach where spawning could potentially occur and with sand placement or equipment access seaward of the MHTL. Regulatory agencies will be notified of monitoring events. Any deviations from the monitoring protocols in the Implementation Guidelines will require agency approval.

Operationally, The Program would be beneficial to biological resources as it would enhance the health and quality of the habitat. Habitat functions were studied for three years following the Regional Beach Sand Project (beach nourishment) at several beaches in Encinitas, California. The studies found that habitats in the nourished beaches were enhanced by increasing invertebrate prey variety earlier in the season, greater sand depths and grunion habitat suitability, and increased bird use of wider beach habitat across tide conditions (SAIC 2006 as cited in Merkel & Associates 2025b). Additionally, a recent sand nourishment event occurring on Capistrano County Beach witnessed the return of grunion following placement, not possible prior to construction due to lack of sandy beach.

Water Quality Impacts

The placement of sand at the beach receiver sites may result in temporary, localized increases in turbidity in the ocean water; i.e., cloudy or murky appearance, which may be caused by an increase in suspended clay and silt particles in the water column. Elevated turbidity should generally not result from The Program, as source material is evaluated to be of a similar gradation, limiting fine sediments composed of silt and clay, to that of the receiver site. Obvious visible elevated turbidity for an extended period of time over large areas could bury or blind from sunlight where present, nearshore habitats of eelgrass, surfgrass, or kelp. Turbidity has the potential to cause physiological stress, reduced feeding, or displacement of marine invertebrates or fish in reef areas as well as soft-bottom habitats, with effects dependent on the concentration and duration of turbidity (Merkel & Associates 2025b). Birds that forage on fish such as the California least tern and the California brown pelican have the potential to be impacted by increases in turbidity. However, no adverse effects on bird foraging from turbidity were observed during recent nourishment events in California (AMEC 2002 and SAIC 2011 as cited in Merkel & Associates 2025b).

While marine mammals have the potential to occur in the deeper nearshore project area, they are rarely observed on beaches in the region. Given that turbidity impacts are localized at the sand placement area,

temporary (i.e., would be caused by disturbance of placed sand during high tide and wave events but dissipate quickly thereafter), and generally remain within the surf zone (where the disturbance to both placed and native sand is highest), the area can easily be avoided by marine mammals and sea turtles. Therefore, turbidity impacts to marine mammals and sea turtles are anticipated to be less than significant.

Based on available data, turbidity levels produced by nourishment events are anticipated to be within normal ranges to those measured during storm or high wave conditions. Turbidity monitoring would be conducted to minimize impacts of projects that place sand in the intertidal zone (below the MHTL) (PGM BIO-4). With the proposed measures, water quality impacts to fish and birds would be less than significant.

PGM BIO-4. Turbidity monitoring will be implemented to avoid significant impacts to water quality if sand placement is seaward of the MHTL and in accordance with the scale of the nourishment event and percentage of fines in the source material. If the turbidity monitoring staff determines ocean water quality thresholds are exceeded, they have the authority to halt sand placement until water quality is restored. Regulatory agencies will be notified of monitoring events. Any deviations from the monitoring protocols in the Implementation Guidelines will require agency approval.

All potential beach sediment would require agency approval prior to placement to ensure there are no contaminants of concern and that the source sediment is physically compatible with the potential receiver site.

The construction contractor would use Best Management Practices (BMPs) to avoid potential spills, and if a spill occurred, the contractor would implement measures to control and clean up any spill to minimize degradation of water quality and habitat.

Disturbance

Construction activities have the potential to disturb shorebirds, gulls, and other coastal birds that may forage or rest on beaches at or near receiver sites. Disturbance impacts are of concern for endangered or threatened species. Any disturbance effects would be temporary in duration and limited to the period of construction (maximum of 30 weeks per year; however, most locations would not experience construction more than once every 2-5 years). Sensitive bird species monitoring would be required for any beach nourishment project occurring within the nesting season of California least tern and/or western snowy plover and for over-wintering areas for snowy plovers (MM BIO-3), and if any active nests are identified, a buffer identified by a qualified biologist must be established and avoided. Therefore, impacts would be less than significant.

Avoidance, Minimization, and/or Mitigation Measures

The following program and mitigation measures are proposed.

Stockpile Sites Avoidance, Minimization, and/or Mitigation Measures

PGM BIO-1: At the stockpile site OC.S.4 (Audubon Basin), in order to avoid impacts to paniculate tarplant, a sensitive species, a survey will be performed by a qualified biologist prior to any sand storage. If found, any paniculate tarplant will be fenced off with ribbon or yellow rope and t-posts and stockpiling and construction activities should be avoided in the fenced-off area.

MM BIO-1: At stockpile sites, to avoid direct impacts to migratory birds and/or raptor active nests protected under the federal MBTA and CFG Code Sections 3503 and 3513, removal of stockpiled material that supports active nests within The Program's impact area should occur outside of the breeding season for applicable species, as far as is reasonably feasible. Where removal during the nesting season is unavoidable, a suitably qualified biologist will conduct nesting bird surveys prior to commencement. If nesting birds are identified, the biologist will implement a suitable buffer zone

around the nest(s) and a biological monitor would be on site daily to ensure that adverse impacts to the sensitive resource do not occur.

Receiver Sites- Avoidance and Minimization Measures and/or Mitigation Measures

PGM BIO-2: Sensitive bird species monitoring will be implemented if sand placement is anticipated to occur during the California least tern or Western snowy plover nesting seasons on beach receiver sites with the potential for least tern or snowy plover nesting. Sensitive bird species monitoring will also occur if sand placement will occur during the snowy plover overwintering season on beach receiver sites with the potential for snowy plover overwintering. The monitoring protocol will be approved by the applicable regulatory agencies prior to permit issuance. The protocol is anticipated to include pre-construction surveys, recurring surveys, the establishment of buffers, and the authority to halt work to avoid or minimize impacts.

PGM BIO-3: Grunion monitoring will be implemented for any beach nourishment event occurring within the spawning season (per the CDFW published grunion spawning schedule for the year of the placement event) on any sandy beach where spawning could potentially occur and with sand placement or equipment access seaward of the MHTL. Regulatory agencies will be notified of monitoring events. Any deviations from the monitoring protocols in the Implementation Guidelines will require agency approval.

PGM BIO-4. Turbidity monitoring will be implemented to avoid significant impacts to water quality if sand placement is seaward of the MHTL and in accordance with the scale of the nourishment event and percentage of fines in the source material. If the turbidity monitoring staff determines ocean water quality thresholds are exceeded, they have the authority to halt sand placement until water quality is restored. Regulatory agencies will be notified of monitoring events. Any deviations from the monitoring protocols in the Implementation Guidelines will require agency approval.

b) Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?

Less Than Significant Impact With Mitigation.

Stockpile Sites

Riparian habitat or other sensitive natural communities do not occur within the footprint of the stockpile sites. Most of the eight potential stockpile sites are located within already developed or disturbed areas that are not expected to support sensitive flora, fauna, and native habitats. However, native riparian habitat does occur immediately adjacent to OC.S.4 Audubon Basin. Buffers would be implemented to avoid impacts to native riparian habitat (PGM BIO-5). These buffers would also be implemented at OC.S.2 D03 D/S California at E01 Bike Trail and OC.S.1 C02/C04 Confluence to avoid impacts to wetlands (see 3.4c). Sediment placement BMPs would be implemented at all sites to prevent indirect impacts to biological resources (MM BIO-2).

PGM BIO-5: At site OC.S.4 Audubon Basin, in order to avoid impacts to adjacent native habitats and/or downstream aquatic jurisdictional resources a buffer large enough to install, maintain, and inspect stockpile BMPs will be established between any stockpiled soil and the sides of the maintenance road and basin spillway/overflow channel that drains to native riparian habitat.

To avoid impacts to the Greenville-Banning Channel, the cement lined channel adjacent to site OC.S.2 D03 D/S California at E01 Bike Trail, a buffer large enough to install, maintain, and inspect stockpile

BMPs will be established between any stockpiled soil and the edge of the maintenance road adjacent to the channel.

To avoid impacts to open water and salt marsh habitats in the Bolsa Chica/Westminster Channel adjacent to stockpile site OC.S.1 C02/C04 Confluence, a buffer large enough to install, maintain, and inspect stockpile BMPs will be established between any stockpiled soil and the hinge point of the adjacent channel. The triangular portion of this site will only be used for stockpile storage of sediment with less than 35% fines if stored over the wet season.

MM BIO-2: Placement of sand within each stockpile site will be located to the greatest extent possible within relatively flat terrain that is not in close proximity to and does not slope toward a sensitive biological resource such as a jurisdictional aquatic resource or native habitat. Stockpiles not scheduled to be utilized within 14 days of placement will be considered non-active and the following protective measures will be implemented:

- Temporary perimeter sediment barriers such as compost-filled wattles temporary silt dykes, biodegradable fiber rolls, burlap sandbags/, gravel bags, or biofiltration bags will be installed to provide erosion and sediment control and to protect the stockpile from wind and rain.
- Only biodegradable materials should be used for stockpile BMP protection, Any non-biodegradable BMP will be maintained and removed when no longer necessary.

Receiver Sites

There is no riparian habitat within the vicinity of the receiver sites. Sensitive habitat within the vicinity of The Program sites includes kelp, surfgrass, eelgrass, rocky reefs, sandy beaches and dunes, and estuaries. Refer to Appendix G, Figures 4-1 through 4-5 for additional details on the distribution of sensitive habitats in relation to the receiver sites. The regional distribution of habitats within and near The Program sites are summarized in Table 3-9.

Table 3-9. Regional Distribution of Coastal Habitats in the Vicinity of Program Areas

Habitat	Relative Occurrence	Occurrence in Orange County
Nearshore Rocky Reefs	Localized areas	Huntington Beach Bluffs, Newport Beach, Laguna Beach, Corona del Mar, Crystal Cove, Salt Creek, Dana Point, San Clemente
Kelp Forests	Localized hard-bottom areas	Newport Beach, Laguna Beach, Dana Point, San Clemente
Surfgrass Beds	Localized hard-bottom areas	Corona Del Mar State Beach, Crystal Cove, Laguna Beach, Dana Point, San Clemente
Eelgrass Beds	Localized in embayments	Anaheim Bay, Seal Beach National Wildlife Refuge, Huntington Harbour, Bolsa Chica Ecological Reserve, Huntington Beach Wetlands, Lower Newport Bay, Dana Point Harbor
Sandy Beach	Majority of shoreline	Most shorelines
Sandy Subtidal	Majority of subtidal	Nearshore, embayments
Bays, Harbors, and Wetlands	See Occurrence in Orange County	Anaheim Bay, Huntington Harbour, Newport Bay, Dana Point Harbor, Bolsa Chica Ecological Reserve, Huntington Beach Wetlands, Los Cerritos Wetlands, Santa Ana River Salt Marsh

Sensitive habitats do not occur within The Program footprint and therefore direct impacts to sensitive habitat are not anticipated. Further, the receiver site footprint depicts the maximum potential placement envelope for the specific receiver site over multiple events (multiple years); the actual fill footprint per opportunistic nourishment event would be much smaller. Sand placed in or close to the waterline on individual receiver sites would eventually be washed by waves and redistributed offshore and alongshore through natural processes. Impacts associated with sediment transport away from the receiver site generally focus on indirect burial of sensitive hard bottom, vegetated habitats, or shoaling of inlets and/or navigational channels of down current embayments. To avoid and/or minimize indirect sediment transport impacts, sensitive habitat monitoring would occur (PGM BIO-6 and PGM BIO-7). The Program identifies nearshore sensitive habitat monitoring protocols consistent with PGM BIO-6 and PGM BIO-7; therefore, impacts to sensitive aquatic habitats would be less than significant.

PGM BIO-6: If sand placement occurs in the vicinity of known surfgrass, kelp, or hard (rocky) substrate (habitat of particular concern), monitoring of that habitat will occur in accordance with the sand placement scale and proximity to the surfgrass, kelp or hard (rocky) substrate. The monitoring protocol will be approved by the applicable regulatory agencies prior to permit issuance.

PGM BIO-7: If sand placement occurs in the vicinity of known or potential eelgrass, monitoring of eelgrass will occur in accordance with the California Eelgrass Mitigation Policy (CEMP) (NOAA 2014, or most up-to-date policy).

Pursuant of the Marine Life Protection Act, CDFW established and manages a network of Marine Protected Areas (MPAs) to, among other goals, protect marine life and habitats and preserve ecosystem integrity. Seven MPAs including the Bolsa Bay State Marine Conservation Area (SMCA), Bolsa Chica Basin SMCA, Upper Newport Bay SMCA, Crystal Cove SMCA, Laguna Beach SMR, Laguna Beach SMCA, and Dana Point SMCA occur in the vicinity of the receiver sites. Four of the receiver sites (OC.1 Newport Dunes, NB.5 Little Corona Del Mar, CA.3 Crystal Cove State Park, and OC.2 Salt Creek Beach) occur in MPAs. Please refer to Appendix G, Figure 4-6 for additional details regarding the location of these MPAs in relation to the receiver sites. Since measures to protect biological resources are in place for any beach nourishment project, impacts to MPAs would be less than significant and additional mitigation is not proposed. Practitioners operating nourishment projects under The Program would comply with the specific rules for the MPA in which they are operating.

Avoidance, Minimization, and/or Mitigation Measures

The following best management practices and mitigation measures are required:

Stockpile Sites Avoidance, Minimization, and/or Mitigation Measures

PGM BIO-5: At site OC.S.4 Audubon Basin, in order to avoid impacts to adjacent native habitats and/or downstream aquatic jurisdictional resources a buffer large enough to install, maintain, and inspect stockpile BMPs will be established between any stockpiled soil and the sides of the maintenance road and basin spillway/overflow channel that drains to native riparian habitat.

To avoid impacts to the Greenville-Banning Channel, the cement lined channel adjacent to site OC.S.2 D03 D/S California at E01 Bike Trail, a buffer large enough to install, maintain, and inspect stockpile BMPs will be established between any stockpiled soil and the edge of the maintenance road adjacent to the channel.

To avoid impacts to open water and salt marsh habitats in the Bolsa Chica/Westminster Channel adjacent to stockpile site OC.S.1 C02/C04 Confluence, a buffer large enough to install, maintain, and inspect stockpile BMPs will be established between any stockpiled soil and the hinge point of the adjacent channel. The triangular portion of this site will only be used for stockpile storage of sediment with less than 35% fines if stored over the wet season.

MM BIO-2: Placement of sand within each stockpile site will be located to the greatest extent possible within relatively flat terrain that is not in close proximity to and does not slope toward a sensitive biological resource such as a jurisdictional aquatic resource or native habitat. Stockpiles not scheduled to be utilized within 14 days of placement will be considered non-active and the following protective measures will be implemented:

- Temporary perimeter sediment barriers such as compost-filled wattles temporary silt dykes, biodegradable fiber rolls, burlap sandbags/, gravel bags, or biofiltration bags will be installed to provide erosion and sediment control and to protect the stockpile from wind and rain.
- Only biodegradable materials should be used for stockpile BMP protection, Any non-biodegradable BMP will be maintained and removed when no longer necessary.

Receiver Sites- Avoidance and Minimization Measures and/or Mitigation Measures

PGM BIO-6: If sand placement occurs in the vicinity of known surfgrass, kelp, or hard (rocky) substrate (habitat of particular concern), monitoring of that habitat will occur in accordance with the sand placement scale and proximity to the surfgrass, kelp or hard (rocky) substrate. The monitoring protocol will be approved by the applicable regulatory agencies prior to permit issuance.

PGM BIO-7: If sand placement occurs in the vicinity of known or potential eelgrass, monitoring of eelgrass will occur in accordance with the California Eelgrass Mitigation Policy (CEMP) (NOAA 2014, or most up-to-date policy).

c) Would the Project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Less Than Significant Impact.

Stockpile Sites

Stockpile site OC.S.1 CO2/CO4 Confluence (Bolsa Chica and Edinger) is adjacent to the Bolsa Chica/Westminster Channel which supports tidally influenced open water and salt marsh habitat dominated by pickleweed (*Salicornia sp.*) (See Appendix F, Figure 2a). A buffer would be maintained between the stockpile site and the Bolsa Chica/Westminster Channel to avoid impacts to salt marsh habitat (PGM BIO-5). Stockpile sites CA.S.1 Huntington Beach State Beach Parking Lot and NB.S.1 North Star Parking Lot are located near, but outside of the wetlands (see Figure 3-4 and Figure 3-6) and would not impact wetland habitat or tidal functions since they will store sand on already disturbed parking lots. Therefore, with the proposed mitigation, impacts to wetlands associated with the use of the upland stockpile sites will not occur.

PGM BIO-5: At site OC.S.4 Audubon Basin, in order to avoid impacts to adjacent native habitats and/or downstream aquatic jurisdictional resources a buffer large enough to install, maintain, and inspect stockpile BMPs will be established between any stockpiled soil and the sides of the maintenance road and basin spillway/overflow channel that drains to native riparian habitat.

To avoid impacts to the Greenville-Banning Channel, the cement lined channel adjacent to site OC.S.2 D03 D/S California at E01 Bike Trail, a buffer large enough to install, maintain, and inspect stockpile BMPs will be established between any stockpiled soil and the edge of the maintenance road adjacent to the channel.

To avoid impacts to open water and salt marsh habitats in the Bolsa Chica/Westminster Channel adjacent to stockpile site OC.S.1 C02/C04 Confluence, a buffer large enough to install, maintain, and inspect stockpile BMPs will be established between any stockpiled soil and the hinge point of the adjacent channel. The triangular portion of this site will only be used for stockpile storage of sediment with less than 35% fines if stored over the wet season.

Receiver Sites

There are no wetlands within the footprint of the proposed receiver sites. Therefore, The Program would not have a direct impact on wetlands. However, there are five wetlands within the vicinity of some of the receiver sites in Seal Beach, Huntington Beach, and Newport Beach (Seal Beach National Wildlife Refuge, Bolsa Chica Ecological Reserve Huntington Beach Wetlands, Semeniuk Slough/Randall Preserve, and Upper Newport Bay Ecological Reserve). Figure 3-1 to Figure 3-6 show The Program receiver and stockpile locations in relation to these wetlands. For coastal wetlands/marshes such as the Bolsa Chica Ecological Reserve and Huntington Beach Wetlands, maintaining a connection to the ocean is essential for the health of the wetland/marsh. Sand from beach nourishment events have the potential to move along the coast and into tidal inlets. Indirect sedimentation impacts could result in tidal inlet closure and impacts to coastal wetlands/marshes. However, due to the proposed tidal inlet monitoring (PGM BIO-8) which would ensure that nourishment events do not result in significant impacts to tidal exchange, impacts are anticipated to be less than significant.

PGM BIO-8. Tidal inlet monitoring that typically occurs, may need to be increased or rescheduled appropriately following implementation of sand placement events that have the potential to impact tidal inlets to coastal marshes to ensure that nourishment events do not result in significant impacts to tidal exchange considering the scale of the nourishment event and distance to the tidal inlet, and approved by the applicable regulatory agencies prior to permit issuance.

Avoidance, Minimization, and/or Mitigation Measures

The following mitigation is required:

Stockpile Sites Avoidance, Minimization, and/or Mitigation Measures

PGM BIO-5: At site OC.S.4 Audubon Basin, in order to avoid impacts to adjacent native habitats and/or downstream aquatic jurisdictional resources a buffer large enough to install, maintain, and inspect stockpile BMPs will be established between any stockpiled soil and the sides of the maintenance road and basin spillway/overflow channel that drains to native riparian habitat.

To avoid impacts to the Greenville-Banning Channel, the cement lined channel adjacent to site OC.S.2 D03 D/S California at E01 Bike Trail, a buffer large enough to install, maintain, and inspect stockpile BMPs will be established between any stockpiled soil and the edge of the maintenance road adjacent to the channel.

To avoid impacts to open water and salt marsh habitats in the Bolsa Chica/Westminster Channel adjacent to stockpile site OC.S.1 C02/C04 Confluence, a buffer large enough to install, maintain, and inspect stockpile BMPs will be established between any stockpiled soil and the hinge point of the adjacent channel. The triangular portion of this site will only be used for stockpile storage of sediment with less than 35% fines if stored over the wet season.

Receiver Sites- Avoidance and Minimization Measures and/or Mitigation Measures

PGM BIO-8: Tidal inlet monitoring that typically occurs, may need to be increased or rescheduled appropriately following implementation of sand placement events that have the potential to impact tidal inlets to coastal marshes to ensure that nourishment events do not result in significant impacts to tidal

exchange considering the scale of the nourishment event and distance to the tidal inlet, and approved by the applicable regulatory agencies prior to permit issuance.

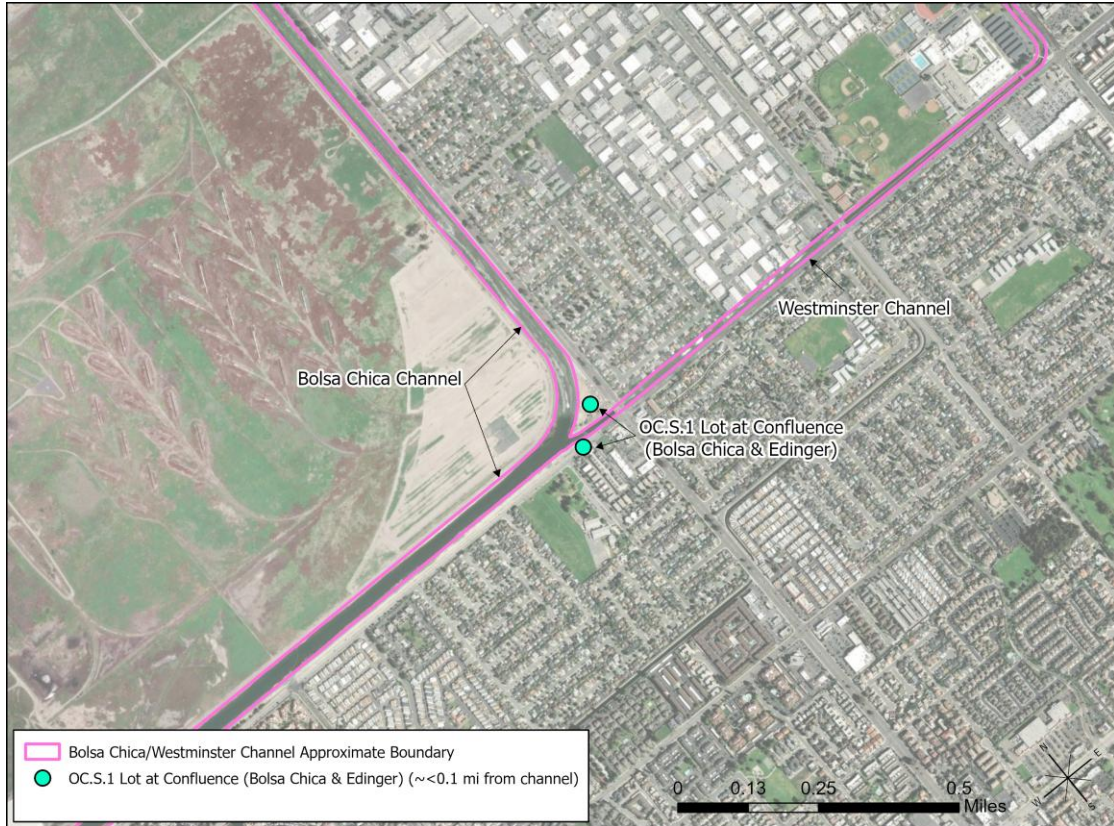


Figure 3-1: Program Site Near Bolsa Chica/Westminster Channel



Figure 3-2: Program Sites Near Bolsa Chica Ecological Reserve



Figure 3-3: Program Sites Near Seal Beach National Wildlife Refuge

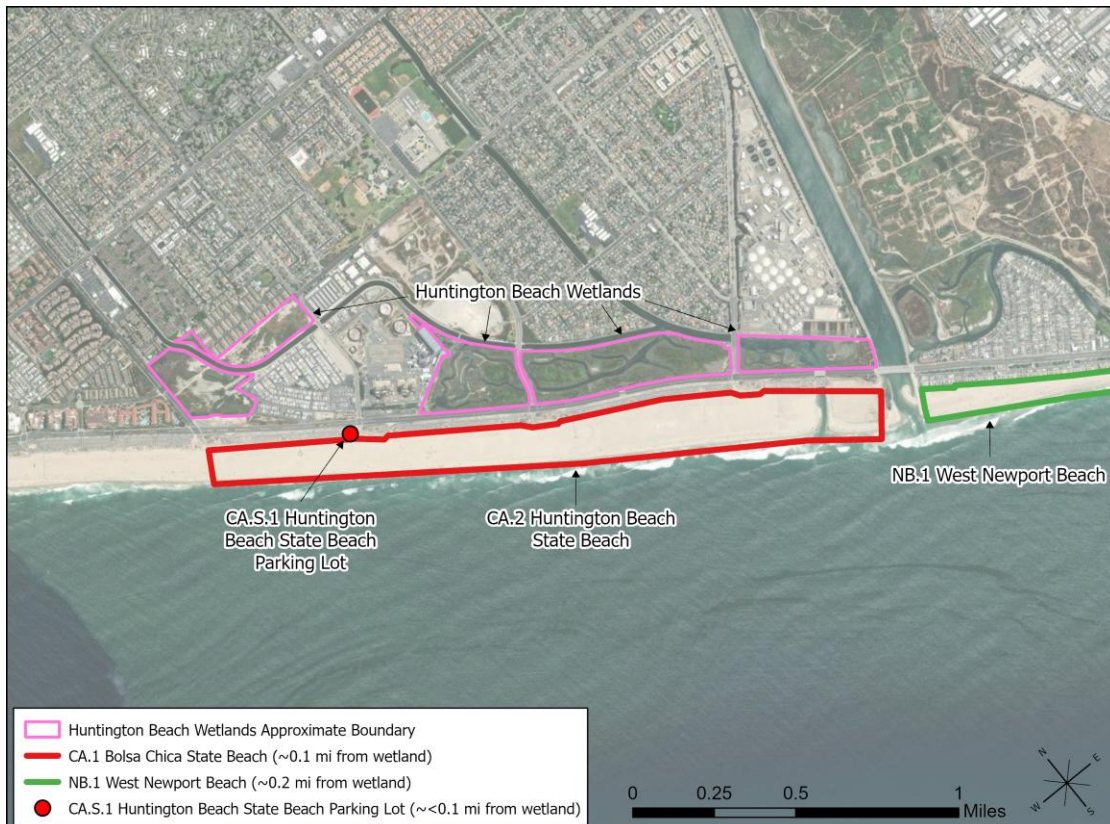


Figure 3-4: Program Sites Near Huntington Beach Wetlands



Figure 3-5: Program Sites Near Semeniuk Slough/Randall Preserve



Figure 3-6: Program Sites Near Upper Newport Bay Ecological Reserve

d) Would the Project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less Than Significant Impact. Wildlife corridors are important in preserving species diversity. In the absence of corridors, habitats become isolated islands surrounded by development. Fragmented habitats support lower numbers of species and increase the likelihood of extinction for species restricted to small areas. Connections between areas of open space are integral to maintaining biological diversity and population viability. For the purposes of The Program, Merkel and Associates (2025) have defined wildlife corridor as a linear landscape feature utilized by resident or transient wildlife for movement between two blocks of habitat.

Stockpile Sites

Each of the eight potential stockpile sites are surrounded entirely or mostly by urban development, with many being fenced as well. These locations are also all currently or have previously been used as storage, parking, or construction staging and provide limited value for wildlife movement due to the size, disturbed condition, human activities, and isolated nature, from a wildlife corridor perspective, of each location.

The Orange County Central/Coastal Subregion NCCP/HCP Reserve is a regional conservation strategy that includes conserved large tracts of natural habitat that are interconnected by habitat linkages that function as wildlife movement corridors. Wildlife corridors typically support topography that provides a path of least resistance in terms of energetics such as along canyon bottoms/riparian corridors and along ridgelines. The Orange County NCCP/HCP identifies habitat linkages within the Reserve in Section 3.6 through 3.9 and shown in Figures 11-13, 22, and 75.³⁰ None of The Program's locations are within any of the linkages identified in Sections 3.6 through 3.9 of the OC NCCP/HCP. Therefore, the use of the stockpile sites would have a less than significant impact on the movement of native resident or migratory fish, wildlife species, or wildlife corridors.

Receiver Sites

The Program is not anticipated to interfere substantially with movement, migration, or native aquatic wildlife nursery sites. The Program area for the receiver sites includes a relatively narrow habitat area that even when considering the area extending from the back beach to the offshore depth of closure, does not provide any terrestrial movement corridors. No marine mammal, reptile, or fish migratory corridors occur within The Program area for the receiver sites. Some marine fish species such as anchovy, sardine, and topsmelt may move into and out of bays and harbors for spawning, nursery, and foraging. Beach nourishment would not block any corridors and tidal inlet monitoring in accordance with MM BIO-10 would be implemented to monitor sedimentation in the inlets and ensure significant impacts to tidal exchange do not occur. Several whale species migrate along the coast of California including the California gray whale, but beach nourishment would not block or interfere with any whale migration corridors.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation is required.

³⁰ County of Orange Central & Coastal Subregion Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP), approved July 1996, issued under a 75-year permit (1996–2071) with the California Department of Fish and Wildlife and U.S. Fish & Wildlife Service.

e) Would the Project conflict with any local policies or ordinance protecting biological resources, such as a tree preservation policy or ordinance?

Less Than Significant Impact. The Program would be consistent with applicable local policies and ordinances protecting biological resources in Orange County coastal jurisdictions, including Dana Point, Costa Mesa, Irvine, Huntington Beach, Newport Beach, San Clemente, and Seal Beach. These include, but are not limited to:

- Local Coastal Program (LCP) policies in Dana Point (§9.3.3 of the Headlands Conservation Area Plan), Huntington Beach (Coastal Element Policy C-1.1), and Newport Beach (Policy NR 10.1), which require avoidance of Environmentally Sensitive Habitat Areas and protection of coastal wetlands.
- Municipal Code provisions such as Irvine’s Zoning Ordinance §3-37-5, which regulates development near native habitat areas; Costa Mesa’s Tree Preservation Ordinance (§13-101); and San Clemente’s Biological Resources Overlay Zone (§17.56), which mandates biological assessments for projects near sensitive habitats.
- The OC NCCP/HCP Reserve, which applies to portions of Irvine, Dana Point, and Newport Beach, and establishes regional conservation goals for coastal sage scrub and listed species like the California gnatcatcher.

The Program would place clean, compatible sand sourced from developed stockpile sites, already in use for parking or municipal storage, onto existing public beaches to reduce coastal erosion. It would not involve building or development of infrastructure or impervious surfaces, nor would it involve vegetation removal or encroachment by construction activities and equipment into undisturbed habitats. The Program would be implemented with seasonal timing restrictions, spatial buffers, and biological monitoring (see MM BIO-1 – MM BIO-10) to avoid impacts to sensitive habitats and species. Further, none of The Program’s receiver or stockpile sites are located within The Orange County Central/Coastal NCCP/HCP Reserve. In other words, The Program would be implemented in a way that is compatible with the local policies and ordinances. Overall, The Program supports long-term coastal resiliency and habitat enhancement by reestablishing sandy beach habitat for shorebirds, grunion, invertebrates, and other intertidal species. Therefore, The Program would not conflict with any local policy or ordinance protecting biological resources. The Program would have less than significant impact with mitigation.

Avoidance, Minimization, and/or Mitigation Measures

The following measures are part of The Program:

PGM BIO-1: At the stockpile site OC.S.4 (Audubon Basin), in order to avoid impacts to paniculate tarplant, a sensitive species, a survey will be performed by a qualified biologist prior to any sand storage. If found, any paniculate tarplant will be fenced off with ribbon or yellow rope and t-posts and stockpiling and construction activities should be avoided in the fenced-off area.

MM BIO-1: At stockpile sites, to avoid direct impacts to migratory birds and/or raptor active nests protected under the federal MBTA and CFG Code Sections 3503 and 3513, removal of stockpiled material that supports active nests within The Program’s impact area should occur outside of the breeding season for applicable species, as far as is reasonably feasible. Where removal during the nesting season is unavoidable, a suitably qualified biologist will conduct nesting bird surveys prior to commencement. If nesting birds are identified, the biologist will implement a suitable buffer zone around the nest(s) and a biological monitor would be on site daily to ensure that adverse impacts to the sensitive resource do not occur.

PGM BIO-2: Sensitive bird species monitoring will be implemented if sand placement is anticipated to occur during the California least tern or Western snowy plover nesting seasons on beach receiver sites

with the potential for least tern or snowy plover nesting. Sensitive bird species monitoring will also occur if sand placement will occur during the snowy plover overwintering season on beach receiver sites with the potential for snowy plover overwintering. The monitoring protocol will be approved by the applicable regulatory agencies prior to permit issuance. The protocol is anticipated to include pre-construction surveys, recurring surveys, the establishment of buffers, and the authority to halt work to avoid or minimize impacts.

PGM BIO-3: Grunion monitoring will be implemented for any beach nourishment event occurring within the spawning season (per the CDFW published grunion spawning schedule for the year of the placement event) on any sandy beach where spawning could potentially occur and with sand placement or equipment access seaward of the MHTL. Regulatory agencies will be notified of monitoring events. Any deviations from the monitoring protocols in the Implementation Guidelines will require agency approval.

PGM BIO-4. Turbidity monitoring will be implemented to avoid significant impacts to water quality if sand placement is seaward of the MHTL and in accordance with the scale of the nourishment event and percentage of fines in the source material. If the turbidity monitoring staff determines ocean water quality thresholds are exceeded, they have the authority to halt sand placement until water quality is restored. Regulatory agencies will be notified of monitoring events. Any deviations from the monitoring protocols in the Implementation Guidelines will require agency approval.

PGM BIO-5: At site OC.S.4 Audubon Basin, in order to avoid impacts to adjacent native habitats and/or downstream aquatic jurisdictional resources a buffer large enough to install, maintain, and inspect stockpile BMPs will be established between any stockpiled soil and the sides of the maintenance road and basin spillway/overflow channel that drains to native riparian habitat.

To avoid impacts to the Greenville-Banning Channel, the cement lined channel adjacent to site OC.S.2 D03 D/S California at E01 Bike Trail, a buffer large enough to install, maintain, and inspect stockpile BMPs will be established between any stockpiled soil and the edge of the maintenance road adjacent to the channel.

To avoid impacts to open water and salt marsh habitats in the Bolsa Chica/Westminster Channel adjacent to stockpile site OC.S.1 C02/C04 Confluence, a buffer large enough to install, maintain, and inspect stockpile BMPs will be established between any stockpiled soil and the hinge point of the adjacent channel. The triangular portion of this site will only be used for stockpile storage of sediment with less than 35% fines if stored over the wet season.

MM BIO-2: Placement of sand within each stockpile site will be located to the greatest extent possible within relatively flat terrain that is not in close proximity to and does not slope toward a sensitive biological resource such as a jurisdictional aquatic resource or native habitat. Stockpiles not scheduled to be utilized within 14 days of placement will be considered non-active and the following protective measures will be implemented:

- Temporary perimeter sediment barriers such as compost-filled wattles temporary silt dykes, biodegradable fiber rolls, burlap sandbags/, gravel bags, or biofiltration bags will be installed to provide erosion and sediment control and to protect the stockpile from wind and rain.
- Only biodegradable materials should be used for stockpile BMP protection, Any non-biodegradable BMP will be maintained and removed when no longer necessary.

PGM BIO-6: If sand placement occurs in the vicinity of known surfgrass, kelp, or hard (rocky) substrate (habitat of particular concern), monitoring of that habitat will occur in accordance with the sand

placement scale and proximity to the surfgrass, kelp or hard (rocky) substrate. The monitoring protocol will be approved by the applicable regulatory agencies prior to permit issuance.

PGM BIO-7: If sand placement occurs in the vicinity of known or potential eelgrass, monitoring of eelgrass will occur in accordance with the California Eelgrass Mitigation Policy (CEMP) (NOAA 2014, or most up-to-date policy).

PGM BIO-8: Tidal inlet monitoring that typically occurs, may need to be increased or rescheduled appropriately following implementation of sand placement events that have the potential to impact tidal inlets to coastal marshes to ensure that nourishment events do not result in significant impacts to tidal exchange considering the scale of the nourishment event and distance to the tidal inlet, and approved by the applicable regulatory agencies prior to permit issuance.

f) Would the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. Activities conducted under The Program would not conflict with the provisions of adopted habitat or community conservation plans. None of the receiver sites are located within the boundaries of an adopted habitat conservation plan. Stockpile Site OC.S.4 Audubon Basin, is located within Non-Reserve Open Space designated land, meaning it was publicly owned prior to the adoption of the NCCP/HCP and is therefore not subject to the development requirements of the Reserve. Stockpile Site NB.S.1 Newport Beach North Star Parking Lot is located approximately one mile southwest of the Upper Newport Bay Nature Preserve, outside of the jurisdiction of the Management Plan for the Upper Newport Bay Nature Preserve. The additional six stockpile sites are not located within or near Reserve System lands or identified special linkages.

Due to The Program being limited to temporary storage of sediment within existing disturbed or developed areas at each stockpile site and not expected to impact any native plant communities (i.e., coastal sage scrub, riparian plant communities), implementation of The Program will be consistent with the rules and regulations of the Orange County NCCP/HCP as well as the City of Costa Mesa General Plan. Thus, there would be no impact.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

3.5 Cultural Resources

Would The Program:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) Would the Project cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?

Less Than Significant Impact. The Program involves the stockpiling, transporting, and placement of sand for the purpose of beach nourishment. Ultimately, the replenishment of eroding beaches would enhance the surroundings of any historical buildings and landmarks near The Program sites, as well as provide shoreline protection for historical resources along the coast. All activities that fall in the scope of The Program would occur on roads, infrastructure and beaches that already exist, meaning that there would be no new installation or construction of structures that would directly impact historical resources. Further, the vibration potential from the construction equipment is well below the threshold for damage to historic buildings, even under the most conservative estimate for buildings within 25 feet of the equipment causing the vibrations (see 3.13 Noise). The California Historic Resources Information System (CHRIS) did not reveal any historic locations within 25 feet of any receiver or stockpile site.³¹ However, The City of San Clemente does list the San Clemente Municipal Pier as a resource of historical significance.³² The pier is within 25 feet of the sand placement area at San Clemente Central City Beaches location (SC.3). Because the vibration created by the construction equipment would be well below the thresholds that are known to damage fragile historic structures, it would not result in a substantial adverse change in the significance of the Pier. Thus, there would be no adverse impacts to the Pier. The Program would not result in substantial adverse change in the significance of a historical resource pursuant to Section 15064.5. Impacts to historical resources would be less than significant.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

³¹ California Department of Parks and Recreation. 2024. California Historical Resources accessed on December 9, 2024 at <https://ohp.parks.ca.gov/ListedResources/?view=county&criteria=30>

³² City of San Clemente. 2014. City of San Clemente Centennial General Plan, Historic Preservation Element accessed December 9, 2024 at <https://www.san-clemente.org/home/showpublisheddocument/47958/636765886392200000>

b) Would the Project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Less Than Significant Impact. The Program would have less than significant impact to archaeological resources. Activities involved in this Program include the transport and placement of sand onto beaches and stockpile sites that have been previously disturbed by recreational and/or other human activity, including previous beach fills (see Appendix D), in addition to natural disturbances by storms and ocean tides and waves. The excavation of material at the source sites is not part of the Program; evaluation of cultural resources at the source sites would be covered by the separate CEQA and permitting of the source sites. The placement of sand would not involve excavation or other ground disturbances beyond surficial impacts generally in developed or high use areas caused by construction vehicles moving sand on the beach or placing and removing sand from a stockpile site. Thus, The Program would not result in substantial adverse change in the significance of any archaeological resources or beneficial uses of the sites. In the very unlikely event that archaeological resources would be discovered within a Program site, as digging would not occur,, it would be treated according to existing laws and protocols such that it would be examined by a qualified archaeologist who would determine appropriate procedures to preserve the artifact, including avoiding and preserving the artifact in place if feasible, preparing a data recovery and treatment plan, and/or contacting Native American representatives if the artifact is indigenous in nature (SC CUL-1). With the implementation of SC CUL-1, impacts would be less than significant.

Avoidance, Minimization, and/or Mitigation Measures

The following standard condition is required:

SC CUL-1: If an archaeological resource is found, it will be examined by a Qualified Archaeologist. If it is determined by the Qualified Archaeologist to be indigenous in nature, a Native American representative will be consulted. If the Qualified Archaeologist determines the resource to be significant, avoidance and preservation in place will be the preferred manner of mitigating impacts pursuant to 15126.4(b)(3)(A). If avoidance is determined to be infeasible, the Qualified Archaeologist will prepare a data recovery and treatment plan tailored to the physical nature and characteristics of the resource. The data recovery plan will identify data recovery excavation methods, research questions, measurable objectives, and data thresholds to reduce any potential significant impacts to the resource. The resulting documentation will be submitted to the regional repository of the California Historical Resources Information System (CHRIS).

c) Would the Project disturb any human remains, including those interred outside of formal cemeteries?

Less Than Significant Impact. Activities involved in The Program include the transport and placement of sand onto beaches and stockpile sites that have been previously disturbed by recreational and other human activity and previous beach fills, in addition to natural disturbances by storms and ocean tides and waves. The excavation of material at the source sites would not be part of the Program. No excavation or ground disturbance beyond construction vehicles moving and placing sand on the surface. Thus, it is very unlikely that human remains would be present in the sand or that the act of placing sand would result in excavation of human remains. In the unlikely and unanticipated event that human remains are discovered within a Program site, The Program would be implemented in adherence to California Code of Regulations (CCR) Section 15064.5(e), Public Resources Code (PRC) Section 5097, and Section 7050.5 of the State's Health and Safety Code. Per these regulations, the County Coroner would be notified immediately, and all work would cease until the Coroner has made a determination of origin and disposition pursuant to CCR Section 15064.5(e), PRC Section 5097, and PRC Section 5097.98. To ensure proper treatment of remains in the event of an unanticipated discovery of a burial, human bone, or suspected human bone, State law requires that all excavation or grading in the vicinity of the find halt immediately, the area of the find be protected, and the

contractor immediately notify the County Coroner of the find. Compliance with these provisions, as specified in Regulatory Compliance Measure (RCM) CUL-1 below, would ensure that any potential impacts to unknown buried human remains would be less than significant by ensuring appropriate examination, treatment, and protection of human remains as required by State law. As such, no project-specific mitigation is required. The Program would have less than significant impact. .

Avoidance, Minimization, and/or Mitigation Measures

The following regulatory compliance measure is required:

RCM CUL-1: Human Remains. In the event that human remains are encountered on The Program site, work within 50 feet of the discovery shall be redirected and the County Coroner notified immediately consistent with the requirements of California Code of Regulations (CCR) Section 15064.5(e). State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code (PRC) Section 5097.98. If the remains are determined to be Native American, the County Coroner shall notify the Native American Heritage Commission (NAHC), which shall determine and notify a Most Likely Descendant (MLD). With the permission of the property owner, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. The MLD may recommend scientific removal and non-destructive analysis of human remains and items associated with Native American burials. Consistent with CCR Section 15064.5(d), if the remains are determined to be Native American and an MLD is notified, the County shall consult with the MLD as identified by the NAHC to develop an agreement for treatment and disposition of the remains. Prior to the issuance of any permits, the Director of the Orange County Public Works Department, or designee, shall verify that all plans specify the requirements of CCR Section 15064.5(e), State Health and Safety Code Section 7050.5, and PRC Section 5097.98, as stated above..

3.6 Energy

Would The Program:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) Would the Project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less Than Significant Impact. Construction for The Program would involve the use of energy in the form of diesel fuel and gasoline, primarily for construction equipment, and dump trucks. Conveyor belts and trains may be used, but only at a few locations in Dana Point, Irvine, and San Clemente (I.S.1 Great Park/MCAS El Toro, CA.4 Doheny State Beach, CA.5 San Clemente State Beach, OC.4 Capistrano Beach County Park, OC.5 Poche Beach, SC.1 Capistrano Shores, SC.2 San Clemente North Beach, SC.3 San Clemente City Beaches, and SC.4 Cyprus Shore/Cottons). The use of trains would likely be no more than once every 10 years since there are specific criteria that need to be met to accommodate the long unloading times for the trains (e.g., a sidetrack and coordination with other train operators). Due to those criteria, and to provide the most conservative estimate for energy usage, The Program assumes that trains and conveyor belts would be used at these locations but only once every 10 years. Heavy-duty diesel trucks may idle for brief periods while queued on site for loading or unloading materials. Additionally, railroad locomotives may idle for extended periods (6 to 8 hours) during construction staging or offloading operations. These activities would be short-term and temporary.

Truck idling would comply with the CARB Airborne Toxic Control Measure (ATCM) (Title 17 CCR Section 93116)³³ limiting idling to 5 minutes, except under specific exemptions such as traffic conditions or operational safety (ENRG-1).

Extended train idling is not subject to CARB's on-road idling limits. However, CARB works in coordination with federal agencies and rail operators to encourage idling reduction and fuel efficiency. Notably, CARB's Rail Yard Agreements³⁴ and Locomotive Regulation³⁵ aim to further reduce greenhouse gas and criteria pollutant emissions through operational limits and zero-emission targets. Further, train emissions regulations at the federal level indirectly regulate idling limits for trains. The Federal Railroad Administration noise regulations

³³ California Air Resources Board. *Airborne Toxic Control Measure for Diesel Particulate Matter from Portable Engines Rated at 50 Horsepower and Greater*. Title 17, California Code of Regulations, Section 93116. Originally adopted February 26, 2004. Accessed July 24, 2025. <https://regulations.justia.com/states/california/title-17/division-3/chapter-1/subchapter-7-5/airborne-toxic-control-measure-for-diesel-particulate-matter-from-portable-engines-rated-at-50-horsepower-and-greater/section-93116/>

³⁴ California Air Resources Board (CARB). 2005. Statewide Rail Yard Agreement between CARB and Class I Railroads. Accessed July 2025 at <https://ww2.arb.ca.gov/resources/documents/rail-emission-reduction-agreements>

³⁵ California Air Resources Board. *Final Regulation Order: In-Use Locomotive Regulation*. Executive Order R-23-004. Accessed July 24, 2025. <https://ww2.arb.ca.gov/rulemaking/2022/locomotive>

(49 CFR Part 210)³⁶ require trains to comply with noise thresholds, which can be exceeded with prolonged idling. Under 40 CFR Part 1033,³⁷ the U.S. Environmental Protection Agency mandates that new and remanufactured trains (Tier 3 and Tier 4) must shut down engines after 30 minutes of idling with some exceptions for safety. While the duration of train idling may appear excessive, it would be intermittent and limited to construction windows that would occur once every 10 years. To avoid significant impacts from train idling, Orange County Public Works and beach managing agencies will coordinate with the rail operator to reduce unnecessary locomotive idling where feasible. Where practical, the use of Tier 4 or equivalent low-emission locomotives, automatic shutdown/startup systems, or electrification will be encouraged (ENRG-2).

Energy consumption from both trucking and rail activity was accounted for in The Program modeling for emissions (Table 3-4: Maximum Daily Program Emissions Compared to SCAQMD Thresholds (lbs/day)). Given that energy use occurs during a temporary construction phase; idling is regulated or operationally necessary and emissions and fuel use are well below the SCAQMD emissions thresholds, The Program's energy consumption would not produce a significant environmental impact due to energy consumption that is considered wasteful, inefficient, or unnecessary. Adherence to RCM ENRG-1 and RCM ENRG-2 would ensure compliance with idling requirements to stay below the SCAQMD thresholds, thus The Program would have less than significant impact with regards to energy consumption. No project-specific mitigation is required.

Avoidance, Minimization, and/or Mitigation Measures

The following regulatory compliance measures are required:

RCM ENRG-1: The construction contractor will ensure that all construction trucks comply with CARB's idling restrictions (Title 17 CCR Section 93116), limiting idling to 5 minutes, except under safety-related or operational conditions.

RCM ENRG-2: The rail operator will reduce unnecessary locomotive idling where feasible, per 40 CFR Part 1033. Where practical, the use of Tier 4 or equivalent low-emission locomotives, automatic shutdown/startup systems, or electrification will be encouraged.

b) Would the Project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact. The Program's activities would be limited to temporary construction activities to replenish sand on eroding beaches. The Program would not require new or expanded energy generation or infrastructure. Fuels used for construction would be subject to the California Low Carbon Fuel Standard (Title 17 Sections 95480 – 95490).³⁸ Off-road construction equipment would be regulated under the California In-Use-Off-Road Diesel Vehicle Regulation (Title 13 CCR Section 2449)³⁹ and on-road haul trucks would be regulated under the California Truck and Bus Regulation (Title 13 CCR Section 2025).⁴⁰

³⁶ Federal Railroad Administration. *Railroad Noise Emission Compliance Regulations*. 49 CFR Part 210. Accessed July 24, 2025 <https://www.ecfr.gov/current/title-49/subtitle-B/chapter-II/part-210>

³⁷ U.S. Environmental Protection Agency. *Locomotives: Exhaust Emission Standards*. EPA-420-F-13-050, December 2013. Accessed July 24, 2025. <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100HP4Q.pdf>

³⁸ California Air Resources Board (CARB). *Low Carbon Fuel Standard Program Overview*. Originally adopted 2009 under AB 32. Accessed July 24, 2025. <https://ww2.arb.ca.gov/our-work/programs/low-carbon-fuel-standard>.

³⁹ California Air Resources Board (CARB). *In-Use Off-Road Diesel-Fueled Fleets Regulation*. Title 13, California Code of Regulations, Section 2449. Effective October 1, 2023. Accessed July 24, 2025. <https://ww2.arb.ca.gov/our-work/programs/use-road-diesel-fueled-fleets-regulation>.

⁴⁰ California Air Resources Board. *Truck and Bus Regulation Overview and Compliance Requirements*. Originally adopted in 2008 under Title 13, California Code of Regulations, Section 2025. Last updated June 18, 2019. Accessed July 24, 2025. <https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/carb-reg-docs-pdfs/diesel-truck-regulations-remediated-final-a11y.pdf>

Program activities that take place in the City of Newport Beach (NB.1 West Newport Beach, NB.2 Newport Harbor Beaches, NB.3 Balboa Beach; NB.4 Corona del Mar Beach; NB.5 Little Corona del Mar Beach; NB.S.1 Newport Beach North Star Beach Parking Lot) would be subject to the Newport Beach Energy Action Plan's energy efficiency objectives, and Program activities in Irvine (I.S.1 Great Park and OC.S.4 Audubon Basin) would be subject to compliance with the 2023 Newport Beach Energy Action Plan (EAP)⁴¹ and the 2024 Irvine Climate Action and Adaptation Plan (CAAP)⁴² that establish goals and strategies to improve energy efficiency and reduce GHG emissions. These plans include voluntary and regulatory measures aimed at enhancing energy performance for development and operational activities, including construction.

The Program may not be able to fully implement all energy efficiency measures outlined in the Newport Beach EAP and Irvine CAAP due to technical, operational, or logistical constraints (e.g., limited availability of electric or hybrid construction equipment of the kinds required for The Program). Although The Program cannot guarantee use of Tier 3 or Tier 4 off-road vehicles, it would not conflict with any legally binding measure in the Newport Beach EAP or the Irvine CAAP. Both plans promote reductions in energy use and greenhouse gas emissions but do not mandate specific off-road engine tiers for construction activity. The Program would implement 5-minute idling limits mandated by CARB to reduce inefficient use of energy and is well below the GHG emission significance thresholds (see 3.8 Greenhouse Gas Emissions). Therefore, the Program does not conflict with or obstruct implementation of these adopted plans.

Trains may also be used to transport sand for The Program. Their use would be limited to the Great Park stockpile site in Irvine and the receiver sites in Dana Point and San Clemente (I.S.1 Great Park/MCAS El Toro, CA.4 Doheny State Beach, CA.5 San Clemente State Beach, OC.4 Capistrano Beach County Park, OC.5 Poche Beach, SC.1 Capistrano Shores, SC.2 San Clemente North Beach, SC.3 San Clemente City Beaches, and SC.4 Cyprus Shore/Cottons). The Cities of San Clemente and Dana Point do not have adopted Climate Action Plans that contain enforceable or project-specific energy efficiency or renewable energy mandates applicable to temporary construction activities such as beach nourishment. Additionally, while train deliveries may transit through or originate in the City of Irvine, the Program would not conflict with the City of Irvine's CAAP. The CAAP includes strategies to promote electrification of construction equipment and reduce emissions from municipal operations and private development; however, it does not impose mandatory requirements on third-party rail operations or construction projects outside city jurisdiction. The train idling activity would not preclude the realization of Irvine's CAAP goals related to transportation electrification or energy efficiency and would not hinder the achievement of renewable energy targets. As such, the train transport for The Program would not conflict with applicable energy plans.

Further, the Program's temporary nature and lack of long-term energy demand ensure it does not interfere with the implementation of state-level energy efficiency goals (e.g., SB 100 or the California Energy Efficiency Strategic Plan) because there are no long-term energy demands included as part of The Program.

The Program would place sand on eroding beaches, which would be accomplished by short-term construction. There would be no new infrastructure or long-term operations that would require energy as a result. The Program would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation is required.

⁴¹ City of Newport Beach. 2015. Energy Action Plan (EAP). Accessed July 24, 2025. <https://www.newportbeachca.gov/i-am-a-community-member/living-building-green/energy-action-plan-eap>

⁴² City of Irvine. 2023. Climate Action and Adaptation Plan (CAAP). Accessed July 24, 2025. <https://cityofirvine.org/climate-action-and-adaptation-plan-caap>

3.7 Geology and Soils

Would The Program:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a Known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994 or most current edition), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) Would the Project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

No Impact. The Program includes project sites that are located within an area where several faults and fault zones are considered active by the California Division of Mines and Geology.⁴³ Activities that would be conducted under The Program would be limited to storage, transport, and placement of sand for beach nourishment purposes. There would be no excavation or compaction ground disturbing activities. The Program would not create geologic conditions or infrastructure that would rupture a known fault or result in landslides, lateral spreading, subsidence, liquefaction or collapse. It would not increase human exposure to these events beyond existing conditions because it would only add sand to existing beaches, not new structures. Thus, The Program would have no impact.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

ii) Strong seismic ground shaking?

No Impact. Activities that would be conducted under The Program are limited to storage, transport, and placement of sand for beach nourishment purposes. No development, excavation, or ground disturbance other than surficial disturbances from construction equipment moving and placing sand is proposed. The activities conducted as part of The Program would not create geologic conditions or infrastructure that would result in landslides, lateral spreading, subsidence, liquefaction or collapse. It would not increase human exposure to these events beyond existing conditions because it would only add sand to existing beaches, not new structures. Similarly, The Program would not generate additional human usage of existing beach areas, so there would be no new or additional human exposure to strong seismic ground shaking beyond what already exists in the locations that are part of The Program. Thus, The Program would have no impact.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

iii) Seismic-related ground failure, including liquefaction?

No Impact. All of The Program's receiver and stockpile sites are located on soils that may liquify due to being granular sandy soil with high water content.⁴⁴ Activities that would be conducted under The Program would be limited to storage, transport, and placement of sand for beach nourishment purposes. There would be no excavation or compaction, or other ground disturbing activities. The Program would not create geologic conditions or infrastructure that would result in landslides, lateral spreading, subsidence, liquefaction or collapse. It would not increase human exposure to these events beyond existing conditions because it would only stockpile, transport, and add sand to eroding beaches. It would not add new structures that could collapse and harm people. Mere addition of sediment to existing beach areas, consistent with the existing sand at those locations, would not in any way alter the existing risk of liquefaction at the beach

⁴³ California Department of Conservation. 2015. Fault Activity Map of California. Accessed December 31, 2024. <https://maps.conservation.ca.gov/cgs/fam/>

⁴⁴ Natural Resources Conservation Service. Orange County Surface Soils Textures Map | MWDOC. Accessed December 24, 2024

locations that are receiver sites under The Program. Similarly, temporary storage of sediment at stockpile sites would not alter the existing risk of liquefaction at those sites. Thus, The Program would have no impact.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

iv) Landslides?

No Impact. Landslide risks are typically associated with slopes with significant elevation changes.⁴⁵ The following receiver sites are located near coastal bluffs that meet this criteria: CA.3 Crystal Cove State Park, CA.5 San Clemente State Beach, OC.2 Salt Creek Beach, OC.4 Capistrano Beach County Park, HB.3 Huntington Beach Bluffs, NB.4 Corona del Mar Beach, NG.5 Little Corona del Mar Beach, SC.3 San Clemente Central Beaches, and SC.4 Cyprus Shore/Cottons. However, The Program would not create geologic conditions or infrastructure that would result in landslides, lateral spreading, subsidence, liquefaction or collapse. It would not increase human exposure to these events beyond existing conditions because it would only add sand to existing beaches, not new structures, and would not alter the existing coastal bluffs in these locations. There would be no excavation, removal of vegetation, or other activities that may influence slope stability where the coastal bluffs are adjacent to the receiver beach. There are no known landslide risks at the stockpile sites, and because The Program proposes only temporary storage of sediment at these locations, it would not alter the existing landslide risk for the stockpile sites. The Program would not expose people or buildings to landslides beyond currently existing conditions. Thus, The Program would have no impact.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

b) Would the Project result in substantial soil erosion or the loss of topsoil?

No Impact. Activities of The Program include stockpiling, transport, and placement of sand on beaches and would be conducted with the primary objective of replenishing eroded sand. The beach receiver sites are sandy beaches with no soil or topsoil and the stockpile sites are already disturbed and being used to store items, such as gravel and sandbags for municipal construction and other projects. The activities conducted under The Program would thus have no impact on soil erosion or loss of topsoil.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

c) Would the Project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in, on or offsite landslide, lateral spreading, subsidence, liquefaction or collapse?

No Impact. Orange County in general is highly susceptible to slope failure and liquefaction due to the proximity of active and potentially active faults. The Program's receiver and stockpile sites located in Huntington Beach, Newport Beach, San Clemente, and Seal Beach may be located on soils that may liquify due to being granular sandy soil with high water content, but the activities conducted as part of The Program would not create geologic conditions or infrastructure that would result in landslides, lateral spreading, subsidence, liquefaction or collapse. The Program would stockpile, transport, and place sand to replenish eroding beaches. It would

⁴⁵ California Coastal Commission. 2019. *A Primer on Coastal Bluff Erosion and Landslide Hazards*. Public Education Series, November 2019. Accessed July 21, 2025. <https://www.coastal.ca.gov/publiced/waves/coastal-erosion.pdf>

not generate new buildings or infrastructure and it would not conduct any ground disturbing activities. In some locations the replenishment of sand may help improve the geologic stability of adjacent coastal bluffs by providing a buffer against wave action that could undercut the bluffs and eventually cause failure of the bluffs. Thus, The Program may mitigate or decrease the existing risk of land failure near some coastal bluffs by creating a greater buffer against wave action. The Program would not generate unstable soil or result in on or offsite landslides, lateral spreading, subsidence, liquefaction, or collapse. Thus, The Program would have no impact.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

d) Would the Project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks of life or property?

No Impact. Most of the sites for The Program are sandy beaches that do not have soil cover or expansive soils documented within the potential project sites, however expansive soils may be present at the following stockpile locations: HB.S.1 City of Huntington Beach Gothard Street, I.S.1 Great Park (MCAS El Toro), SC.S.1 San Clemente – Avenue Vista Hermosa and Avenida La Pata, and SC.S.2 San Clemente Water Reclamation Yard. Expansive soils may also be present at or near the following sandy beach receiver sites: NB.3 Newport Harbor Beaches, CA.3 Crystal Cove State Park, OC.5 Poche Beach, and CA.5 San Clemente State Beach.⁴⁶ The risk to life and property from expansive soils stems from infrastructure, specifically, cracks, foundation movement, and other instability that can occur when the soil these structures are located on expands. The risk to human life or property occurs when expansive soils expand and create instability for infrastructure located on the soil, which can result in damaged property and risk to human life from falling debris or failing infrastructure when humans are present. These risks are not a concern for The Program because it entails only the storage, transport, and placement of sand for the purposes of replenishing eroding beaches. No buildings or structures would be constructed as part of The Program, thus it would not create substantial direct or indirect risk to life or property. There would be no impact.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

e) Would the Project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No Impact. Activities of The Program would not produce wastewater or require the use of, or construction of, any septic tanks or alternative wastewater disposal systems. The Program would stockpile, transport, and replace sand on beaches that have experienced erosion. Thus, there would be no impact.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

⁴⁶ Natural Resources Conservation Service. Orange County Surface Soils Textures Map. Accessed December 24, 2024. <https://www.mwdoc.com/save-water/resources/technical-resources/soils/>

f) Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

No Impact. There are General Areas of Sensitivity, or areas that are likely to contain fossil-bearing geologic formations based on existing knowledge, within The Program vicinity per the Orange County General Plan Chapter VI. Resources Element Figure VI-9.⁴⁷ The coast of Orange County south of CA-55/Newport Avenue has four general areas of sensitivity: Newport Bay District, San Joaquin Hills District, Laguna Hills - Dana Point, and San Juan Capistrano - San Clemente District. These areas include receiver and stockpile sites in Newport Beach, Dana Point, and San Clemente. However, The Program would not require subsurface excavation that would impact underlying formations or resources. Because The Program's activities include only temporary surface stockpiling of sand and then deposition of sand on beaches experiencing significant erosion, The Program is not likely to directly or indirectly impact unique geologic features or destroy a unique paleontological resource. Beyond occurring in the vicinity of General Areas of Sensitivity, The Program is not anticipated to have any impact on fossil-bearing geologic formations, which are located below the surface in the vicinity of certain receiver and stockpile sites, Thus, The Program would have no impact on paleontological resources.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

⁴⁷ County of Orange. 2013. General Plan: Chapter V1. Resources Element (Figure VI-9).
<https://ocds.ocpublicworks.com/sites/ocpwoods/files/import/data/files/40235.pdf>

3.8 Greenhouse Gas Emissions

Would The Program:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less Than Significant Impact. Construction activities associated with The Program would generate greenhouse gas (GHG) emissions from heavy-duty equipment, haul trucks, and worker vehicle trips. Emissions would primarily consist of carbon dioxide (CO₂), with smaller contributions from methane (CH₄) and nitrous oxide (N₂O), resulting from the combustion of diesel and gasoline fuels.

SCAQMD recommends a screening-level threshold of 10,000 metric tons of CO₂ equivalent (MTCO₂e) per year for industrial projects⁴⁸ which is commonly applied to construction activities for infrastructure and shoreline protection projects. Construction-related GHG emissions are typically amortized over the life of the project—commonly assumed to be 30 years—per SCAQMD guidance and consistent with CEQA Guidelines Section 15064.4. In this case, The Program would result in temporary, short-term construction emissions only. There would be no operational or recurring GHG emissions associated with The Program, as it would not result in new facilities, energy demand, long-term equipment use, or changes in land use that would generate ongoing emissions. Therefore, amortizing construction-related emissions over an arbitrary operational life would not meaningfully inform the analysis or alter the determination of significance under CEQA. The GHG analysis for The Program conservatively compares annual construction GHG emissions to the threshold of significance without amortization.

Based on emissions modeling conducted for The Program (Appendix E), a conservative estimate of The Program’s construction activities indicates that it would generate approximately 714.10 MTCO₂e per year.⁴⁹ This total is well below the SCAQMD significance threshold of 10,000 MTCO₂e/year, and impacts related to GHG emissions would therefore be less than significant.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

⁴⁸ South Coast Air Quality Management District. *Interim CEQA Greenhouse Gas (GHG) Significance Threshold for Stationary Sources, Rules, and Plans*. Governing Board resolution adopted December 5, 2008, South Coast AQMD. <https://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/ghg-significance-thresholds>

⁴⁹ Calculated by combining the max yearly CO₂ emissions from the trucks (688.7 MT) and maximum yearly CO₂ emissions from the trains (25.40 MT - 0.0448/day x 1/week x 52 weeks). This is the most conservative estimate. In practice, the length of construction would be shorter and train emissions would likely be much less as their use would spread over a period of 10 years, not one year.

b) Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

No Impact. The Program is subject to multiple statewide, regional, and local plans and policies developed to reduce GHG emissions. At the regional level, the SCAQMD has established an interim GHG significance threshold of 10,000 metric tons of CO₂e per year for stationary source projects, as documented in the South Coast AQMD Air Quality Significance Thresholds. This threshold is commonly applied by lead agencies for evaluating the significance of GHG emissions under CEQA in the absence of project-specific or statewide numeric thresholds.

Orange County has developed a Preliminary Draft Climate Action Plan (County of Orange, 2024) to reduce GHG emissions from County operations and to assist cities in formulating complementary measures. Although still in draft form, the plan outlines emissions baselines, reduction targets consistent with Senate Bill (SB) 32 (reducing emissions 40% below 1990 levels by 2030),⁵⁰ and a framework for sector-specific strategies. The City of San Clemente adopted a Climate Action Plan⁵¹ that sets community-wide GHG reduction targets and supports projects that reduce construction and operational emissions. As of 2024, the City of Irvine and City of Huntington Beach are in the process of developing or updating their respective Climate Action and Adaptation Plans (CAAPs), which will outline strategies aligned with the CARB Scoping Plan and statewide climate goals.⁵²

Other cities within The Program area, including Newport Beach, Dana Point, Seal Beach, and Costa Mesa, do not currently have adopted Climate Action Plans; however, these jurisdictions rely on regional policies, such as those implemented by Orange County, and applicable statewide GHG reduction regulations and guidance, including: California Global Warming Solutions Act of 2006⁵³; SB 32, and Executive Order B-55-18,⁵⁴ establishing carbon neutrality by 2045; and the CARB 2022 Scoping Plan,⁵⁵ which identifies the state's pathway toward achieving these targets.

The Program would generate short-term construction-related GHG emissions but would not result in long-term operational emissions. The emissions would be temporary and well below the applicable SCAQMD screening threshold of 10,000 metric tons of CO₂e per year (714.10 MTCO₂e per year; see Appendix E). No new permanent energy demand or stationary sources would be introduced by The Program. The Program would not generate GHG emissions exceeding SCAQMD's significance threshold and would therefore not conflict with applicable local, regional, or state plans adopted for the purpose of reducing GHG emissions. Therefore, The Program would have no impact with respect to conflict with any applicable plan, policy, or regulation adopted to reduce GHG emissions.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

⁵⁰ California Legislative Information. 2016. *Senate Bill No. 32 (Pavley): California Global Warming Solutions Act of 2006: Emissions Limit*. Chapter 249, Statutes of 2016. Accessed July 21, 2025. https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB32

⁵¹ City of San Clemente. 2014. *Climate Action Plan*. Accessed July 21, 2025. <https://www.san-clemente.org/home/showpublisheddocument/14756/636346063189430000>

⁵² U.S. Environmental Protection Agency. 2024. *Climate Action and Adaptation Planning Efforts*. (In development). *Los Angeles–Long Beach–Anaheim Metropolitan Statistical Area Preliminary Climate Action Plans Summary*. March 2024. Accessed July 21, 2025. https://www.epa.gov/system/files/documents/2024-03/5d-98t76801-los-angeles-long-beach-anaheim-msa_pcap.pdf

⁵³ California Air Resources Board (CARB). 2006. *Assembly Bill 32: Global Warming Solutions Act of 2006*. Accessed July 21, 2025. <https://ww2.arb.ca.gov/resources/fact-sheets/ab-32-global-warming-solutions-act-2006>

⁵⁴ Office of Governor Edmund G. Brown Jr. *Executive Order B-55-18 to Achieve Carbon Neutrality*. Issued September 10, 2018. <https://www.library.ca.gov/wp-content/uploads/GovernmentPublications/executive-order-proclamation/39-B-55-18.pdf>

⁵⁵ California Air Resources Board (CARB). 2022. *2022 Scoping Plan for Achieving Carbon Neutrality*. Adopted December 15, 2022. Accessed July 21, 2025. <https://ww2.arb.ca.gov/sites/default/files/2022-12/2022-sp.pdf>

3.9 Hazards and Hazardous Materials

Would The Program:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on a site, which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a Project located within an airport land use plan, or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the Project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) Would the Project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less Than Significant Impact. The proposed Project would not involve the routine transport, use, or disposal of hazardous substances. Imported sand used for beach nourishment would be subject to standard testing, and any material found to be contaminated would be excluded from use in accordance with federal, state, and local requirements. During construction, limited quantities of common hazardous materials such as fuels, oils, and lubricants could be used to operate equipment. However, these materials would be handled, and disposed of consistent with applicable regulations, and spill prevention BMPs would be implemented to minimize the risk of accidental release. Following construction, the proposed Project would not involve the ongoing use or storage of hazardous materials. Fuels and solvents for construction would be used pursuant to existing regulatory requirements per the California Department of Toxic Substances Control and Orange County Health Care Agency through the Certified Unified Program Agency (CUPA) for cities including Dana Point, Costa

Mesa, Irvine, Huntington Beach, Newport Beach, San Clemente, and Seal Beach.⁵⁶ ..Fueling and maintenance would occur in designated areas away from surface waters, with spill prevention measures in place (**SC HAZ-1**). There would be no long-term operational use of any hazardous materials since The Program is replenishing eroded beaches. The Program would not generate or transport hazardous materials. The use of fuels and lubricants for construction equipment would be temporary and, with the implementation of **SC HAZ-1** would not result in a significant hazard to the public or environment. Thus, The Program would have less than significant impact with regards to the use and transport of hazardous materials with the implementation of **SC HAZ-1**.

Avoidance, Minimization, and/or Mitigation Measures

The following standard condition is required:

SC HAZ-1: Fueling and maintenance of construction vehicles will occur in designated areas at least 25 feet away from surface waters, with spill prevention measures in place

b) Would the Project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less Than Significant Impact. The Program involves short-term, temporary construction that would not involve the routine transport, storage, or disposal of hazardous materials, with the exception of fuels and lubricants used for construction equipment, no other hazardous materials would be transported to or from The Program site or used in the construction process. Construction equipment fueling and maintenance would comply with SC HAZ-1 and SC HYD-1 to avoid potential localized impacts from handling those materials. Additionally, all hazardous materials use, storage, and disposal would conform to federal, state, and local regulations, including requirements enforced by the Orange County Health Care Agency.⁵⁷ With these controls in place, The Program would not create a significant hazard to the public or environment due to accidental release of hazardous materials.

While rail transport carries a low risk of hazardous material release due to the regulated handling of fuels and lubricants used by trains, all hazardous materials associated with train operations are managed under strict federal regulations including the Hazardous Materials Transportation Act (49 U.S.C. § 5101 et seq.), and state reporting requirements (California Public Utilities Code §§ 7671–7673).⁵⁸

Sand used for The Program would have to meet minimum criteria that includes “No Detection” of hazardous materials before placement at a stockpile site or beach receiver site as part of The Program (see Preliminary Implementation Guidelines, Appendix A; Section 4.0). Operationally, there would be no hazardous materials once the placement of sand is completed.

No component of The Program would create a significant hazard to the public or to the environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment. The Program would have less than significant impact with the implementation of SC HAZ-1.

⁵⁶ Orange County Health Care Agency (OCHCA). 2024. *Certified Unified Program Agency (CUPA) Information*. Accessed July 21, 2025. <https://www.ochealthinfo.com/about-hca/directors-office/environmental-health/hazardous-materials/cupa>

⁵⁷ Orange County Health Care Agency (OCHCA). 2024. *Certified Unified Program Agency (CUPA) Information*. Accessed July 21, 2025. <https://www.ochealthinfo.com/about-hca/directors-office/environmental-health/hazardous-materials/cupa>

⁵⁸ California Code of Regulations (CCR). 2023. *Title 22, Division 4.5, Environmental Health Standards for the Management of Hazardous Waste*. Accessed July 21, 2025. <https://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations>

Avoidance, Minimization, and/or Mitigation Measures

The following standard conditions are required:

SC HAZ-1: Fueling and maintenance of construction vehicles will occur in designated areas away from surface waters, with spill prevention measures in place

SC HYD-1: The contractor will place impervious ground cover such as dip pans under construction equipment that is not in use to prevent leaks from entering surface and groundwater sources.

c) Would the Project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less Than Significant Impact. There are schools located within 0.25 miles of the following stockpile sites: OS.S.1 Lot at Confluence-Bolsa Chica and Edinger, NB.3 Balboa Beach, CA.3 Crystal Cove State Park, and CA.4 Doheny State Beach. However, The Program would be short term and would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste. Emissions from conventional fuel types are already present in the vicinity of these stockpile sites in developed, urban areas, and would remain consistent with the implementation of The Program. The maximum amount of time the trucks would be used for beach nourishment activities at any receiver or stockpile site location in any given year would be 30 weeks. There are no schools or proposed schools located within 0.25 mile from the beach receiver sites. Collectively, The Program's use of conventional fuel types to power equipment and trucks would be similar to existing levels of such uses within 0.25 miles of specified stockpile sites, and would have no impact on schools within 0.25 miles of a beach receiver site, as there are no existing or proposed schools within 0.25 miles of a beach receiver site. Therefore, The Program would have less than significant effect on any nearby school related to hazardous material exposure.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

d) Would the Project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact. Beach receiver sites and stockpile sites are not located on a hazardous materials site listed on the State of California Hazardous Waste and Substances list compiled pursuant to Government Code Section 65962.5.⁵⁹ The Program would not create a significant hazard to the public or the environment as a result of being located on a site listed on a list of hazardous materials compiled pursuant to Government Code Section 65962.5. The Program would have no impact.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

⁵⁹ California Department of Toxic Substances Control. 2024. Hazardous Waste and Substances Site List (CORTESE). <https://www.envirostor.dtsc.ca.gov>. Accessed December 29, 2024

e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the Project area?

Less Than Significant Impact. Stockpile site NB.S.1 North Star Beach parking lot would serve as a stockpile site in the City of Newport Beach and is located at the southern perimeter of the Land Use Plan area for John Wayne Airport. In the City of Seal Beach, receiver site locations SB.1 West Seal Beach and the SB.2 East Seal Beach are on the periphery of the Joint Forces Training Base in Los Alamitos.⁶⁰ There are no receiver or stockpile sites within two miles of a public airport or public use airport in the jurisdictions of California State Parks, Orange County, City of Huntington Beach, City of Irvine, or the City of San Clemente. The activities associated with The Program would not produce infrastructure that could cause aircraft-related safety hazards due to height, reflective materials, or other hazardous features because the program includes only stockpiling of fill material and beach nourishment activities. No construction equipment used for The Program would exceed the 200-foot trigger for additional FAA requirements to avoid height-related hazards to aviation.

Noise would only be generated during construction activities, which would use standard earth-moving equipment. These activities would temporarily generate noise levels typical of construction (between 85-95 decibels at 50 feet)⁶¹ no more than one time per year for no more than 30 weeks. For most locations, the frequency and duration of construction would be less (see Table 2-8: Truck Trips). Per local ordinances for construction, construction noise for areas within the City of Newport Beach would be limited to 7:00 a.m. – 6:30 p.m. Monday – Friday and 8:00 a.m. – 6:00 p.m. on Saturdays, and construction noise for areas within the City of Seal Beach would be limited to 7:00 a.m. – 8:00 p.m. Monday – Friday and 8:00 a.m. – 8:00 p.m. on Saturdays. Only sites (stockpile and receiver sites) within these two cities are within the vicinity of airports. Regulatory standards and guidelines—such as those from the Federal Aviation Administration (FAA),⁶² the Occupational Safety and Health Administration (OSHA),⁶³ and the EPA⁶⁴—do not identify short-term, localized construction noise at these attenuated levels as a safety hazard for the public near airports.

The Program would not result in a safety hazard or excessive noise for people residing or working in The Program area. Thus, The Program would have less than significant impacts.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

f) Would the Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. Orange County and its cities maintain comprehensive emergency management systems guided by the California Standardized Emergency Management System (SEMS)⁶⁵ and

⁶⁰ Airport Land Use Commission for Orange County Airport Planning Areas, Figure 1. 2007. https://files.ocair.com/media/2021-02/airportlu_20200604.pdf?VersionId=cMd6uGpbGOWGd3jMOS6TPJF3y5nMyA7F, Accessed December 16, 2024

⁶¹ Federal Highway Administration (FHWA). 2006. *Roadway Construction Noise Model User's Guide*. FHWA-HEP-05-054. U.S. Department of Transportation. Accessed July 21, 2025. https://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/rcnm.pdf

⁶² Federal Aviation Administration (FAA). 2018. *Guidance on Noise Compatibility Planning*. U.S. Department of Transportation. Accessed July 21, 2025. https://www.faa.gov/about/office_org/headquarters_offices/apl/noise_emissions/aircraft_noise/

⁶³ Occupational Safety and Health Administration (OSHA). 1983. *Occupational Noise Exposure (29 CFR 1910.95)*. Accessed July 21, 2025. <https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.95>

⁶⁴ U.S. Environmental Protection Agency (EPA). 1974. *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. EPA Report No. 550/9-74-004. Accessed July 21, 2025. <https://nepis.epa.gov/Exe/ZyPDF.cgi/9100B8NW.PDF>

⁶⁵ California Office of Emergency Services (Cal OES). 2022. *Standardized Emergency Management System (SEMS) Guidelines*. Accessed July 21, 2025.

the National Incident Management System (NIMS).⁶⁶ The Orange County Operational Area Emergency Operations Plan (EOP)⁶⁷ provides coordinated emergency response protocols across jurisdictions, including evacuation procedures, public safety coordination, and communications during natural disasters, hazardous materials releases, and other emergencies.

Each city within The Program area—Costa Mesa, Huntington Beach, Irvine, and Newport Beach—has its own Local Hazard Mitigation Plan (LHMP). Dana Point, San Clemente, and Seal Beach are in the process of approving LHMPs.⁶⁸ Each LHMP identifies key evacuation routes, emergency response roles, and hazard-specific procedures such as tsunami, wildfire, and earthquake response.

Construction activities under The Program would include the transport and placement of sand to replenish eroding beaches. Per Caltrans (California Vehicle Code Section 21400 and 21401), and Cal/OSHA (California Code of Regulations Sections 1598 and 1599) laws and regulations, traffic control plans and flaggers are required for any construction that would impact traffic flow or safety. These traffic plans are required to address any potential impacts to emergency access and evacuation routes when construction activities impact public rights-of-way. Trains are regulated under California's Public Utilities Commission General Order No. 135 that generally prohibits non-passenger trains from blocking public grade crossings for more than 10 minutes unless no vehicle or pedestrian is waiting. Any construction activities conducted under The Program would be required to operate in accordance with these regulations and the state and local emergency plans. Thus, The Program would have less than significant impact with compliance to regulations requiring traffic control plans in areas where construction activities would impact public rights-of-way.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation required.

g) Would the Project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

Less than Significant Impact. Fire hazard risks associated with construction equipment used for implementation of The Program are negligible and not anticipated. Most of the locations are beach receiver sites, which are moist, rocky, and sandy beaches that are less susceptible to fire risk. However, some stockpile and receiver sites are located in fire hazard severity zones designated by CalFire (Table 3-10: Program Locations in Fire Hazard Severity Zones). All Program locations are required to comply with California Fire Code (Title 24, CCR Part 9) and Cal/OSHA Construction Safety Orders (Title 8, CCR Section 6777) to minimize risk and spread of fires sparked by construction activities. To further minimize the risk of wildfire, the construction contractor will implement all applicable fire prevention and suppression measures, including maintaining fire suppression equipment on-site and training construction personnel in fire safety procedures (RCM HAZ-1). SC HAZ-2 would also be implemented to require fuels and flammable substances be placed at

⁶⁶ Federal Emergency Management Agency (FEMA). 2021. *National Incident Management System (NIMS)*. Accessed July 21, 2025.

⁶⁷ Orange County Sheriff's Department, Emergency Management Division. 2021. *Orange County Operational Area Emergency Operations Plan (EOP)*. Accessed July 21, 2025. https://bof.fire.ca.gov/media/he2ae550/rpc-4-a-iii-orange-county-emergency-operations-plan-supplemental-_ada.pdf?utm_source=chatgpt.com

⁶⁸ City of Huntington Beach. 2021. *Local Hazard Mitigation Plan (LHMP)*. Accessed July 21, 2025.

City of Newport Beach. 2020. *Emergency Operations Plan*. Accessed July 21, 2025.

City of Dana Point. 2020. *Emergency Operations Plan*. Accessed July 21, 2025.

City of Costa Mesa. 2022. *Local Hazard Mitigation Plan Update*. Accessed July 21, 2025.

City of Irvine. 2021. *Emergency Operations Plan*. Accessed July 21, 2025.

City of San Clemente. 2020. *Emergency Operations Plan*. Accessed July 21, 2025.

City of Seal Beach. 2021. *Local Hazard Mitigation Plan*. Accessed July 21, 2025.

least 50 feet away from vegetation or brush and stored in compliance with California Fire Code Sections 5704 and 5706. With these mitigation measures in place The Program would not expose people or structures to a significant risk or loss, injury, or death involving wildfires. Impacts would be less than significant with the implementation of SC HAZ-2 and adherence to RCM HAZ-1.

Table 3-10: Program Locations in Fire Hazard Severity Zones

Location ID	Location	Fire Hazard Zone
California State Parks		
CA.1	Bolsa Chica State Beach	Moderate/High
CA.3	Crystal Cove State Park	Moderate/High/Very High
Orange County Parks		
OC.2	Salt Creek Beach	Moderate
OC.S.3	Audubon Basin (within City of Irvine)	Very High
City of Huntington Beach		
HB.1	Sunset Beach	Moderate/High
HB.2	Huntington Harbour Beaches	Moderate/High
City of San Clemente		
SC.S.1	Lot at Avenue Vista Hermosa and Avenida La Pata, San Clemente	Moderate/High/Very High

Avoidance, Minimization and/or Mitigation Measures

The following regulatory compliance and standard condition are required:

RCM HAZ-1: All Program locations will comply with the California Fire Code (Title 24, California Code of Regulations [CCR], Part 9) and the Cal/OSHA Construction Safety Orders for fire prevention (Title 8, CCR, Section 6777). The construction contractor will implement all applicable fire prevention and suppression measures, including maintaining fire suppression equipment on-site and training construction personnel in fire safety procedures. Compliance will be verified by the construction manager through regular site inspections during active construction.

SC HAZ-2: Fuels, oils, and other flammable materials will have secondary containment measures and will not be stored onsite. Storage should comply with California Fire Code Sections 5704 and 5706.

3.10 Hydrology and Water Quality

Would The Program:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surface, in a manner which would				
i) result in substantial erosion or siltation on or off-site;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) Would the project violate or conflict with any adopted water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Less Than Significant Impact. The Program would involve the placement of clean, compatible sand at beach receiver sites and storage at stockpile sites (see Table 2-1: Beach Receiver Site Locations for The Program and Table 2-2: Stockpile Site Locations for The Program).

The source material would be tested in accordance with U.S. Army Corps of Engineers, USEPA, and State Water Resources Control Board standards to ensure chemical and biological compatibility with receiving beach environments, which would protect water quality, including prior to shipment to stockpile sites.

Additionally, no hazardous materials would be handled on-site without secondary containment, and Standard Condition best management practices (SCs) (SC HYD-1 – SC HYD-3) would be in place to prevent accidental releases of fuels, lubricants, or other pollutants.

All beach nourishment construction activities would be conducted in compliance with applicable provisions of the Clean Water Act (CWA) Sections 401 and 404, as well as state regulations under the Porter-Cologne Water Quality Control Act. To prevent water quality impacts during construction, The Program would implement a comprehensive suite of BMPs in accordance with the Orange County Stormwater Program's Construction Runoff Guidance and applicable provisions of the Orange County Drainage Area Management Plan (DAMP). These BMPs would be designed to manage stormwater runoff, minimize erosion, and control turbidity and sedimentation during all phases of the beach nourishment events. Some examples include:

- Placing impervious ground cover and/or spill containment under construction equipment that is not in use to prevent leaks from entering surface and groundwater sources (SC HYD-1).
- The use of construction equipment that is regularly maintained per manufacturer guidelines to prevent leaks from happening (SC HYD-2).
- Avoiding construction equipment traversing in the wetted sand areas unless required for construction activities (SC HYD-3).

Where applicable, BMPs would be coordinated with the State Regional Water Quality Control Board, Santa Ana Regional Water Quality Control Board (receiver and stockpile sites located in Costa Mesa, Huntington Beach, Newport Beach, and Irvine) and San Diego Regional Water Quality Control Board (receiver and stockpile sites located in Dana Point and San Clemente).

Implementation of these SCs would ensure that The Program would not result in significant adverse impacts to surface or groundwater quality.

With the implementation of appropriate BMPs, adherence to applicable federal and state water quality regulations, and agency oversight, The Program would not violate any adopted water quality standards or discharge requirements, nor would it substantially degrade surface or groundwater quality. Impacts would be less than significant.

Avoidance, Minimization and/or Mitigation Measures

The following standard conditions are required:

SC HYD-1: The contractor will place impervious ground cover and/or spill containment under construction equipment that is not in use to prevent leaks from entering surface and groundwater sources.

SC HYD-2: The contractor will regularly maintain construction equipment per manufacturer guidelines to prevent leaks from happening.

SC HYD-3: The contractor will avoid construction equipment traversing in the wetted sand areas below high tide unless required for construction activities.

b) Would the Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

No Impact. Receiver beaches and stockpile sites in Costa Mesa, Huntington Beach, Irvine, Newport Beach, and Seal Beach overlie portions of the Coastal Plain of Orange County Groundwater Basin (DWR Basin 8–1),

which is managed by the OCWD.⁶⁹ Nourishment activities would not involve deep excavation, would work in ocean waters, sometimes where the river meets the sea or where there is an elevated ground water table obviously on the beach so no dewatering is proposed. Construction activities associated with The Program would not change the pervious condition of the stockpile and receiver sites, nor would it extract any of groundwater as it is replenishing sand on eroding beaches. Some water may be sourced from onsite for construction purposes of dust control, but water use would be temporary and is not expected to be large amounts. Water would be used as needed to prevent 'fugitive dust' from staging sites or during transport. Onsite water sources may also be required by Cal/OSHA and the California Fire Code on construction sites where fire hazards exist to avoid the spread of wildfire in the unlikely and unanticipated event that one is started by the construction equipment. The Program would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge. There would be no impact.

Avoidance, Minimization and/or Mitigation Measures

No mitigation required.

c) Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i) result in substantial erosion or siltation on- or off-site;

No Impact. The Program would place clean, compatible sand sourced from developed stockpile sites, already in use for parking or municipal storage, onto existing public beaches to restore natural sediment supply and reduce coastal erosion. However, temporary ground disturbance associated with staging, access, and sand placement could result in localized erosion or siltation. These effects would be minimized through implementation of construction SC BMPs that would be detailed in a site-specific stormwater control plan, consistent with the regulatory and permitting requirements of the Orange County Stormwater Program's Construction Runoff Guidance, Santa Ana Regional Water Quality Control Board (receiver and stockpile sites located in Seal Beach, Costa Mesa, Huntington Beach, Newport Beach, and Irvine), and San Diego Regional Water Quality Control Board (receiver and stockpile sites located in Dana Point and San Clemente).

Program activities would not alter the course of any stream or river, nor would they add impervious surfaces that would change natural drainage patterns. All work would occur within the active beach or nearshore zone, areas already subject to dynamic coastal processes. With the implementation of SC BMPs and permit conditions, The Program would not result in substantial erosion or siltation on- or off-site. Thus, there would be no impact.

Avoidance, Minimization and/or Mitigation Measures

No mitigation required.

ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;

No Impact. The Program would not increase impervious surfaces or the amount of surface flow at the receiver beaches or stockpile sites. Beach nourishment would help to protect shoreline infrastructure from flooding by increasing the distance between waves and inland structures and by providing sacrificial

⁶⁹ Orange County Water District (OCWD). 2024. *Groundwater Management Plan*. Accessed July 21, 2025. <https://www.ocwd.com/what-we-do/groundwater-management/groundwater-management-plan/>

erosional area during storm events. Impacts to the rate or amount of surface runoff that could result in flooding on or offsite would be largely beneficial since the beach nourishment activities would reduce the risk and severity of coastal flooding. Thus, The Program would have no impact.

Avoidance, Minimization and/or Mitigation Measures

No mitigation required.

iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;

No Impact. The Program would not alter existing drainage patterns, as it does not involve modification of any stream or river courses, nor would it introduce impervious surfaces that could increase runoff volumes. Beach nourishment activities would primarily involve the placement of compatible sand along the shoreline and would be designed to maintain natural hydrologic flow paths. Construction activities would be temporary and localized, and SC BMPs would be implemented to control runoff and prevent water quality impacts. Therefore, The Program would not create or contribute runoff that exceeds the capacity of existing or planned stormwater systems, nor would it result in substantial additional sources of polluted runoff. Thus, The Program would have no impact on storm drainage systems and runoff.

Avoidance, Minimization and/or Mitigation Measures

No mitigation required.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact. Activities conducted as part of The Program would not risk the release of pollutants in the event of a flood, inundation, or tsunami. Opportunistic sand used for The Program would be analyzed against a set of criteria, including chemistry, non-sand content, and debris and organic content (see Preliminary Implementation Guidelines, Appendix A; Section 4.0) to determine if it is beach compatible. Contaminated sand (exceeding human health and biological thresholds) would not be used for The Program. Thus, There would be no impact.

Avoidance, Minimization and/or Mitigation Measures

No mitigation required.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

No Impact. The use of water for The Program would be minimal, if any is needed at all. Where water is used, it would be to prevent 'fugitive dust' from staging sites or during transport. Onsite water sources may also be required by Cal/OSHA and the California Fire Code on construction sites where fire hazards exist to avoid the spread of wildfire in the event that one is started by the construction equipment. Where applicable, BMPs would be coordinated with the Santa Ana Regional Water Quality Control Board (receiver and stockpile sites located in Costa Mesa, Huntington Beach, Newport Beach, and Irvine) and San Diego Regional Water Quality Control Board (receiver and stockpile sites located in Dana Point and San Clemente). SC BMPs would include erosion and sediment control measures designed to minimize turbidity, sedimentation, and potential pollutant runoff to coastal waters.

The Program would not involve groundwater extraction or recharge activities and would not interfere with the management objectives outlined in the Orange County Groundwater Management Plan⁷⁰ or other sustainable groundwater management plans. Sand material would be tested and approved for compatibility to prevent contamination of surface or groundwater resources.

With adherence to these regulatory frameworks and implementation of required SC BMPs, The Program would not conflict with or obstruct the implementation of any water quality control plan or sustainable groundwater management plan. Thus, The Program would have no impact.

Avoidance, Minimization and/or Mitigation Measures

No mitigation required.

⁷⁰ Orange County Water District (OCWD). 2024. *Groundwater Management Plan*. Accessed July 21, 2025. <https://www.ocwd.com/what-we-do/groundwater-management/groundwater-management-plan/>

3.11 Land Use and Planning

Would The Program:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) Would the Project physically divide an established community?

No Impact. The Program may result in temporary disruption to beach access where sand nourishment construction is active, but these temporary, short-term activities would not physically divide an established community. Beach nourishment provided by The Program would provide beneficial impacts to support healthy communities by maintaining and enhancing public beaches for communities to gather and recreate. The Program would not physically divide an established community; thus, it would have no impact.

Avoidance, Minimization and/or Mitigation Measures

No mitigation required.

b) Would the Project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. The Program is designed to be consistent with all applicable local, regional, and state land use plans, policies, and regulations aimed at avoiding or mitigating environmental impacts related to coastal resource protection, habitat conservation, and public safety. It would comply with key plans and policies, including the Orange County Local Coastal Program (2018), which states that beach nourishment is the preferred method of shore stabilization in Orange County. The Program would also comply with local coastal programs (LCPs) based on applicable jurisdiction for receiver and stockpile sites (i.e., Dana Point (1991)⁷¹, Huntington Beach (2012)⁷², and Newport Beach (2018)⁷³). These LCPs are developed in accordance with the California Coastal Act and are designed to protect coastal resources, enhance public access and recreation, preserve sensitive habitats, and maintain shoreline resilience in the face of sea level rise and erosion.

The Program would not only comply with the LCPs, but it would also help advance key LCP goals by protecting coastal resources, maintaining shoreline protection and resilience, and preserving public access and

⁷¹ City of Dana Point. 1991. City of Dana Point General Plan accessed July 29, 2025 at https://www.danapoint.org/files/assets/city/v1/community-development/documents/planning/general-plan/general-plan_scanned-2019.pdf

⁷² City of Huntington Beach. 2012. City of Huntington Beach General Plan Coastal Element accessed July 29, 2025 at https://www.huntingtonbeachca.gov/departments/community_development/planning_zoning/coastal_element.php

⁷³ City of Newport Beach. 2018. City of Newport Beach Local Coastal Program Coastal Land Use Plan accessed July 29, 2025 at <https://www.newportbeachca.gov/government/departments/community-development/planning-division/general-plan-codes-and-regulations/local-coastal-program/coastal-land-use-plan>

recreation. The Program would be consistent with, and necessary to achieve, the coastal management goals and policies established in the LCPs of each jurisdiction. Thus, The Program would have no impact.

Avoidance, Minimization and/or Mitigation Measures

No mitigation required.

3.12 Mineral Resources

Would The Program:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) Would the Project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No Impact. There are two mines noted in the California Department of Conservation Mines Online Viewer located about 6.5 miles inland from the nearest Program site (stockpile site: SC.S.1 San Clemente – Avenue Vista Hermosa and Avenida La Pata), a specialty sand mine in southern San Juan Capistrano and a clay pit in unincorporated southeastern Orange County. These resources would not be impacted by The Program, as neither is included in The Program as either a stockpile or receiver site. No mineral sources of value to the community would be lost as a result of The Program because The Program consists solely of sand stockpiling and beach nourishment activities. Thus, The Program would not have an impact.⁷⁴

Avoidance, Minimization and/or Mitigation Measures

No mitigation required.

b) Would the Project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

No Impact. According to the California Geological Survey’s *Updated Mineral Land Classification Map for the Southern California Region* and respective general plans for the cities of Costa Mesa (2015)⁷⁵, Dana Point

⁷⁴ California Department of Conservation: Mines Online accessed at <https://maps.conservation.ca.gov/mol/index.html> on 12/20/2024

⁷⁵ City of Costa Mesa. 2015. 2015-2035 General Plan accessed July 29, 2025 at <https://www.costamesaca.gov/government/departments-and-divisions/economic-and-development-services/planning/general-plan/2015-2035-general-plan>

(1991)⁷⁶, Huntington Beach (2017),⁷⁷ Irvine (2000)⁷⁸, Newport Beach (2006)⁷⁹, San Clemente (2014)⁸⁰, Seal Beach (2003)⁸¹, and Orange County (2012)⁸², The Program area is not located within a zone designated for regionally or locally significant mineral resource recovery (i.e., MRZ-2 zones). The beach receiver sites consist of developed urban shorelines, recreational beaches, and parklands. The stockpile sites consist of developed park, institutional, and residential/commercial zones. No Program sites are identified in any local general or specific plans as having existing or potential mineral resource recovery uses.

Additionally, beach nourishment uses imported sand for coastal protection and public access purposes and does not involve excavation or extraction of mineral resources from designated mineral resource zones. As such, The Program would not preclude access to, or otherwise result in the loss of availability of, any locally important mineral resource recovery site. Further, the sand used for beach placement would otherwise naturally be transported to the shoreline beaches if not for manmade infrastructure such as dams and flood control channels. Thus, The Program would have no impact related to the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

Avoidance, Minimization and/or Mitigation Measures

No mitigation required.

⁷⁶ City of Dana Point. 1991. City of Dana Point General Plan accessed July 29, 2025 at https://www.danapoint.org/files/assets/city/v/1/community-development/documents/planning/general-plan/general-plan_scanned-2019.pdf

⁷⁷ City of Huntington Beach. 2017. City of Huntington Beach General Plan accessed July 29, 2025 at https://www.huntingtonbeachca.gov/departments/community_development/planning_zoning/general_plan.php#outer-741

⁷⁸ City of Irvine. 2000. City of Irvine General Plan accessed July 29, 2025 at <https://cityofirvine.org/community-development/current-general-plan>

⁷⁹ City of Newport Beach. 2006. City of Newport Beach General Plan accessed July 29, 2025 at <https://www.newportbeachca.gov/government/departments/community-development/planning-division/general-plan-codes-and-regulations/general-plan>

⁸⁰ City of San Clemente. 2014. City of San Clemente Centennial General Plan accessed July 29, 2025 at <https://www.san-clemente.org/home/showpublisheddocument/48385/638212181505430000>

⁸¹ City of Seal Beach. 2003. City of Seal Beach General Plan accessed July 29, 2025 at <https://www.sealbeachca.gov/Departments/Community-Development/Planning-Development/General-Plan>

⁸² County of Orange. 2012. County of Orange General Plan accessed July 29, 2025 at <https://ocds.ocpublicworks.com/service-areas/oc-development-services/planning-development/codes-and-regulations/general-plan>

3.13 Noise

Would The Program:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Generation of excessive ground-borne vibration or ground-borne noise levels?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) Would the Project result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less Than Significant Impact . Noises associated with The Program would be associated with temporary construction activities that would take place directly adjacent to single family and multi-family residential zones for most locations.⁸³ As such, these noises may impact local residences, businesses, and recreational users. Most of the noise generated from implementation of The Program would come from the diesel engines that power the construction equipment (i.e., dump trucks, bull dozers, loaders, and conveyor belts as needed). Noise levels from construction equipment typically ranges between 85-90 dBA at 50 feet from the engine when under a heavy load.⁸⁴ When trains are used, the anticipated noise levels for the idling trains would be between 80 – 95 dBA at 50 feet. Noise generated by construction and train idling would temporarily exceed ambient noise levels at nearby receptors. However, construction would occur only during permitted hours defined by the respective local noise ordinances (Table 3-11: Days and Times Approved for Construction by Jurisdiction).

⁸³ City of Dana Point – Community Viewer. Land Use Map. <https://danapoint.maps.arcgis.com/apps/webappviewer>. Accessed January 2, 2025;

City of Huntington Beach Zoning Map. Accessed January 3, 2025;

City of Newport Beach. Map Viewer.

https://nbgis.newportbeachca.gov/NewportHTML5Viewer/?viewer=publicsite&runWorkflow=Show_Coastal_LandUse. Accessed January 3, 2025;

City of San Clemente. Zoning Lookup Tool.

<https://sanclementeca.maps.arcgis.com/apps/instant/lookup/index.html?appid=48ff65d9ee754e36bec707ac786c652b>. Accessed January 3, 2025;

City of Seal Beach Zoning Map (Surfside).2010. <https://www.sealbeachca.gov/Portals/0/Documents/Zoning%20Map%20-%20Surfside.pdf>. Accessed January 3, 2025;

City of Seal Beach Zoning Map (Old Town & Bridgeport). 2010.

<https://www.sealbeachca.gov/Portals/0/Documents/Zoning%20Map%20-%20Old%20Town-Bridgeport.pdf>. Accessed January 3, 2025

⁸⁴ Federal Highway Administration (FHWA). *Highway Construction Noise Handbook*. Final Report. August 2006. FHWA-HEP-06-015. Available at: <https://rosap.ntl.bts.gov/view/dot/8837>

Table 3-11: Days and Times Approved for Construction by Jurisdiction

Jurisdiction	Days and Times Approved for Construction
Orange County	Monday – Saturday: 7:00 a.m. – 8:00 p.m.
City of Costa Mesa	Monday – Friday: 7:00 a.m. – 7:00 p.m. Saturday: 9:00 a.m. – 6:00 p.m.
City of Dana Point	Monday – Friday: 7:00 a.m. – 8:00 p.m.
City of Huntington Beach	Monday – Saturday: 7:00 a.m. – 8:00 p.m.
City of Irvine	Monday – Friday: 7:00 a.m. – 7:00 p.m. Saturday: 9:00 a.m. – 6:00 p.m.
City of Newport Beach	Monday – Friday: 7:00 a.m. – 6:30 p.m. Saturday: 8:00 a.m. – 6:00 p.m.
City of San Clemente	Monday – Friday: 7:00 a.m. – 6:00 p.m. Saturday: 8:00 a.m. – 6:00 p.m.
City of Seal Beach	Monday – Friday: 7:00 a.m. – 8:00 p.m. Saturday: 8:00 a.m. – 8:00 p.m.

Because construction noise is exempt from numeric noise limits during these permitted hours, The Program would not violate local noise ordinances despite temporary noise increases. Further, noise would be temporary in nature and localized, with no long-term or operational noise increase. The completed beach nourishment project would not introduce any new stationary noise sources. There would be no increase in traffic or permanent equipment associated with The Program’s operations. Therefore, no permanent increase in ambient noise would occur.

The Program would result in a temporary increase in ambient noise due to construction activities; however, construction would occur within the hours permitted by local ordinances (RCM NOI-1), and associated noise would be exempt from quantitative thresholds. No permanent noise sources would result from The Program. Adherence to RCM NOI-1 would ensure that The Program would have less than significant impact related to the generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. No project-specific mitigation would be required.

Avoidance, Minimization and/or Mitigation Measures

The following regulatory compliance measure is required:

RCM NOI-1: All construction activities, including equipment warm-up, will be limited to the hours permitted by the local jurisdiction. Unless otherwise approved in writing by the City or County (depending on the jurisdiction where construction is taking place), construction will only occur during the dates and times listed in **Error! Reference source not found.** No construction will occur on Sundays or federal holidays.

b) Would the Project result in generation of excessive ground-borne vibration or ground-borne noise levels?

Less Than Significant Impact With Mitigation. Construction activities under the purview of The Program would not include excavation, compaction, or pile driving, which are factors that can create the most significant vibrations from construction work. Activities conducted as part of The Program include transportation and placement of sand using dump trucks and earth-moving equipment, such as bulldozers, and will occur more than 25 feet away from residences and historical buildings. According to the Caltrans Transportation and

Construction Vibration Guidance Manual (2020),⁸⁵ the vibration potential from this type of equipment would range from 0.076 in/sec peak particle velocity (PPV) to 0.089 in/sec PPV at 25 ft away. These levels would not exceed the most conservative significance threshold (0.12 in/sec PPV; Table 3-12: Vibration Thresholds for Damage to Structures) that research shows may impact structure. It is also not likely that this equipment would cause architectural impacts to historical buildings as they are well below the threshold for potential vibration impacts (Table 3-12). Trains may also be used to transport sand to some locations. The vibration potential for idling trains (0.004 in/sec PPV – 0.024 in/sec PPV)⁸⁶ is well below the 0.12 in/sec PPV significance threshold for damage to buildings.

Table 3-12: Vibration Thresholds for Damage to Structures

Structure Type	Damage Potential Threshold (PPV in in/sec)
Extremely fragile historic buildings	0.12
Fragile buildings	0.20
Historic and some old buildings	0.50
Older residential structures	0.50
New residential structures	0.50
Modern industrial/commercial buildings	2.00

Source: Caltrans. *Transportation and Construction Vibration Guidance Manual*. California Department of Transportation, September 2013. Accessed July 22, 2025.

However, vibration may still be perceptible and potentially annoying to sensitive receptors (e.g., residences, schools) located within 25 feet of active construction zones. According to the Caltrans Transportation and Construction Vibration Guidance Manual (2020; Table 20, pg 38), the vibration potential from the construction equipment and the trains would be considered ‘barely perceptible.’ Therefore, vibration impacts from implementation of The Program would be less than significant.

Avoidance, Minimization and/or Mitigation Measures

The following mitigation measure is required:

MM NOI-1: Where construction activities and train idling is planned within 25 feet of occupied structures or sensitive uses, the managing entity or construction contractor will notify property owners and provide the schedule, duration and contact information for noise-related concerns.

c) For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?

Less Than Significant Impact. The North Star Beach parking lot (NB.S.1) would serve as a stockpile site in the City of Newport Beach and is located at the southern perimeter of the Land Use Plan area for John Wayne Airport. West Seal Beach (SB.1) and East Seal Beach (SB.2) receiver site locations are on the periphery of the Joint Forces Training Base in Los Alamitos.⁸⁷ The presence of trucks and construction with earth-moving equipment may increase noise in the area, but the noise would be short-term and temporary. All construction

⁸⁵ Caltrans. 2020. Transportation and Construction Vibration Guidance Manual. <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tcvgm-apr2020-a11y.pdf>

⁸⁶ International Union of Railways. 2017. Railway Induced Vibration: State of the Art Report. Accessed July 22, 2025. Railway induced vibration - State of the art report

⁸⁷ Airport Land Use Commission for Orange County Airport Planning Areas, Figure 1. 2007. https://files.ocair.com/media/2021-02/airportlu_20200604.pdf?VersionId=cMd6uGpbgOWGd3jMOS6TPJF3y5nMyA7F, Accessed December 16, 2024

activities conducted under the purview of The Program would be in compliance with local noise ordinances and policies. Thus, The Program would have less than significant impact.

Avoidance, Minimization and/or Mitigation Measures

No mitigation required.

3.14 Population and Housing

Would The Program:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Induce substantial upland population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) Would the Project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

No Impact. The Program would nourish eroding beaches to maintain their value to natural and human communities. It would not result in the development of new homes, businesses, roads, or infrastructure. The Program would not induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure). Thus, The Program would have no impact.

Avoidance, Minimization and/or Mitigation Measures

No mitigation required.

b) Would the Project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. The scope of The Program is to store, transport, and place sand on already disturbed public beaches and stockpile sites. There would be no new infrastructure, development, or construction activities that would displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere. Thus, The Program would have no impact.

Avoidance, Minimization and/or Mitigation Measures

No mitigation required.

3.15 Public Services

Would The Program:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:				
i) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
v) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services?

i) Fire protection

Less Than Significant Impact. The transport of sand may increase traffic along the haul routes (see Table 2-7: Construction and Transportation Information for Receiver Locations) that could impact emergency response times, but these impacts would be temporary. All activities conducted under the purview of The Program would be in compliance with state and local regulations, including the development of traffic plans, if required by the local municipality, to keep emergency routes clear. Thus, no additional or altered fire facilities would be required as a result of The Program. Thus, The Program impact would be less than significant.

Avoidance, Minimization and/or Mitigation Measures

No mitigation required.

ii) Police protection

Less Than Significant Impact. Typical construction activities, such as those that would be conducted as part of The Program does not require police services. The transport of sand may increase traffic along the haul routes (see Table 2-7: Construction and Transportation Information for Receiver Locations) that could impact police response times in the event of an emergency, but with these impacts would be temporary.

All activities conducted under the purview of The Program would be in compliance with state and local regulations, including the development of traffic plans, if required by the local municipality, to keep emergency routes clear. Thus, no additional or altered police facilities would be required as a result of The Program. Thus, the impact would be less than significant.

Avoidance, Minimization and/or Mitigation Measures

No mitigation required.

iii) Schools

No Impact. As previously stated, The Program involves temporary construction activities associated with storing, transporting, and placing sand on eroding beaches. These activities would not include growth inducing developments, such as homes, businesses, roads, or other infrastructure. Therefore, no addition of or altering of schools would be required as a result of The Program. Thus, there would be no impact.

Avoidance, Minimization and/or Mitigation Measures

No mitigation required.

iv) Parks

Less Than Significant Impact. The Program would enhance public parks by replenishing sand on eroding beaches that are not being naturally replenished. Temporary closures may occur as a result of construction to place the sand for safety reasons, however these closures would be short-term, allow access to surrounding areas, and occur no more than once every one to five years, depending on sand availability and other factors that will affect timing of sand placement. The temporary closures for construction would not necessitate the development of new parks, and the ultimate result of The Program would be maintained or enhanced recreational value provided by the public beaches. Therefore, The Program would have less than significant impact.

Avoidance, Minimization and/or Mitigation Measures

No mitigation required.

v) Other public facilities

Less Than Significant Impact Additional resources for traffic control and construction processes are required including measures for addressing Lifeguards ability to provide important public safety services. In most cases, lifeguard services would remain active during construction, but services could be interrupted by placement of sand on the beaches. Project managers would plan accordingly to provide increased pedestrian assistance with construction traffic control. Obstruction of the line-of-site for lifeguards could be a temporary but significant impact as the result of The Program. SC PS-1 would be implemented to avoid blocking line-of-sight to the ocean at lifeguard towers and SC PS-2 would temporarily relocate mobile lifeguard towers during construction. With the implementation of SCs PS-1 and PS-2, temporary interruptions to lifeguard services would have a less than significant impact.

Avoidance, Minimization and/or Mitigation Measures

The following standard conditions are required:

SC PS-1: Construction equipment will not block line-of-sight to the ocean at lifeguard towers. Sight lines from the viewing platforms of the lifeguard towers will be maintained and there will be no interference with views for the lifeguards.

SC PS-2: Mobile lifeguard towers will be temporarily relocated during construction to maintain public safety (only if relocation is necessary to conduct sand placement construction activities).

3.16 Recreation

Would The Program:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Does the Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

a) Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Less Than Significant Impact. There would be no construction of infrastructure that would induce growth or accelerate the use of the public beaches such that substantial physical deterioration would occur or be accelerated as a result of increased use. The Program would maintain or enhance the recreational value of the beaches in Orange County as it will nourish beaches that are currently eroding with little to no natural sand replenishment. Thus, there would be less than significant impact.

Avoidance, Minimization and/or Mitigation Measures

No mitigation required.

b) Does the Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

Less Than Significant Impact With Mitigation. The Program would maintain or enhance the recreational value of the beaches in Orange County as it will nourish beaches that are currently eroding with little to no natural sand replenishment. There will be no construction of infrastructure that would induce growth or accelerate the use of the public beaches such that substantial physical deterioration would occur or be accelerated as a result of increased use. However, the beach nourishment activities under The Program could result in temporary closures or physical changes that could result in temporary impacts to the environment and recreational uses. Those impacts are described below.

Temporary Closures: The beaches where the sand placement construction activities will take place are important areas for recreational activities (e.g., sunbathing, surfing, jogging/running, swimming) that serve local residents, as well as visitors from within and outside of the County. Construction would require temporary closures during sand placement that could result in temporary loss of recreational opportunities. However, these activities would ultimately maintain or enhance the recreational value of the beaches. The following mitigation measures would be implemented to maintain safe public access to the beaches for recreation in locations surrounding construction areas and reduce the impact to less than significant:

MM REC-1: Should a pipeline be used for sand placement, the pipeline will be covered with sand or other suitable mat material as needed at intervals to create walkover areas to facilitate public beach and water access.

MM REC-2: Public access to beaches and the ocean will be maintained adjacent to active sand placement area as long as public safety is not compromised.

Temporary changes to beach profiles: Scarps, or escarpments (steep or vertical drop-offs in the sand), develop naturally along sandy beaches. Substantial changes in beach profile, such as those that may occur as a result of the beach nourishment activities performed under The Program, can impact the height of these formations. Large scarps could pose a safety hazard due to substantial elevation changes in beach profiles and result in potentially significant temporary impacts. The following mitigation measures would be implemented to reduce the impact to less than significant:

MM REC-3: Signs will be posted advising the public of the presence of steep sand slopes (e.g., scarps) should they develop on beaches where sand has been placed.

PGM REC-4: Potentially dangerous scarps that may form after sand placement will be knocked down/layed back/graded by the beach managing entity.

Surfing: Surfing is a popular and important activity along many of the beaches that would receive sand under The Program. Localized sand movement and sandbar development, from both natural shoreline processes and beach nourishment, can impact wave breaking conditions and surfing conditions. The placement of sand for beach nourishment purposes that would be conducted with The Program could thus affect surfing. However, based on historic surfing monitoring, the limited volume of sand to be placed at any one time or location, and given the source material would need to be compatible with the receiving beach sand, changes to surfing conditions are expected to be only temporary, if any. Over the longer term, conditions would be restored as the placed sand disperses along the shoreline and offshore and an equilibrium beach profile is established. Temporary beach closures due to active construction would not preclude surfing in the area outside of the active construction area such as if dredged source material was placed. The placement of sand that would be conducted by the Program for the purposes of beach nourishment would not cause substantial losses of local surfing opportunities and could ultimately improve surfing conditions on eroded beaches with steepened slopes. The Program would require monitoring of surf conditions when specific criteria (e.g., sand volume) are triggered. The monitoring data would be used to inform future beach placement activities to avoid impacts to surf conditions.

Avoidance, Minimization and/or Mitigation Measures

The following mitigation and guideline measures are required:

MM REC-1: Should a pipeline be used for sand placement, the pipeline will be covered with sand or other suitable mat material as needed at intervals to create walkover areas to facilitate public beach and water access.

MM-REC-2: Public access to beaches and the ocean will be maintained adjacent to active sand placement area as long as public safety is not compromised.

MM REC-3: Signs will be posted advising the public of the presence of steep sand slopes (e.g., scarps) should they develop on beaches where sand has been placed.

PGM REC-4: Potentially dangerous scarps that may form after sand placement will be knocked down/layed back/graded by the beach managing entity.

3.17 Transportation

Would The Program:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) Would the Project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit roadway, bicycle and pedestrian facilities?

No Impact. The Program would involve transporting sand from stockpile sites to receiver beaches using trucks and equipment along designated haul routes (see Table 2-7: Construction and Transportation Information for Receiver Locations). Temporary and localized traffic increases may occur during nourishment events but would not result in long-term impacts to circulation systems.

The Cities of Dana Point; Huntington Beach; Irvine; Newport Beach; San Clemente; Seal Beach; and Orange County all have circulation and mobility elements in their respective general plans.⁸⁸ The Program is consistent with circulation goals identified in the local circulation plans, which emphasize safe and efficient multimodal transportation. Plan goals include minimizing construction impacts, preserving beach access, and supporting complete streets policies. All activities would comply with local and regional circulation plans through implementation of traffic control measures (per CCR Section 21400 and 21401 and CCR Sections 1598 and 1599), to ensure safe, temporary access for vehicles, bicyclists, and pedestrians during construction.

⁸⁸ City of Dana Point. 1991. General Plan: Circulation Element. Accessed July 25, 2025 at https://www.danapoint.org/files/assets/city/v1/community-development/documents/planning/general-plan/general-plan_scanned-2019.pdf
 City of Huntington Beach. 2017. General Plan: Circulation Element. Accessed July 25, 2025 at https://cms3.revize.com/revize/huntingtonbeachca/Documents/Departments/Community%20Development/Planning%20Zonning/General%20Plan/Generalplan/Circulation_Element.pdf
 City of Irvine. 2022. General Plan: Circulation Element. Accessed July 25, 2025 at <https://legacy.cityofirvine.org/civica/filebank/blobdload.asp?BlobID=35716>
 City of Newport Beach. 2022. General Plan: Circulation Element. Accessed July 25, 2025 at <https://legacy.cityofirvine.org/civica/filebank/blobdload.asp?BlobID=35716>
 City of San Clemente. 2014. Centennial General Plan: Mobility & Complete Streets Element. Accessed July 25, 2025 at <https://www.san-clemente.org/home/showpublisheddocument/47962/637787021885030000>
 City of Seal Beach. 2003. General Plan: Circulation Element. Accessed July 25, 2025 at <https://www.sealbeachca.gov/Portals/0/Documents/Circulation%20Element.pdf>
 County of Orange. 2025. General Plan: Transportation Element. Accessed July 25, 2025 at <https://ocds.ocpublicworks.com/sites/ocpwoods/files/2025-05/Chapter%20IV%20Transportation%20Element%20May%202025.pdf>

Construction impacts would be temporary and would not result in permanent changes to roadways or circulation. Operationally, there would be no impact from the replenished beaches as they are not anticipated to facilitate growth or increase the number of beach goers that would contribute to traffic and circulation impacts. The Program would not interfere with bicycle or pedestrian networks. Thus, The Program would result in no impact related to conflicts with applicable circulation policies or plans.

Avoidance, Minimization and/or Mitigation Measures

No mitigation required.

b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

No Impact. Construction-related vehicle trips associated with The Program would be temporary and short-term in duration. Activities would include hauling sand from designated stockpile sites to the nourishment area, as well as equipment transport and worker commute trips. These activities would generate vehicle trips over the construction period, primarily consisting of heavy-duty trucks, haul vehicles, and a limited number of worker vehicles. A maximum of approximately 160 truck trips per day would be generated during a nourishment event conducted under The Program, which would occur once every 1 to 5 years (the maximum truck trip estimate is based on 300,000 cy of sand; see Table 2-8: Truck Trips). While nourishment activities may occur every 1-5 years, each nourishment activity under The Program would be temporary. Impacts from The Program's construction vehicle use are assessed under the air quality and greenhouse gas impact sections of this document (see 3.3 Air Quality and 3.8 Greenhouse Gas Emissions). There would be no operational vehicle use or growth-inducing activities that might increase operational vehicle use.

Pursuant to CEQA Guidelines Section 15064.3(b)(3), construction traffic may be evaluated qualitatively when existing VMT models are not appropriate. In this case, quantitative operational VMT analysis is not appropriate because traffic generated by The Program is only associated with construction, is temporary, would cease upon completion of construction, and would not result in a long-term change in vehicle travel patterns. The Program would not induce new permanent vehicle travel, nor would it alter land use patterns or transportation infrastructure in a manner that would increase long-term VMT.

Given the temporary nature of construction activities and the absence of long-term VMT generation, construction-related VMT would not result in a significant transportation impact under CEQA. The Program would have no impact in relation to conflict or consistency with CEQA Guidelines Section 15064.3, subdivision (b).

Avoidance, Minimization and/or Mitigation Measures

No mitigation required.

c) Would the Project substantially increase hazards due to a geometric design feature (e.g., sharp curves of dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less Than Significant Impact With Mitigation. The presence of trucks and construction equipment may result in a temporary increase in hazards along haul routes and beaches during construction due to the proximity of people and equipment. All contractors operating under the purview of The Program would be required to implement safety measures, such as developing Traffic Control Plans to reduce the risk of safety conflicts between construction activities and the public (RMC TRA-1). Implementation of MM REC-1 would maintain safe public access to beaches surrounding active construction areas by separating the public from equipment hazards during construction. Because of the short-term, temporary nature of the construction and the required implementation of traffic control plans, potential impacts resulting from The Program would be less than significant with the implementation of RCM TRA-1 and MM REC-1.

Avoidance, Minimization and/or Mitigation Measures

The following regulatory compliance and mitigation measures are required:

RCM TRA-1: Prior to the start of any construction activity that will affect public roadways, the Contractor will prepare and implement a site-specific Traffic Control Plan (TCP) in accordance with local and state requirements (California Vehicle Code Section 21400 and 21401; California Code of Regulations Sections 1598 and 1599).

MM REC-1: Should a pipeline be used for sand placement, cover the pipeline with sand or other suitable mat material as needed at intervals to create walkover areas to facilitate public beach and water access.

d) Would the Project result in inadequate emergency access?

Less Than Significant Impact. Construction activities under The Program would include the transport and placement of sand to replenish eroding beaches. Per Caltrans (California Vehicle Code Section 21400 and 21401) as applicable, and Cal/OSHA (California Code of Regulations Sections 1598 and 1599), traffic control plans and flaggers are required for any construction that would impact traffic flow or safety (RCM TRA-1). These traffic plans are required to address any potential impacts to emergency access and evacuation routes when construction activities impact public rights-of-way. Any construction activities conducted under The Program would be required to operate in accordance with these regulations and the state and local emergency plans. Thus, The Program would have less than significant impact with compliance to regulations requiring traffic control plans in areas where construction activities would impact public rights-of-way, as required by RCM-TRA-1, included. Thus, The Program would have less than significant impact.

Avoidance, Minimization and/or Mitigation Measures

The following regulatory compliance measure is required.

RCM TRA-1: Prior to the start of any construction activity that will affect public roadways, the Contractor will prepare and implement a site-specific Traffic Control Plan (TCP) in accordance with local and state requirements (California Vehicle Code Section 21400 and 21401; California Code of Regulations Sections 1598 and 1599).

3.18 Tribal Cultural Resources

Would The Program:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the Project cause a substantial adverse change in the significance of a Tribal Cultural Resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Would the Project cause a substantial adverse change in the significance of a Tribal Cultural Resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1 for the purposes of this paragraph, the lead agency will consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) Would the Project cause a substantial adverse change in the significance of a Tribal Cultural Resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

Less Than Significant Impact. Pursuant to the requirements of Assembly Bill (AB) 52 and PRC Section 21080.3.1, OCPW sent notification letters to California Native American tribes traditionally and culturally affiliated with The Program area. The required notification period ended on May 7, 2025, and no tribes requested consultation under AB 52.

The Program consists of periodic beach nourishment activities within previously disturbed or developed coastal zones where sand would be placed on receiver sites and placed or removed from stockpiles at receiver sites. There would be no excavation or other ground disturbing activities. Given that there would be no ground disturbing activities and the disturbed status of The Program locations, the potential for encountering previously unidentified tribal cultural resources is low.

Although unlikely, if previously unknown tribal cultural resources are encountered during project construction, work in the immediate vicinity would be halted and appropriate procedures followed pursuant to PRC Section

21083.2 and Section 21084.3, including notification of the Native American Heritage Commission and any affiliated California Native American tribes, if applicable (SC CUL-1). Therefore, with the implementation of SC CUL-1 The Program would not cause a substantial adverse change in the significance of a tribal cultural resource, and impacts would be less than significant.

Avoidance, Minimization and/or Mitigation Measures

Adherence to the following standard condition is required by The Program:

SC CUL-1: If an archaeological resource is found, it will be examined by a Qualified Archaeologist. If it is determined by the Qualified Archaeologist to be indigenous in nature, a Native American representative will be consulted. If the Qualified Archaeologist determines the resource to be significant, avoidance and preservation in place will be the preferred manner of mitigating impacts pursuant to 15126.4(b)(3)(A). If avoidance is determined to be infeasible, the Qualified Archaeologist will prepare a data recovery and treatment plan tailored to the physical nature and characteristics of the resource. The data recovery plan will identify data recovery excavation methods, research questions, measurable objectives, and data thresholds to reduce any potential significant impacts to the resource. The resulting documentation will be submitted to the regional repository of the California Historical Resources Information System (CHRIS).

b) Would the Project cause a substantial adverse change in the significance of a Tribal Cultural Resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

No Impact. In accordance with PRC Section 21080.3.1, OCPW provided notification to California Native American tribes traditionally and culturally affiliated with The Program area. No tribes requested formal consultation within the statutory timeframe.

The Program involves beach nourishment activities in highly disturbed coastal areas historically subject to natural and anthropogenic modification. Program construction is limited to the transport of sand, placement of sand on receiver sites, and placement or removal of sand from stockpiles at stockpile sites. There would be no excavation, grading, or other ground disturbing activities. Based on the absence of tribal consultation requests, the existing disturbed nature of The Program footprint, and the lack of ground disturbing activities, OCPW finds no substantial evidence that The Program would cause an adverse change to a tribal cultural resource considered significant under PRC Section 5024.1(c).

Should previously unidentified tribal cultural resources be encountered during construction, appropriate measures would be taken consistent with applicable laws and procedures (i.e., PRC Sections 21083.2 and 21084.3), including coordination with Native American tribes if warranted. The Program would have no impact on tribal cultural resources under this criterion.

Avoidance, Minimization and/or Mitigation Measures

No mitigation required.

3.19 Utilities and Service Systems

Would The Program:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a determination by the wastewater treatment provider which serves or may serve the Project that it has adequate capacity to serve the Project's Projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) Would the Project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

No Impact. The Program involves stockpiling, transporting, and placing sand to nourish eroding beaches. It would not require or result in the relocation of existing water, wastewater treatment, storm water drainage, electric power, natural gas, or telecommunications facilities. Construction activities may require some access to existing sources of electricity or water, but these requirements would be temporary and typical of similar construction activities, and would not require the installation of new or extensions of existing infrastructure. Thus, The Program would have no impact on the environment stemming from relocation or construction of utilities and service systems.

Avoidance, Minimization and/or Mitigation Measures

No mitigation is required.

b) Would the Project have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years?

No Impact. Construction activities conducted as part of this proposed Program may require some access to water, but these requirements would be minimal and temporary (i.e., once every 1-5 years in most locations and annually at a few high need locations if it is available). Water would be used as needed to prevent 'fugitive dust' from staging sites or during transport. Onsite water sources may also be required by Cal/OSHA and the

California Fire Code on construction sites where fire hazards exist to avoid the spread of wildfire in the event that one is started by the construction equipment. The need for onsite water sources can and in most cases would be served by a water truck on site, and would not require access to or use of groundwater supplies or imported water supplies. There would be no need for additional water beyond temporary construction, as The Program involves the transport and placement of sand to nourish eroding beaches. The Program would have no need for, and no impact to water supplies during normal, dry, and multiple dry years. Thus, The Program would have no impact to water supplies during normal, dry, and multiple dry years.

Avoidance, Minimization and/or Mitigation Measures

No mitigation required.

c) Would the Project result in a determination by the wastewater treatment provider which serves or may serve the Project that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?

No Impact. The Program would transport and place sand to nourish eroding beaches. Minimal water would be used to prevent 'fugitive sand' from escaping during transportation and potentially to meet Cal/OSHA and the California Fire Code requirements on construction sites where fire hazards exist to avoid the spread of wildfire in the event that one is started by the construction equipment. There is no infrastructure or water use beyond the construction phase. The Program would not generate wastewater or a need for wastewater treatment. Therefore, no change would be required to the demand in addition to the wastewater treatment provider's existing commitments. The Program would have no impact regarding wastewater treatment resources and demand.

Avoidance, Minimization and/or Mitigation Measures

No mitigation required.

d) Would the Project generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

No Impact. The Program would not include the demolition or construction of new facilities. Construction activities are limited to the transportation and placement of sand. The Program would not generate solid waste. Thus, The Program would have no impact on the attainment of solid waste reduction goals.

Avoidance, Minimization and/or Mitigation Measures

No mitigation is required.

e) Would the Project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

No Impact. The Program would stockpile, transport, and place sand to replenish eroding beaches. It would not require the demolition or construction of new facilities and would not generate solid waste. The Program would reduce the amount of solid waste by repurposing sand for beneficial reuse in beach nourishment projects. Thus, The Program would have no adverse impact on the attainment of solid waste reduction goals. Therefore, this proposed Program would have no impact.

Avoidance, Minimization and/or Mitigation Measures

No mitigation is required.

3.20 Wildfire

Would The Program:

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project Substantially impair an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. Some stockpile and receiver sites are located in fire hazard severity zones designated by CalFire (Table 3-13: Program Locations in Fire Hazard Severity Zones). Orange County its incorporated cities—including Huntington Beach, Newport Beach, Costa Mesa, and Irvine—maintain comprehensive emergency management frameworks aligned with the California Standardized Emergency Management System (SEMS) and the National Incident Management System (NIMS). Each jurisdiction has adopted an Emergency Operations Plan (EOP) and/or Local Hazard Mitigation Plan (LHMP),⁸⁹ which identify emergency evacuation routes, coordination strategies, and hazard-specific response protocols, including

⁸⁹ City of Dana Point. 2025. Local Hazard Mitigation Plan. Accessed on July 24, 2025 at <https://www.danapoint.org/files/assets/city/v/2/general-services/documents/2025-dana-point-lhmp-final.pdf>

City of Huntington Beach. 2022. Accessed on July 24, 2025 at <https://cms3.revize.com/revize/huntingtonbeachca/Documents/Departments/Fire/Our%20Community%20and%20Risk%20Reduction/Emergency%20Management/HB%202022%20LHMP%20City%20Council%20Adopted.pdf>

City of Irvine. 2020. Local Hazard Mitigation Plan. Accessed on July 24, 2025 at <https://cityofirvine.org/2025-local-hazard-mitigation-plan-update#:~:text=The%20LHMP%20allows%20public%20safety%20officials%20and%20city,to%20proactively%20decrease%20these%20threats%20before%20disasters%20occur.>

City of Newport Beach. 2022. Emergency Operations Plan. Accessed July 24, 2025 at <https://www.newportbeachca.gov/home/showpublisheddocument/72743/638059324946730000>

City of Newport Beach. 2016. Hazard Mitigation Plan. Accessed July 24, 2025. <https://ecms.newportbeachca.gov/WEB/DocView.aspx?id=2867550&dbid=0&repo=CNB>

wildfires. Dana Point, San Clemente, and Seal Beach are in the process of approving draft LHMPs. Additionally, Orange County has a multi-jurisdictional Hazard Mitigation Plan that addresses fire hazards in the County, including unincorporated areas.⁹⁰

Table 3-13: Program Locations in Fire Hazard Severity Zones⁹¹

Location ID	Location	Fire Hazard Zone
California State Parks		
CA.1	Bolsa Chica State Beach	Moderate/High
CA.3	Crystal Cove State Park	Moderate/High/Very High
Orange County Parks and Public Works		
OC.2	Salt Creek Beach	Moderate
OC.S.3	Audubon Basin (within City of Irvine)	Very High
City of Huntington Beach		
HB.1	Sunset Beach	Moderate/High
HB.2	Huntington Harbour Beaches	Moderate/High
City of San Clemente		
SC.S.1	Lot at Avenue Vista Hermosa and Avenida La Pata, San Clemente	Moderate/High/Very High

Construction activities under The Program would include the transport and placement of sand to replenish eroding beaches. Per Caltrans (California Vehicle Code Section 21400 and 21401) as applicable, and Cal/OSHA (California Code of Regulations Sections 1598 and 1599), traffic control plans and flaggers are required for any construction that would impact traffic flow or safety (RCM TRA-1). These traffic plans are required to address any potential impacts to emergency access and evacuation routes when construction activities impact public rights-of-way. Any construction activities conducted under The Program would be required to operate in accordance with these regulations and the state and local emergency plans. Thus, with the implementation of RCM TRA-1 The Program would not substantially impair an adopted emergency response plan or emergency evacuation plan in very high fire hazard severity zones. The Program would have less than significant impact.

Avoidance, Minimization and/or Mitigation Measures

The following regulatory compliance measure is required:

RCM TRA-1: Prior to the start of any construction activity that will affect public roadways, the Contractor will prepare and implement a site-specific Traffic Control Plan (TCP) in accordance with local and state requirements (California Vehicle Code Section 21400 and 21401; California Code of Regulations Sections 1598 and 1599).

⁹⁰ County of Orange and Orange County Fire Authority. 2021. Local Hazard Mitigation Plan. Accessed on July 24, 2025. <https://www.ocsheriff.gov/sites/ocsd/files/2022-03/2021%20County%20of%20Orange%20and%20Orange%20County%20Fire%20Authority%20Local%20Hazard%20Mitigation%20Plan.pdf>

⁹¹ Cal Fire. 2022. *Fire Hazard Severity Zone Maps (State Responsibility Area and Local Responsibility Area)*. November 21 2022 edition. CAL FIRE, Sacramento, CA. Accessed July 24, 2025

b) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, due to slope, prevailing winds, and other factors, would the Project exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Less Than Significant Impact. The Program would stockpile, transport, and place sand for the purposes of beach nourishment. Beach environments where the majority of these activities would take place are damp and sandy, with minimal to no vegetation. These conditions are not generally susceptible to fires, nor would the contemplated activities of The Program provide conditions that would exacerbate wildfire risks. The use of standard construction equipment would be necessary to place the sand on the beaches, but fire risks associated with this equipment is low. Construction equipment used to nourish beaches under The Program would require contractors to comply with fire codes, carry fire suppression equipment on board or at the worksite, onsite training in appropriate responses to accidental fires (RCM HAZ-1) and fuels and flammable materials would be stored at least 50 feet away from vegetation and brush in containers per California Fire Code Sections 5704 and 5706 requirements (SC HAZ-1). These standard construction procedures would greatly reduce the risk of fires spreading if a fire is sparked by construction. Thus, The Program would have less than significant impact.

Avoidance, Minimization and/or Mitigation Measures

The following regulatory compliance measure and standard conditions are required:

RCM HAZ-1: All Program locations will comply with the California Fire Code (Title 24, California Code of Regulations [CCR], Part 9) and the Cal/OSHA Construction Safety Orders for fire prevention (Title 8, CCR, Section 6777). The construction contractor will implement all applicable fire prevention and suppression measures, including maintaining fire suppression equipment on-site and training construction personnel in fire safety procedures. Compliance will be verified by the construction manager through regular site inspections during active construction.

SC HAZ-2: Fuels, oils, and other flammable materials will have secondary containment measures and will not be stored onsite. Storage should comply with California Fire Code Sections 5704 and 5706.

c) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

No Impact. Some receiver and stockpile sites are located within high fire hazard severity zones (Table 3-13: Program Locations in Fire Hazard Severity Zones). Activities associated with the Program would include storage, transportation, and placement of sand for beach nourishment purposes. The Program would not include the installation or maintenance of any infrastructure, and therefore no increased or exacerbated risk of fire as a result. Thus, there would be no impact.

Avoidance, Minimization and/or Mitigation Measures

No mitigation required.

d) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Less Than Significant Impact. Some of The Program sites are located in high fire hazard severity zones (Table 3-13: Program Locations in Fire Hazard Severity Zones). The Program proposes to replenish eroding beaches with sand from various sources. The sand would be transported from the source or stockpile sites and placed on the beaches. The replenished beaches would reduce the risk of flooding to nearby residences and shoreline infrastructure by providing a natural pervious barrier between the Pacific Ocean and structures where wave runup is reduced before reaching inland structures. In this way, The Program would actually decrease the likelihood of some inland structures flooding during a storm event causing higher than average tides, but would have no impact on downslope or downstream flooding or landslides. Sand placed on beaches would not result in exposing people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes, thus impacts would be less than significant.

Avoidance, Minimization and/or Mitigation Measures

No mitigation required.

3.21 Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Does the Project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the Project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a Project are considerable when viewed in connection with the effects of past Projects, the effects of other current Projects, and the effects of probable future Projects.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

a) Does the Project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less Than Significant Impact With Mitigation: The Program will place sand along the shoreline to restore eroded beach areas. Temporary impacts could occur to onshore and nearshore habitats, benthic organisms, shorebirds, and special-status species from sand placement, construction activity, and increased turbidity. Biological surveys (Merkel & Associates, 2025) identified potential for special-status species (e.g., California least tern, western snowy plover, California grunion) and sensitive habitats (e.g., eelgrass beds) in the areas included in The Program. PGM BIO-1 through PGM BIO-8, and MM BIO-1 and MM BIO-2 require pre-construction surveys, biological monitoring, exclusion buffers, turbidity controls, and work restrictions during sensitive bird nesting or grunion spawning periods (see 3.4 Biological Resources).

Sand placement under The Program would occur on previously disturbed areas such as beaches and stockpile sites. The San Clemente Pier is a historical structure within a Program beach receiver site, however The Program is not expected to cause vibration or other effects that could damage it. Placement of sand may enhance shoreline protection around historical resources, including piers and shoreline structures, further reducing potential impacts. Impacts to historical resources are less than significant (see 3.5 Cultural

Resources). Thus, The Program would have no impact on important examples of the major periods of California's history or prehistory.

The Program's activities are limited to surface disturbance in previously disturbed areas and would not include any ground disturbance. In the unlikely event that archaeological resources are discovered, a qualified archaeologist would assess the findings, consult with Native American representatives as appropriate, and implement avoidance, preservation in place, or a data recovery plan to mitigate impacts (SC CUL-1). With implementation of these measures, impacts to archaeological resources, including those that may be relevant to the major periods of California's history or prehistory, are less than significant with mitigation (see 3.5 Cultural Resources).

With mitigation incorporated, The Program would not substantially degrade environmental quality, reduce habitat for fish or wildlife species, cause population declines, threaten plant or animal communities, reduce the range of a rare or endangered species, or eliminate important examples of California history or prehistory.

Avoidance, Minimization and/or Mitigation Measures

The following program compliance, standard condition, and mitigation measures are required:

PGM BIO-1: At the stockpile site OC.S.4 (Audubon Basin), in order to avoid impacts to paniculate tarplant, a sensitive species, a survey will be performed by a qualified biologist prior to any sand storage. If found, any paniculate tarplant will be fenced off with ribbon or yellow rope and t-posts and stockpiling and construction activities should be avoided in the fenced-off area.

PGM BIO-2: Sensitive bird species monitoring will be implemented if sand placement is anticipated to occur during the California least tern or Western snowy plover nesting seasons on beach receiver sites with the potential for least tern or snowy plover nesting. Sensitive bird species monitoring will also occur if sand placement will occur during the snowy plover overwintering season on beach receiver sites with the potential for snowy plover overwintering. The monitoring protocol will be approved by the applicable regulatory agencies prior to permit issuance. The protocol is anticipated to include pre-construction surveys, recurring surveys, the establishment of buffers, and the authority to halt work to avoid or minimize impacts.

PGM BIO-3: Grunion monitoring will be implemented for any beach nourishment event occurring within the spawning season (per the CDFW published grunion spawning schedule for the year of the placement event) on any sandy beach where spawning could potentially occur and with sand placement or equipment access seaward of the MHTL. Regulatory agencies will be notified of monitoring events. Any deviations from the monitoring protocols in the Implementation Guidelines will require agency approval.

PGM BIO-4. Turbidity monitoring will be implemented to avoid significant impacts to water quality if sand placement is seaward of the MHTL and in accordance with the scale of the nourishment event and percentage of fines in the source material. If the turbidity monitoring staff determines ocean water quality thresholds are exceeded, they have the authority to halt sand placement until water quality is restored. Regulatory agencies will be notified of monitoring events. Any deviations from the monitoring protocols in the Implementation Guidelines will require agency approval.

PGM BIO-5: At site OC.S.4 Audubon Basin, in order to avoid impacts to adjacent native habitats and/or downstream aquatic jurisdictional resources a buffer large enough to install, maintain, and inspect stockpile BMPs will be established between any stockpiled soil and the sides of the maintenance road and basin spillway/overflow channel that drains to native riparian habitat.

To avoid impacts to the Greenville-Banning Channel, the cement lined channel adjacent to site OC.S.2 D03 D/S California at E01 Bike Trail, a buffer large enough to install, maintain, and inspect stockpile BMPs will be established between any stockpiled soil and the edge of the maintenance road adjacent to the channel.

To avoid impacts to open water and salt marsh habitats in the Bolsa Chica/Westminster Channel adjacent to stockpile site OC.S.1 C02/C04 Confluence, a buffer large enough to install, maintain, and inspect stockpile BMPs will be established between any stockpiled soil and the hinge point of the adjacent channel. The triangular portion of this site will only be used for stockpile storage of sediment with less than 35% fines if stored over the wet season.

PGM BIO-6: If sand placement occurs in the vicinity of known surfgrass, kelp, or hard (rocky) substrate (habitat of particular concern), monitoring of that habitat will occur in accordance with the sand placement scale and proximity to the surfgrass, kelp or hard (rocky) substrate. The monitoring protocol will be approved by the applicable regulatory agencies prior to permit issuance.

PGM BIO-7: If sand placement occurs in the vicinity of known or potential eelgrass, monitoring of eelgrass will occur in accordance with the California Eelgrass Mitigation Policy (CEMP) (NOAA 2014, or most up-to-date policy).

PGM BIO-8: Tidal inlet monitoring that typically occurs, may need to be increased or rescheduled appropriately following implementation of sand placement events that have the potential to impact tidal inlets to coastal marshes to ensure that nourishment events do not result in significant impacts to tidal exchange considering the scale of the nourishment event and distance to the tidal inlet, and approved by the applicable regulatory agencies prior to permit issuance.

MM BIO-1: At stockpile sites, to avoid direct impacts to migratory birds and/or raptor active nests protected under the federal MBTA and CFG Code Sections 3503 and 3513, removal of stockpiled material that supports active nests within The Program's impact area should occur outside of the breeding season for applicable species, as far as is reasonably feasible. Where removal during the nesting season is unavoidable, a suitably qualified biologist will conduct nesting bird surveys prior to commencement. If nesting birds are identified, the biologist will implement a suitable buffer zone around the nest(s) and a biological monitor would be on site daily to ensure that adverse impacts to the sensitive resource do not occur.

MM BIO-2: Placement of sand within each stockpile site will be located to the greatest extent possible within relatively flat terrain that is not in close proximity to and does not slope toward a sensitive biological resource such as a jurisdictional aquatic resource or native habitat. Stockpiles not scheduled to be utilized within 14 days of placement will be considered non-active and the following protective measures will be implemented:

- Temporary perimeter sediment barriers such as compost-filled wattles temporary silt dykes, biodegradable fiber rolls, burlap sandbags/, gravel bags, or biofiltration bags will be installed to provide erosion and sediment control and to protect the stockpile from wind and rain.
- Only biodegradable materials should be used for stockpile BMP protection, Any non-biodegradable BMP will be maintained and removed when no longer necessary.

SC CUL-1: If an archaeological resource is found, it will be examined by a Qualified Archaeologist. If it is determined by the Qualified Archaeologist to be indigenous in nature, a Native American representative will be consulted. If the Qualified Archaeologist determines the resource to be significant, avoidance and preservation in place will be the preferred manner of mitigating impacts

pursuant to 15126.4(b)(3)(A). If avoidance is determined to be infeasible, the Qualified Archaeologist will prepare a data recovery and treatment plan tailored to the physical nature and characteristics of the resource. The data recovery plan will identify data recovery excavation methods, research questions, measurable objectives, and data thresholds to reduce any potential significant impacts to the resource. The resulting documentation will be submitted to the regional repository of the California Historical Resources Information System (CHRIS).

b) Does the Project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a Project are considerable when viewed in connection with the effects of past Projects, the effects of other current Projects, and the effects of probable future Projects)?

Less Than Significant Impact With Mitigation: The Program's activities are limited to the transport, temporary stockpiling, and placement of sand for beach nourishment at previously disturbed areas. These actions are short-term, localized, and designed to enhance shoreline stability and coastal habitat conditions. The Program's mitigation measures and BMPs outlined in the above analysis would be implemented during construction to avoid potential impacts and minimize the potential for adding cumulative effects in combination with other projects. Probable future projects of a similar nature would also be temporary and expected to follow comparable best management practices, mitigation measures, and regulatory compliance requirements to minimize the potential for cumulative impacts.

Traffic impacts from The Program would be temporary and minor, limited to the movement of construction vehicles to and from the stockpile and beach placement sites (see 3.17 Transportation). To minimize potential traffic disruptions and ensure safety, The Program would comply with RCM TRA-1, requiring the Contractor to prepare and implement a site-specific TCP in accordance with local and state requirements would provide continuous access for emergency vehicles. With the implementation of RCM TRA-1, traffic-related impacts would be less than significant.

Emissions of greenhouse gases (GHGs) and criteria pollutants from construction activities would be well below the applicable CEQA thresholds of significance due to the short duration, limited scale of construction vehicle use, and the use of existing roadways and previously disturbed sites (see 3.3 Air Quality and 3.8 Greenhouse Gas Emissions). The Program's incremental contribution to regional GHG and air pollutant emissions would therefore be minor. When considered alongside past, current, and reasonably foreseeable future projects, The Program would not result in a cumulatively considerable contribution to regional air quality or climate impacts.

Cumulative environmental impacts to coastal processes can occur from excessive sedimentation at sensitive nearshore and offshore habitat areas, including lagoon mouths. Sedimentation occurs naturally at these locations, but sedimentation significantly above natural processes may cause sufficient stress to habitat. Sporadic and gradual application of sediment placed, as proposed with The Program, would result in dispersion that resembles natural processes, resulting in a lower degree of disturbance as compared to a quick pulse of a large quantity of sand. Additionally, PGM BIO-4 – PGM BIO-8 and MM BIO-2 would be implemented to avoid and minimize impacts to coastal processes as a result of sedimentation from The Program's beach nourishment activities. Thus, The Program would not result in cumulatively considerable impacts to coastal processes.

Because The Program's activities are both limited in scope and duration, The Program's incremental contribution to regional environmental effects would be negligible. With the implementation of mitigation measures, regulatory compliance measures, and BMPs outlined in the above analysis, there would be no cumulatively considerable impacts to biological resources (PGM BIO-1 – PGM BIO-8 and MM BIO-1 and MM BIO-2), cultural resources (SC CUL-1 and RCM CUL-1), hazardous materials (SC HAZ-1, SC HAZ-2, and RCM HAZ-1), energy use (RCM ENRG-1 and RCM ENRG-2), noise (RCM NOI-1 and MM NOI-1), public

services (SC PS-1 and SC PS-2), recreation (MM REC-1-MM REC-3 and PGM REC-1), or water quality (SC HYD-1-SC HYD-3), When considered with past beach nourishment projects, ongoing maintenance activities, and reasonably foreseeable projects along the Orange County coast, the cumulative impact remains low. Beach nourishment provides both direct and indirect benefits to human beings by maintaining and enhancing public beach access, recreational opportunities, shoreline protection, and the safety of coastal communities. Thus, even though The Program adds to overall construction and traffic activity, its contribution is not cumulatively considerable, and compliance with RCM TRA-1 ensures that impacts that are individually limited do not create a significant cumulative effect.

Avoidance, Minimization and/or Mitigation Measures

The following mitigation measures are required:

MM BIO-1: At stockpile sites, to avoid direct impacts to migratory birds and/or raptor active nests protected under the federal MBTA and CFG Code Sections 3503 and 3513, removal of stockpiled material that supports active nests within The Program's impact area should occur outside of the breeding season for applicable species, as far as is reasonably feasible. Where removal during the nesting season is unavoidable, a suitably qualified biologist will conduct nesting bird surveys prior to commencement. If nesting birds are identified, the biologist will implement a suitable buffer zone around the nest(s) and a biological monitor would be on site daily to ensure that adverse impacts to the sensitive resource do not occur.

MM BIO-2: Placement of sand within each stockpile site will be located to the greatest extent possible within relatively flat terrain that is not in close proximity to and does not slope toward a sensitive biological resource such as a jurisdictional aquatic resource or native habitat. Stockpiles not scheduled to be utilized within 14 days of placement will be considered non-active and the following protective measures will be implemented:

- Temporary perimeter sediment barriers such as compost-filled wattles temporary silt dykes, biodegradable fiber rolls, burlap sandbags/, gravel bags, or biofiltration bags will be installed to provide erosion and sediment control and to protect the stockpile from wind and rain.
- Only biodegradable materials should be used for stockpile BMP protection, Any non-biodegradable BMP will be maintained and removed when no longer necessary.

MM NOI-1: Where construction activities involving trains are planned within 25 feet of occupied structures or sensitive uses, the managing entity or construction contractor will notify property owners and provide the schedule, duration and contact information for noise-related concerns.

MM REC-1: Should a pipeline be used for sand placement, the pipeline will be covered with sand or other suitable mat material as needed at intervals to create walkover areas to facilitate public beach and water access.

MM-REC-2: Public access to beaches and the ocean will be maintained adjacent to active sand placement area as long as public safety is not compromised.

MM REC-3: Signs will be posted advising the public of the presence of steep sand slopes (e.g., scarps) should they develop on beaches where sand has been placed.

The following program compliance, regulatory compliance, and standard condition BMP measures would also be implemented:

PGM BIO-1: At the stockpile site OC.S.4 (Audubon Basin), in order to avoid impacts to paniculate tarplant, a sensitive species, a survey will be performed by a qualified biologist prior to any sand

storage. If found, any paniculate tarplant will be fenced off with ribbon or yellow rope and t-posts and stockpiling and construction activities should be avoided in the fenced-off area.

PGM BIO-2: Sensitive bird species monitoring will be implemented if sand placement is anticipated to occur during the California least tern or Western snowy plover nesting seasons on beach receiver sites with the potential for least tern or snowy plover nesting. Sensitive bird species monitoring will also occur if sand placement will occur during the snowy plover overwintering season on beach receiver sites with the potential for snowy plover overwintering. The monitoring protocol will be approved by the applicable regulatory agencies prior to permit issuance. The protocol is anticipated to include pre-construction surveys, recurring surveys, the establishment of buffers, and the authority to halt work to avoid or minimize impacts.

PGM BIO-3: Grunion monitoring will be implemented for any beach nourishment event occurring within the spawning season (per the CDFW published grunion spawning schedule for the year of the placement event) on any sandy beach where spawning could potentially occur and with sand placement or equipment access seaward of the MHTL. Regulatory agencies will be notified of monitoring events. Any deviations from the monitoring protocols in the Implementation Guidelines will require agency approval.

PGM BIO-4. Turbidity monitoring will be implemented to avoid significant impacts to water quality if sand placement is seaward of the MHTL and in accordance with the scale of the nourishment event and percentage of fines in the source material. If the turbidity monitoring staff determines ocean water quality thresholds are exceeded, they have the authority to halt sand placement until water quality is restored. Regulatory agencies will be notified of monitoring events. Any deviations from the monitoring protocols in the Implementation Guidelines will require agency approval.

PGM BIO-5: At site OC.S.4 Audubon Basin, in order to avoid impacts to adjacent native habitats and/or downstream aquatic jurisdictional resources a buffer large enough to install, maintain, and inspect stockpile BMPs will be established between any stockpiled soil and the sides of the maintenance road and basin spillway/overflow channel that drains to native riparian habitat.

To avoid impacts to the Greenville-Banning Channel, the cement lined channel adjacent to site OC.S.2 D03 D/S California at E01 Bike Trail, a buffer large enough to install, maintain, and inspect stockpile BMPs will be established between any stockpiled soil and the edge of the maintenance road adjacent to the channel.

To avoid impacts to open water and salt marsh habitats in the Bolsa Chica/Westminster Channel adjacent to stockpile site OC.S.1 C02/C04 Confluence, a buffer large enough to install, maintain, and inspect stockpile BMPs will be established between any stockpiled soil and the hinge point of the adjacent channel. The triangular portion of this site will only be used for stockpile storage of sediment with less than 35% fines if stored over the wet season.

PGM BIO-6: If sand placement occurs in the vicinity of known surfgrass, kelp, or hard (rocky) substrate (habitat of particular concern), monitoring of that habitat will occur in accordance with the sand placement scale and proximity to the surfgrass, kelp or hard (rocky) substrate. The monitoring protocol will be approved by the applicable regulatory agencies prior to permit issuance.

PGM BIO-7: If sand placement occurs in the vicinity of known or potential eelgrass, monitoring of eelgrass will occur in accordance with the California Eelgrass Mitigation Policy (CEMP) (NOAA 2014, or most up-to-date policy).

PGM BIO-8: Tidal inlet monitoring that typically occurs, may need to be increased or rescheduled appropriately following implementation of sand placement events that have the potential to impact tidal inlets to coastal marshes to ensure that nourishment events do not result in significant impacts to tidal exchange considering the scale of the nourishment event and distance to the tidal inlet, and approved by the applicable regulatory agencies prior to permit issuance.

RCM CUL-1: Human Remains. In the event that human remains are encountered on The Program site, work within 50 feet of the discovery shall be redirected and the County Coroner notified immediately consistent with the requirements of California Code of Regulations (CCR) Section 15064.5(e). State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code (PRC) Section 5097.98. If the remains are determined to be Native American, the County Coroner shall notify the Native American Heritage Commission (NAHC), which shall determine and notify a Most Likely Descendant (MLD). With the permission of the property owner, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. The MLD may recommend scientific removal and non-destructive analysis of human remains and items associated with Native American burials. Consistent with CCR Section 15064.5(d), if the remains are determined to be Native American and an MLD is notified, the County shall consult with the MLD as identified by the NAHC to develop an agreement for treatment and disposition of the remains. Prior to the issuance of any permits, the Director of the Orange County Public Works Department, or designee, shall verify that all plans specify the requirements of CCR Section 15064.5(e), State Health and Safety Code Section 7050.5, and PRC Section 5097.98, as stated above.

SC CUL-1: If an archaeological resource is found, it will be examined by a Qualified Archaeologist. If it is determined by the Qualified Archaeologist to be indigenous in nature, a Native American representative will be consulted. If the Qualified Archaeologist determines the resource to be significant, avoidance and preservation in place will be the preferred manner of mitigating impacts pursuant to 15126.4(b)(3)(A). If avoidance is determined to be infeasible, the Qualified Archaeologist will prepare a data recovery and treatment plan tailored to the physical nature and characteristics of the resource. The data recovery plan will identify data recovery excavation methods, research questions, measurable objectives, and data thresholds to reduce any potential significant impacts to the resource. The resulting documentation will be submitted to the regional repository of the California Historical Resources Information System (CHRIS).

RCM ENRG-1: The construction contractor will ensure that all construction trucks comply with CARB's idling restrictions (Title 17 CCR Section 93116), limiting idling to 5 minutes, except under safety-related or operational conditions.

RCM ENRG-2: The rail operator will reduce unnecessary locomotive idling where feasible, per 40 CFR Part 1033. Where practical, the use of Tier 4 or equivalent low-emission locomotives, automatic shutdown/startup systems, or electrification will be encouraged.

RCM HAZ-1: All Program locations will comply with the California Fire Code (Title 24, California Code of Regulations [CCR], Part 9) and the Cal/OSHA Construction Safety Orders for fire prevention (Title 8, CCR, Section 6777). The construction contractor will implement all applicable fire prevention and suppression measures, including maintaining fire suppression equipment on-site and training construction personnel in fire safety procedures. Compliance will be verified by the construction manager through regular site inspections during active construction.

SC HAZ-1: Fueling and maintenance of construction vehicles will occur in designated areas at least 25 feet away from surface waters, with spill prevention measures in place

SC HAZ-2: Fuels, oils, and other flammable materials will have secondary containment measures and will not be stored onsite. Storage should comply with California Fire Code Sections 5704 and 5706.

RCM NOI-1: All construction activities, including equipment warm-up, will be limited to the hours permitted by the local jurisdiction. Unless otherwise approved in writing by the City or County (depending on the jurisdiction where construction is taking place), construction will only occur during the dates and times listed in Table 3-1: Days and Times Approved for Construction by Jurisdiction. No construction will occur on Sundays or federal holidays.

RCM TRA-1: Prior to the start of any construction activity that will affect public roadways, the Contractor will prepare and implement a site-specific Traffic Control Plan (TCP) in accordance with local and state requirements (California Vehicle Code Section 21400 and 21401; California Code of Regulations Sections 1598 and 1599).

SC HYD-1: The contractor will place impervious ground cover and/or spill containment under construction equipment that is not in use to prevent leaks from entering surface and groundwater sources.

SC HYD-2: The contractor will regularly maintain construction equipment per manufacturer guidelines to prevent leaks from happening.

SC HYD-3: The contractor will avoid construction equipment traversing in the wetted sand areas below high tide unless required for construction activities.

SC PS-1: Construction equipment will not block line-of-sight to the ocean at lifeguard towers. Sight lines from the viewing platforms of the lifeguard towers will be maintained and there will be no interference with views for the lifeguards.

SC PS-2: Mobile lifeguard towers will be temporarily relocated during construction to maintain public safety (only if relocation is necessary to conduct sand placement construction activities).

PGM REC-1: Potentially dangerous scarps that may form after sand placement will be knocked down/laid back/graded by the beach managing entity.

c) Does the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less Than Significant Impact With Mitigation: The Program would not result in environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly. Construction activities associated with sand placement and stockpiling would occur within previously disturbed beach areas and existing infrastructure. No new buildings or infrastructure would be built and ground-disturbing activities would not occur.

Construction-related greenhouse gas (GHG) emissions and air quality impacts would be well below established significance thresholds. Sand placement and stockpiling involve short-duration use of standard construction equipment with relatively low emissions, and The Program would not introduce long-term air pollutant sources. Accordingly, these impacts are not considered cumulatively considerable when viewed in combination with past, present, or reasonably foreseeable projects (see 3.3 Air Quality and 3.8 Greenhouse Gas Emissions).

Traffic impacts would be minimized through implementation of a site-specific TCP prepared by the Contractor in accordance with local and state requirements (see 3.17 Transportation; RCM TRA-1). The TCP would

provide continuous access for emergency vehicles and consistency with local and county emergency response plans.

Noise impacts would be minimized through implementation of standard construction scheduling and notification practices (see 3.13 Noise). All construction activities, including equipment warm-up, will be limited to the hours permitted by the local jurisdiction and will avoid Sundays and federal holidays unless otherwise approved (RCM NOI-1). In addition, if construction activities involving trains are planned within 25 feet of occupied structures or sensitive uses, the managing entity or construction contractor will notify property owners of the schedule, duration, and provide contact information for noise-related concerns (MM NOI-1).

To ensure public safety and maintain recreational access during construction, several mitigation measures will be implemented (see 3.15 Public Services and 3.16 Recreation). Sight lines from lifeguard towers will be maintained at all times, and construction equipment will not obstruct views of the ocean or public areas (MM PS-1). Mobile lifeguard towers will be temporarily relocated if necessary to maintain lifeguard visibility and public safety (SC PS-2). Public access to beaches and the ocean will be preserved adjacent to active sand placement areas whenever safety allows (MM REC-2), and any pipelines used for sand placement will be covered at intervals to create walkover areas for public use (MM REC-1). Warning signs will be posted to alert the public to steep sand slopes or scarps that may form on recently nourished beaches (MM REC-3), and any potentially dangerous scarps will be graded or removed by the managing entity to prevent injuries (PGM REC-1).

With these mitigation, regulatory, and standard condition BMP compliance measures in place, The Program would not create substantial direct or indirect hazards to human health and safety. Temporary visual obstructions, limited access, and minor traffic delays would be effectively managed, ensuring that the incremental effects of The Program are minimal. Therefore, impacts on human beings would be less than significant.

Avoidance, Minimization and/or Mitigation Measures

The following mitigation is required:

MM NOI-1: Where construction activities involving trains are planned within 25 feet of occupied structures or sensitive uses, the managing entity or construction contractor will notify property owners and provide the schedule, duration and contact information for noise-related concerns.

MM REC-1: Should a pipeline be used for sand placement, the pipeline will be covered with sand or other suitable mat material as needed at intervals to create walkover areas to facilitate public beach and water access.

MM REC-2: Public access to beaches and the ocean will be maintained adjacent to active sand placement area as long as public safety is not compromised.

MM REC-3: Signs will be posted advising the public of the presence of steep sand slopes (e.g., scarps) should they develop on beaches where sand has been placed.

The following program compliance, regulatory compliance, and standard condition BMP measures would also be implemented:

SC PS-1: Construction equipment will not block line-of-sight to the ocean at lifeguard towers. Sight lines from the viewing platforms of the lifeguard towers will be maintained and there will be no interference with views for the lifeguards.

SC PS-2: Mobile lifeguard towers will be temporarily relocated during construction to maintain public safety (only if relocation is necessary to conduct sand placement construction activities).

RCM TRA-1: Prior to the start of any construction activity that will affect public roadways, the Contractor will prepare and implement a site-specific Traffic Control Plan (TCP) in accordance with local and state requirements (California Vehicle Code Section 21400 and 21401; California Code of Regulations Sections 1598 and 1599).

RCM NOI-1: All construction activities, including equipment warm-up, will be limited to the hours permitted by the local jurisdiction. Unless otherwise approved in writing by the City or County (depending on the jurisdiction where construction is taking place), construction will only occur during the dates and times listed in Table 3-1: Days and Times Approved for Construction by Jurisdiction. No construction will occur on Sundays or federal holidays.

PGM REC-1: Potentially dangerous scarps that may form after sand placement will be knocked down/laid back/graded by the beach managing entity.

4.0 MITIGATION, MONITORING, AND REPORTING PROGRAM (MMRP)

The following Mitigation, Monitoring, and Reporting Program has been prepared in compliance with PRC Section 21081.6. It describes the requirements and procedures to be followed by OCPW to ensure that all mitigation measures adopted as part of The Program will be carried out as described in this IS/MND. Because The Program is also subject to several regulatory compliance measures and standard conditions, these measures are also included in this section.

Table 4-1: Mitigation, Monitoring, and Reporting Program lists each of the mitigation measures (MM), regulatory compliance measures (RCM), best management practices (BMPs), and program measures that are already included in the project per the Preliminary Implementation Guidelines (PGM),⁹² and specified in this IS/MND. Mitigation measures are specific actions required to avoid, reduce, or offset significant environmental impacts identified in the environmental review. Regulatory compliance measures refer to mandatory actions that ensure adherence to existing laws, regulations, and standards, and while not CEQA mitigation, they contribute to environmental safeguards. Best management practices are voluntary or project-specific strategies that promote sustainability and minimize potential environmental effects, often implemented as part of standard operating procedures. It also identifies the applicable locations, reporting requirements, timing, and the party or parties responsible for implementation and monitoring of each measure.

⁹² Preliminary Implementation Guidelines are available at:

Table 4-1: Mitigation, Monitoring, and Reporting Program

Measure #	Mitigation Measure/Regulatory Compliance Measure/Best Management Practice	Reporting	Applicable Location/s	Timing	Responsible Party	Verification of Compliance		
						Initials	Date	Remarks
PGM BIO-1	At the stockpile site OC.S.4 (Audubon Basin), in order to avoid impacts to paniculate tarplant, a sensitive species, a survey will be performed by a qualified biologist prior to any sand storage. If found, any paniculate tarplant will be fenced off with ribbon or yellow rope and t-posts and stockpiling and construction activities should be avoided in the fenced-off area.	Survey results submitted to Construction Manager and agency file	Audubon Basin, (OC.S.3)	Pre-construction	Site managing entity (i.e., County of Orange)			
MM BIO-1	At stockpile sites, to avoid direct impacts to migratory birds and/or raptor active nests protected under the federal MBTA and CFG Code Sections 3503 and 3513, removal of stockpiled material that supports active nests within The Program's impact area should occur outside of the breeding season for applicable species, as far as is reasonably feasible. Where removal during the nesting season is unavoidable, a suitably qualified biologist will conduct nesting bird surveys prior to commencement. If nesting birds are identified, the biologist will implement a suitable buffer zone around the nest(s) and a biological monitor would be on site daily to ensure that adverse impacts to the sensitive resource do not occur.	Survey report before work begins; weekly monitoring reports if nests present	All stockpile sites	During construction if occurring during breeding season for applicable species (typically January 15-September 15); Surveys to be conducted within 3 days prior to construction if required	Site and Stockpile managing entity (i.e., County of Orange, CA State Parks, City of Huntington Beach, City of Newport Beach, and City of San Clemente, City of Irvine)			

Measure #	Mitigation Measure/Regulatory Compliance Measure/Best Management Practice	Reporting	Applicable Location/s	Timing	Responsible Party	Verification of Compliance		
						Initials	Date	Remarks
PGM BIO-2	Sensitive bird species monitoring will be implemented if sand placement is anticipated to occur during the California least tern or Western snowy plover nesting seasons on beach receiver sites with the potential for least tern or snowy plover nesting. Sensitive bird species monitoring will also occur if sand placement will occur during the snowy plover overwintering season on beach receiver sites with the potential for snowy plover overwintering. The monitoring protocol will be approved by the applicable regulatory agencies prior to permit issuance. The protocol is anticipated to include pre-construction surveys, recurring surveys, the establishment of buffers, and the authority to halt work to avoid or minimize impacts.	Monitoring logs and any stop-work notices to entity	<p>Snowy plover monitoring: Bolsa Chica State Beach (CA.1), Huntington State Beach (CA.2), Crystal Cove State Park (CA.3), Doheny State Beach (CA.4), Salt Creek Beach (OC.2), Sunset Beach (HB.1), West Newport Beach (NB.1), Balboa Beach (NB.3), Cyprus Shore/Cottons (SC.4), West Beach (SB.1), East Beach (SB.2), and Surfside Beach (SB.3)</p> <p>Least tern monitoring: Huntington State Beach (CA.2)</p>	<p>Pre-construction and during construction</p> <p>Snowy plover and least tern nesting season: spring/summer months (Feb 1-Sept 15)</p> <p>Snowy plover overwintering season: fall/winter months (Sept 16-Jan 31)</p>	Site managing entity (i.e., CA State Parks, County of Orange, City of Huntington Beach, City of Newport Beach, City of Seal Beach, City of San Clemente)			

<p>PGM BIO-3</p>	<p>Grunion monitoring will be implemented for any beach nourishment event occurring within the spawning season (per the CDFW published grunion spawning schedule for the year of the placement event) on any sandy beach where spawning could potentially occur and with sand placement or equipment access seaward of the MHTL. Regulatory agencies will be notified of monitoring events. Any deviations from the monitoring protocols in the Implementation Guidelines will require agency approval.</p>	<p>Monitoring summaries submitted post-sand placement event</p>	<p>Bolsa Chica State Beach (CA.1), Huntington Beach State Beach (CA.2), Crystal Cove State Park (CA.3), Doheny State Beach (CA.4), San Clemente State Beach (CA.5), Salt Creek Beach (OC.2), Capistrano Beach County Park (OC.4), Poche Beach (OC.5) Sunset Beach (HB.1), West Newport Beach (NB.1), Balboa Beach (NB.3), Corona del Mar Beach (NB.4), Little Corona del Mar Beach (NB.5), Capistrano Shores (SC.1), San Clemente North Beach (SC.2), San Clemente Central City Beaches (SC.3), Cyprus Shore/Cottons (SC.4), East Beach (SB.2), Surfside Beach (SB.3)</p>	<p>Pre-construction during grunion season (Typically March – August; see CDFW annual schedule)</p>	<p>Site managing entity (i.e., County of Orange, CA State Parks, City of Seal Beach, City of Huntington Beach, City of Newport Beach, City of San Clemente, City of Irvine)</p>			
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<p>PGM BIO-4</p>	<p>Turbidity monitoring will be implemented to avoid significant impacts to water quality if sand placement is seaward of the MHTL and in accordance with the scale of the nourishment event and percentage of fines in the source material. If the turbidity monitoring staff determines ocean water quality thresholds are exceeded, they have the authority to halt sand placement until water quality is restored. Regulatory agencies will be notified of monitoring events. Any deviations from the monitoring protocols in the Implementation Guidelines will require agency approval.</p>	<p>Turbidity logs to entity</p>	<p>Bolsa Chica State Beach (CA.1), Huntington Beach State Beach (CA.2), Crystal Cove State Park (CA.3), Doheny State Beach (CA.4), San Clemente State Beach (CA.5), Newport Dunes (OC.1), Salt Creek Beach (OC.2), Capistrano Beach County Park (OC.4), Sunset Beach (HB.1), Huntington Beach Bluffs (HB.3), West Newport Beach (NB.1), Balboa Beach (NB.3), Corona del Mar Beach (NB.4), Capistrano Shores (SC.1), San Clemente North Beach (SC.2), San Clemente Central City Beaches (SC.3), Cyprus Shore/Cottons (SC.4), East Beach (SB.2), Surfside Beach (SB.3)</p>	<p>During construction</p>	<p>Site managing entity (i.e., County of Orange, CA State Parks, City of Seal Beach, City of Huntington Beach, City of Newport Beach, City of San Clemente, City of Irvine)</p>			
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<p>PGM BIO-5</p>	<p>In order to avoid impacts to adjacent native habitats and/or downstream aquatic jurisdictional resources at site OC.S.3 (Audubon Basin), a buffer large enough to install, maintain, and inspect stockpile BMPs will be established between any stockpiled soil and the sides of the maintenance road, and the basin overflow/spillway channel that drains to native riparian habitat, such as a silt fence, compost-filled or biodegradable wattle, or other similar erosion and siltation controlling construction BMPs.</p> <p>To avoid impacts to Greenville-Banning (D03) cement lined channel adjacent to site OC.S.2 (D03 D/S California at E01 Bike Trail), a buffer large enough to install, maintain, and inspect stockpile BMPs will be established between any stockpiled soil and the side of the maintenance road common to the channel.</p> <p>To avoid impacts to open water and salt marsh habitats in the Bolsa Chica/Westminster Channel, adjacent to stockpile site OC.S.1 (C02/C04 Confluence), a buffer large enough to install, maintain, and inspect stockpile BMPs will be established between any stockpiled soil and hinge point of the adjacent channel. The triangular portion of this site will only be used for stockpile storage of sediment with less than 35% fines if stored over the wet season.</p>	<p>Weekly inspection reports</p>	<p>Lot at Confluence (Bolsa Chica & Edinger) (OC.S1), Lot adjacent to the Santa Ana Bike Trail and Greenville Banning Channel (OC.S.2), Audubon Basin (OC.S.3)</p>	<p>Pre-construction and during construction</p>	<p>Contractor and Site managing entity (i.e., County of Orange)</p>			
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Measure #	Mitigation Measure/Regulatory Compliance Measure/Best Management Practice	Reporting	Applicable Location/s	Timing	Responsible Party	Verification of Compliance		
						Initials	Date	Remarks
MM BIO-2	<p>Placement of sand within each stockpile site will be located to the greatest extent possible within relatively flat terrain that is not in close proximity to and does not slope toward a potentially sensitive biological resource such as a jurisdictional aquatic resource or native habitat. Stockpiles not scheduled to be utilized within 14 days of placement will be considered non-active and the following protective measures will be implemented:</p> <ul style="list-style-type: none"> • Temporary perimeter sediment barriers such as compost-filled wattles temporary silt dykes, biodegradable fiber rolls, burlap sandbags/, gravel bags will be installed to provide erosion and sediment control and to protect the stockpile from wind and rain. • Only biodegradable materials should be used for stockpile BMP protection, Any non-biodegradable BMP will be maintained and removed when no longer necessary. 	Inspection and maintenance of logs	All stockpile sites	During construction	Site and Stockpile managing entity (i.e., County of Orange, CA State Parks, City of Huntington Beach, City of Newport Beach, and City of San Clemente, City of Irvine)			

Measure #	Mitigation Measure/Regulatory Compliance Measure/Best Management Practice	Reporting	Applicable Location/s	Timing	Responsible Party	Verification of Compliance		
						Initials	Date	Remarks
PGM BIO-6	If sand placement occurs in the vicinity of known surfgrass, kelp, or hard (rocky) substrate (habitat of particular concern), monitoring of that habitat will occur in accordance with the sand placement scale and proximity to the surfgrass, kelp or hard (rocky) substrate. The monitoring protocol will be approved by the applicable regulatory agencies prior to permit issuance.	Monitoring report to the appropriate agencies	Salt Creek Beach (OC.2), Capistrano Beach County Park (OC.4), West Newport Beach (NB.1), Balboa Beach (NB.3), Corona del Mar Beach (NB.4), Little Corona del Mar Beach (NB.5), Crystal Cove State Park (CA.3), Doheny State Beach (CA.4), San Clemente State Beach (CA.5), Capistrano Shores (SC.1), San Clemente North Beach (SC.2), San Clemente Central City Beaches (SC.3), Cyprus Shore/Cottons (SC.4)	Pre- and post-construction	Site managing entity (i.e., County of Orange, CA State Parks, City of Newport Beach, City of San Clemente, City of Irvine)			

Measure #	Mitigation Measure/Regulatory Compliance Measure/Best Management Practice	Reporting	Applicable Location/s	Timing	Responsible Party	Verification of Compliance		
						Initials	Date	Remarks
PGM BIO-7	If sand placement occurs in the vicinity of known or potential eelgrass, monitoring of eelgrass will occur in accordance with the California Eelgrass Mitigation Policy (CEMP) (NOAA 2014, or most up-to-date policy).	CEMP-compliant reports submitted to the appropriate agencies post-placement event	Newport Dunes (OC.1), Baby Beach (OC.3), Huntington Harbour Beaches (HB.2), Newport Harbor Beaches (NB.2)	Pre- and post-construction	Site managing entity (i.e., County of Orange, City of Huntington Beach, and City of Newport Beach)			
PGM BIO-8	Tidal inlet monitoring that typically occurs, may need to be increased or rescheduled appropriately following implementation of sand placement events that have the potential to impact tidal inlets to coastal marshes to ensure that nourishment events do not result in significant impacts to tidal exchange considering the scale of the nourishment event and distance to the tidal inlet, and approved by the applicable regulatory agencies prior to permit issuance.	Monitoring results provided to the appropriate agencies post-sand placement event	Bolsa Chica State Beach (CA.1), Huntington Beach State Beach (CA.2), Newport Dunes (OC.1), Sunset Beach (HB.1), West Newport Beach (NB.1), Surfside Beach (SB.3)	During construction	Site managing entity where placement occurred, not where tidal inlet occurs, has responsibility to inform the tidal inlet manager. (i.e., County of Orange, CA State Parks, , City of Seal Beach, City of Huntington Beach, City of Newport Beach)			

Measure #	Mitigation Measure/Regulatory Compliance Measure/Best Management Practice	Reporting	Applicable Location/s	Timing	Responsible Party	Verification of Compliance		
						Initials	Date	Remarks
SC CUL-1	If an archaeological resource is found, it will be examined by a Qualified Archaeologist. If it is determined by the Qualified Archaeologist to be indigenous in nature, a Native American representative will be consulted. If the Qualified Archaeologist determines the resource to be significant, avoidance and preservation in place will be the preferred manner of mitigating impacts pursuant to 15126.4(b)(3)(A). If avoidance is determined to be infeasible, the Qualified Archaeologist will prepare a data recovery and treatment plan tailored to the physical nature and characteristics of the resource. The data recovery plan will identify data recovery excavation methods, research questions, measurable objectives, and data thresholds to reduce any potential significant impacts to the resource. The resulting documentation will be submitted to the regional repository of the California Historical Resources Information System (CHRIS).	Documentation of compliance	All sites	During construction	Contractor and site managing entity (i.e., County of Orange, CA State Parks, City of Seal Beach, City of Huntington Beach, City of Newport Beach, City of San Clemente, City of Irvine)			

<p>RCM CUL-1</p>	<p>Human Remains. In the event that human remains are encountered on The Program site, work within 50 feet of the discovery shall be redirected and the County Coroner notified immediately consistent with the requirements of California Code of Regulations (CCR) Section 15064.5(e). State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code (PRC) Section 5097.98. If the remains are determined to be Native American, the County Coroner shall notify the Native American Heritage Commission (NAHC), which shall determine and notify a Most Likely Descendant (MLD). With the permission of the property owner, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. The MLD may recommend scientific removal and non-destructive analysis of human remains and items associated with Native American burials. Consistent with CCR Section 15064.5(d), if the remains are determined to be Native American and an MLD is notified, the County shall consult with the MLD as identified by the NAHC to develop an agreement for treatment and disposition of the remains. Prior to the issuance of any permits, the Director of the Orange County Public Works Department, or designee, shall verify that all plans specify the requirements of CCR Section 15064.5(e), State Health and Safety Code Section 7050.5, and PRC Section 5097.98, as stated above..</p>	<p>Documentation of compliance</p>	<p>All sites</p>	<p>During construction</p>	<p>Contractor and site managing entity (i.e., County of Orange, CA State Parks, City of Seal Beach, City of Huntington Beach, City of Newport Beach, City of San Clemente, City of Irvine)</p>			
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Measure #	Mitigation Measure/Regulatory Compliance Measure/Best Management Practice	Reporting	Applicable Location/s	Timing	Responsible Party	Verification of Compliance		
						Initials	Date	Remarks
RCM ENRG-1	The construction contractor will ensure that all construction trucks comply with CARB's idling restrictions (Title 17 CCR Section 93116), limiting idling to 5 minutes, except under safety-related or operational conditions.	Inspection logs	All sites	During construction	Contractor			
RCM ENRG-2	The rail operator will reduce unnecessary locomotive idling where feasible, per 40 CFR Part 1033. Where practical, the use of Tier 4 or equivalent low-emission locomotives, automatic shutdown/startup systems, or electrification will be encouraged.	Coordination record	Doheny State Beach (CA.4), Capistrano Beach County Park (OC.4) , Poche Beach (OC.5), Capistrano Shores (SC.1), San Clemente North Beach (SC.2), San Clemente Central City Beaches (SC.3), Cyprus Shore/Cottons (SC.4), Lot within Great Park (MCAS El Toro) (I.S.1)	During construction	Site managing entity (i.e., County of Orange, CA State Parks, City of Seal Beach, City of Huntington Beach, City of Newport Beach, City of San Clemente, City of Irvine)			
SC HAZ-1	Fueling and maintenance of construction vehicles will occur in designated areas away from surface water, with spill prevention measures in place	Inspection logs	All sites	During construction	Contractor			

Measure #	Mitigation Measure/Regulatory Compliance Measure/Best Management Practice	Reporting	Applicable Location/s	Timing	Responsible Party	Verification of Compliance		
						Initials	Date	Remarks
SC HAZ-2	Fuels, oils, and other flammable materials will have secondary containment measures and will not be stored onsite. Storage should comply with California Fire Code Sections 5704 and 5706.	Inspection logs	All sites	During construction	Contractor			
RCM HAZ-1	All Program locations will comply with the California Fire Code (Title 24, California Code of Regulations [CCR], Part 9) and the Cal/OSHA Construction Safety Orders for fire prevention (Title 8, CCR, Section 6777). The construction contractor will implement all applicable fire prevention and suppression measures, including maintaining fire suppression equipment on-site and training construction personnel in fire safety procedures. Compliance will be verified by the construction manager through regular site inspections during active construction.	Inspection logs	All sites	During construction	Contractor			
SC HYD-1	The contractor will place impervious ground cover under construction equipment that is not in use to prevent leaks from entering surface and groundwater sources.	Daily log	All sites	During construction	Contractor			
SC HYD-2	The contractor will regularly maintain construction equipment per manufacturer guidelines to prevent leaks from happening.	Maintenance records	All sites	Pre-construction and during construction	Contractor			

Measure #	Mitigation Measure/Regulatory Compliance Measure/Best Management Practice	Reporting	Applicable Location/s	Timing	Responsible Party	Verification of Compliance		
						Initials	Date	Remarks
SC HYD-3	The contractor will avoid traversing in the wetted sand area except for required construction activities.	Daily log	All sites	During construction	Contractor			
MM NOI-1	Where construction activities involving trains are planned within 25 feet of occupied structures or sensitive uses, the managing entity or construction contractor will notify property owners and provide the schedule, duration and contact information for noise-related concerns.	Notification documentation	Doheny State Beach (CA.4), Capistrano Beach County Park (OC.4) , Poche Beach (OC.5), Capistrano Shores (SC.1), San Clemente North Beach (SC.2), San Clemente Central City Beaches (SC.3), Cyprus Shore/Cottons (SC.4), I.S.1	During construction	Beach managing entity (i.e., County of Orange, CA State Parks, City of San Clemente) or Contractor			
RCM NOI-1	All construction activities, including equipment warm-up, will be limited to the hours permitted by the local jurisdiction. Unless otherwise approved in writing by the City or County (depending on the jurisdiction where construction is taking place), construction will only occur during the dates and times listed in Table 3-1: Days and Times Approved for Construction by Jurisdiction. No construction will occur on Sundays or federal holidays.	Daily logs / non-compliance reporting	All sites	During construction	Contractor			

Measure #	Mitigation Measure/Regulatory Compliance Measure/Best Management Practice	Reporting	Applicable Location/s	Timing	Responsible Party	Verification of Compliance		
						Initials	Date	Remarks
SC PS-1	Construction equipment will not block line-of-sight to the ocean at lifeguard towers. Sight lines from the viewing platforms of the lifeguard towers will be maintained and there will be no interference with views for the lifeguards.	Daily field log	All beach receiver sites	During construction	Contractor			
SC PS-2	Mobile lifeguard towers will be temporarily relocated during construction to maintain public safety (only if relocation is necessary to conduct sand placement construction activities).	Relocation documentation	All beach receiver sites	During construction	Contractor in coordination with the beach managing entity (i.e., County of Orange, CA State Parks, City of Seal Beach, City of Huntington Beach, City of Newport Beach, City of San Clemente)			
MM REC-1	Should a pipeline be used for sand placement, the pipeline will be covered with sand or other suitable mat material as needed at intervals to create walkover areas to facilitate public beach and water access.	Daily log	All sites	During construction	Contractor			

Measure #	Mitigation Measure/Regulatory Compliance Measure/Best Management Practice	Reporting	Applicable Location/s	Timing	Responsible Party	Verification of Compliance		
						Initials	Date	Remarks
MM REC-2	Public access to beaches and the ocean will be maintained adjacent to active sand placement area as long as public safety is not compromised.	Daily log	All sites	During construction	Contractor			
MM REC-3	Signs will be posted advising the public of the presence of steep sand slopes (e.g., scarps) should they develop on beaches where sand has been placed.	Photo documentation	All sites	Pre-construction and during construction	Contractor or beach managing entity (i.e., County of Orange, CA State Parks, City of Seal Beach, City of Huntington Beach, City of Newport Beach, City of San Clemente)			
PGM REC-1	Potentially dangerous scarps that may form after sand placement will be knocked down/layed back/graded by the beach managing entity.	Maintenance log	All sites	During and after construction	Beach managing entity (i.e., County of Orange, CA State Parks, City of Seal Beach, City of Huntington Beach, City of Newport Beach, City of San Clemente)			

Measure #	Mitigation Measure/Regulatory Compliance Measure/Best Management Practice	Reporting	Applicable Location/s	Timing	Responsible Party	Verification of Compliance		
						Initials	Date	Remarks
RCM TRA-1	Prior to the start of any construction activity that will affect public roadways, the Contractor will prepare and implement a site-specific Traffic Control Plan (TCP) in accordance with local and state requirements (California Vehicle Code Section 21400 and 21401; California Code of Regulations Sections 1598 and 1599).	Inspection logs	All sites	Pre-construction and during construction	Contractor			

5.0 LIST OF PREPARERS

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- Felipe Gana, Air Quality Analysis/Simulation Modeler

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7.0 APPENDICES

Appendix A
Preliminary Implementation Guidelines

Available at:

<https://pwds.oc.gov/service-areas/oc-development-services/planning-development/current-projects/1st-district-5th-0>

Appendix B
Stockpile Site Distribution

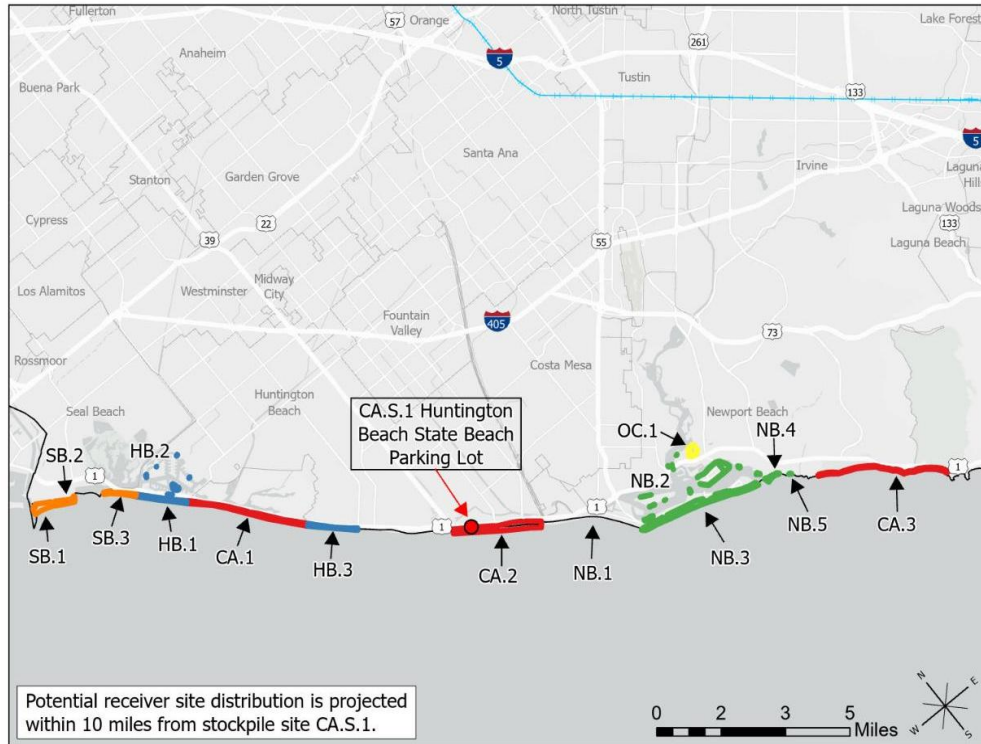


Figure 1. Potential receiver site distribution - stockpile site CA.S.1

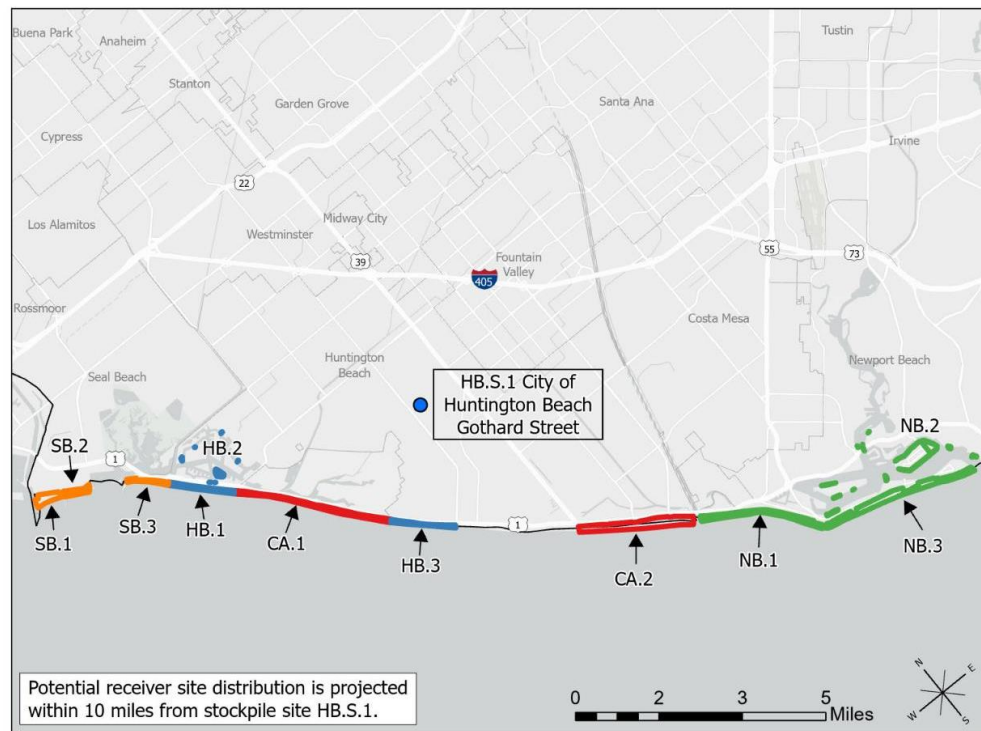


Figure 2. Potential receiver site distribution - stockpile site HB.S.1

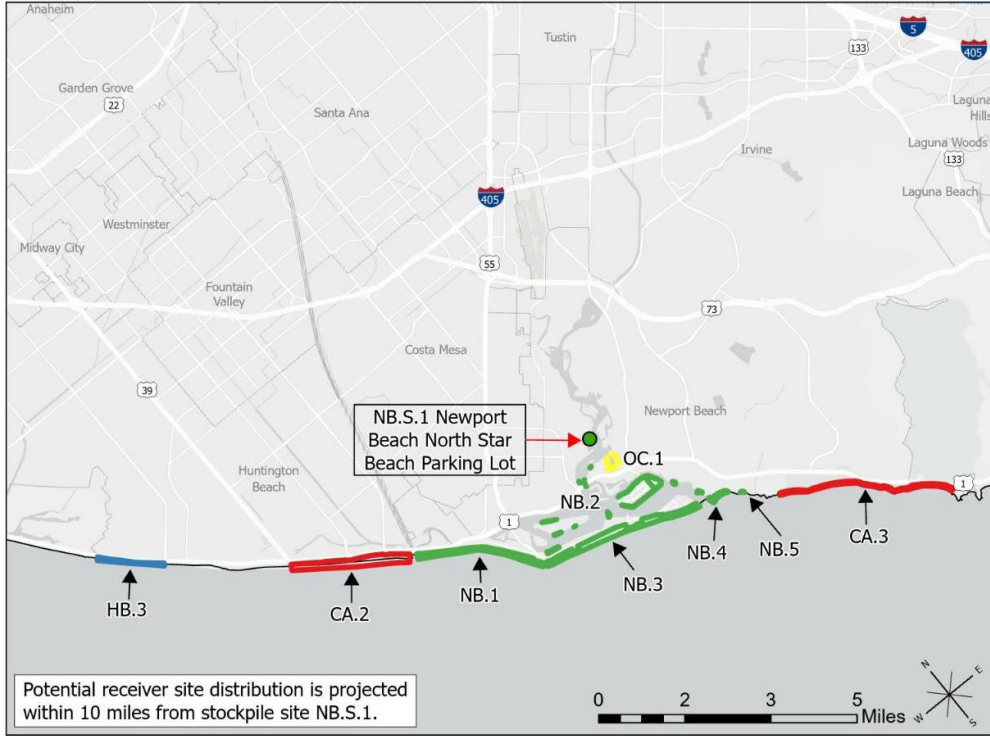


Figure 3. Potential receiver site distribution - stockpile site NB.S.1

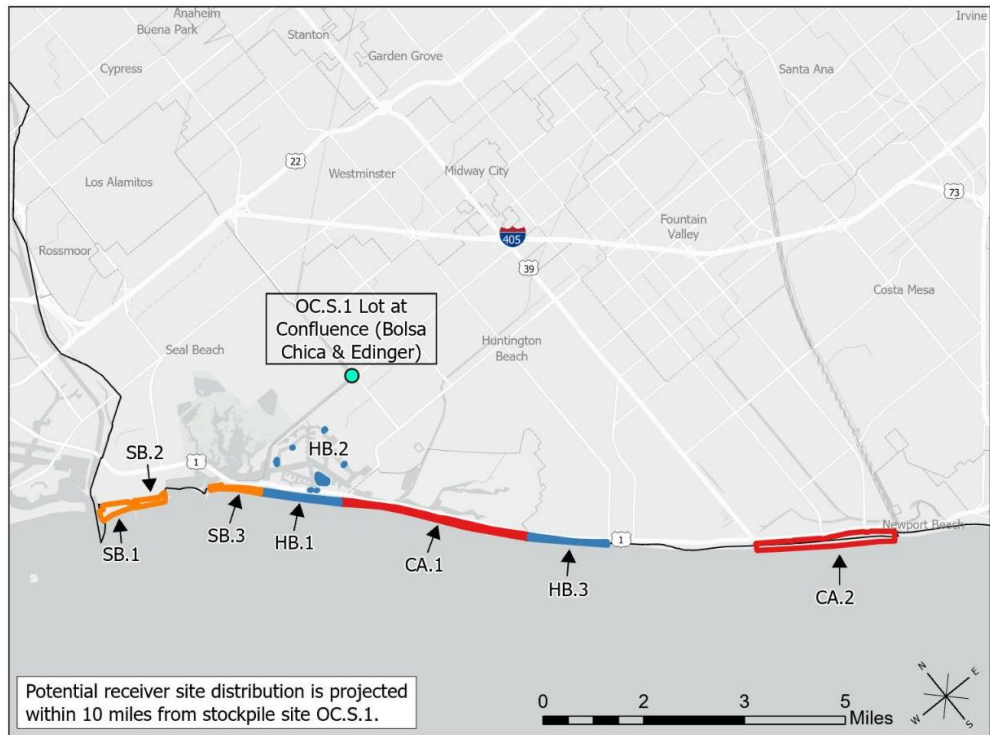


Figure 4. Potential receiver site distribution - stockpile site OC.S.1

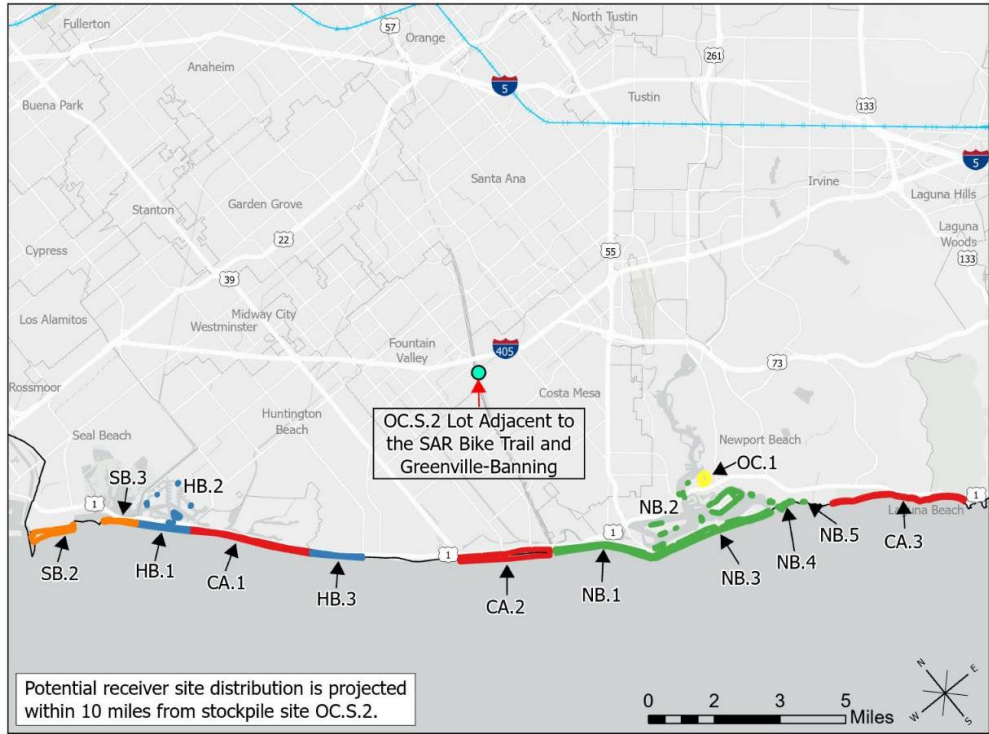


Figure 5. Potential receiver site distribution - stockpile site OC.S.2

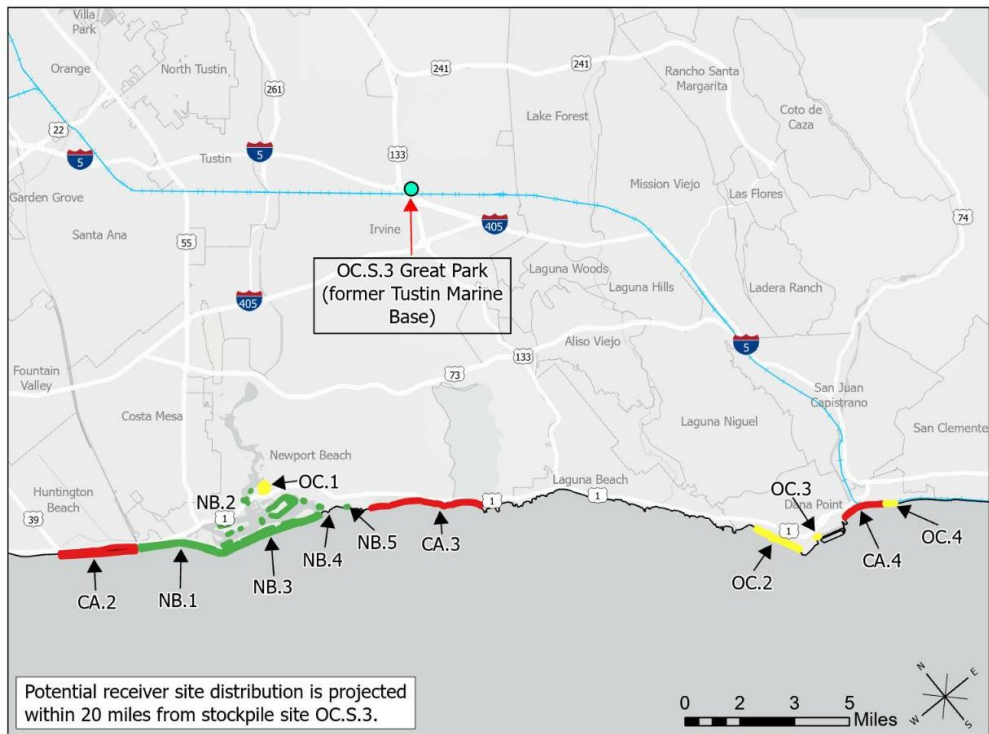


Figure 6. Potential receiver site distribution - stockpile site OC.S.3

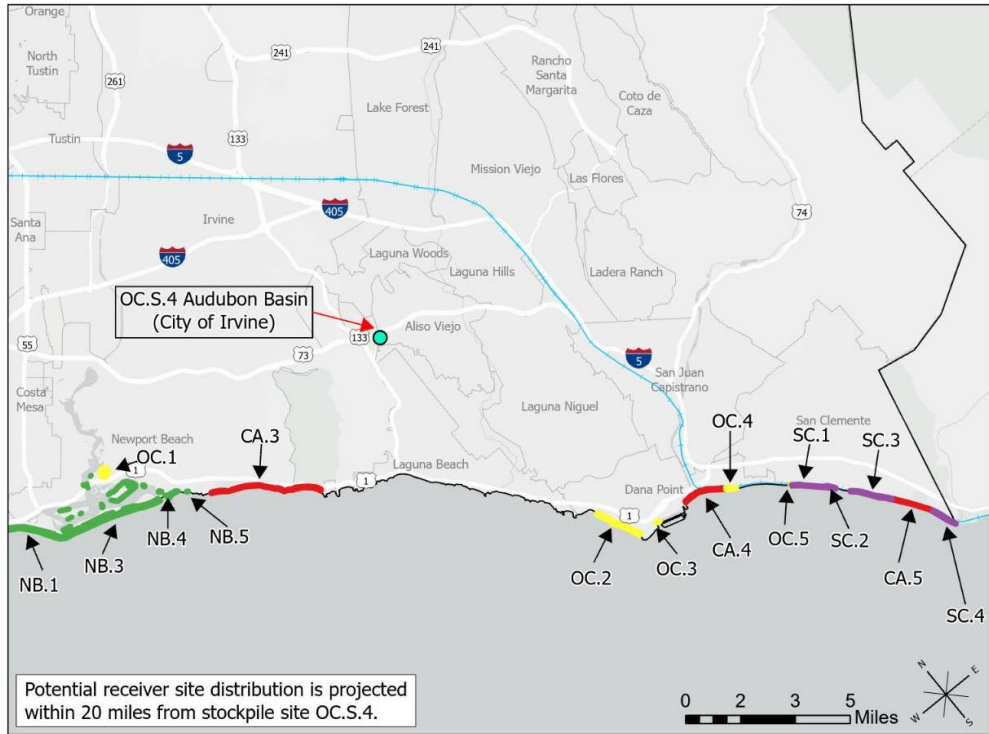


Figure 7. Potential receiver site distribution - stockpile site OC.S.4

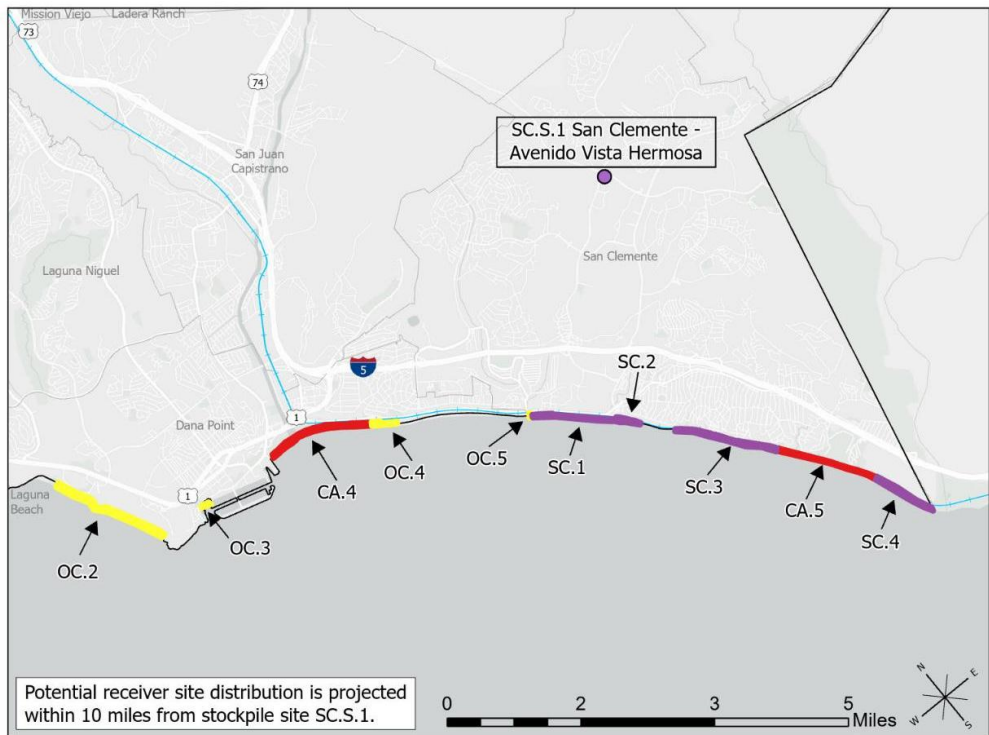


Figure 8. Potential receiver site distribution - stockpile site SC.S.1

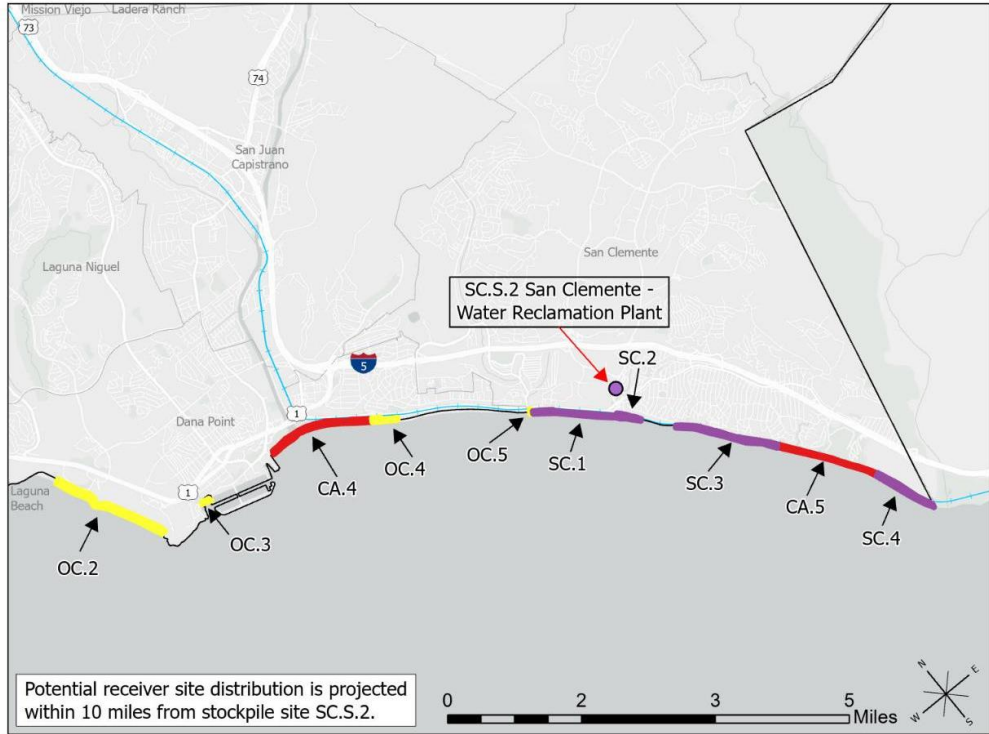


Figure 9. Potential receiver site distribution - stockpile site SC.S.2

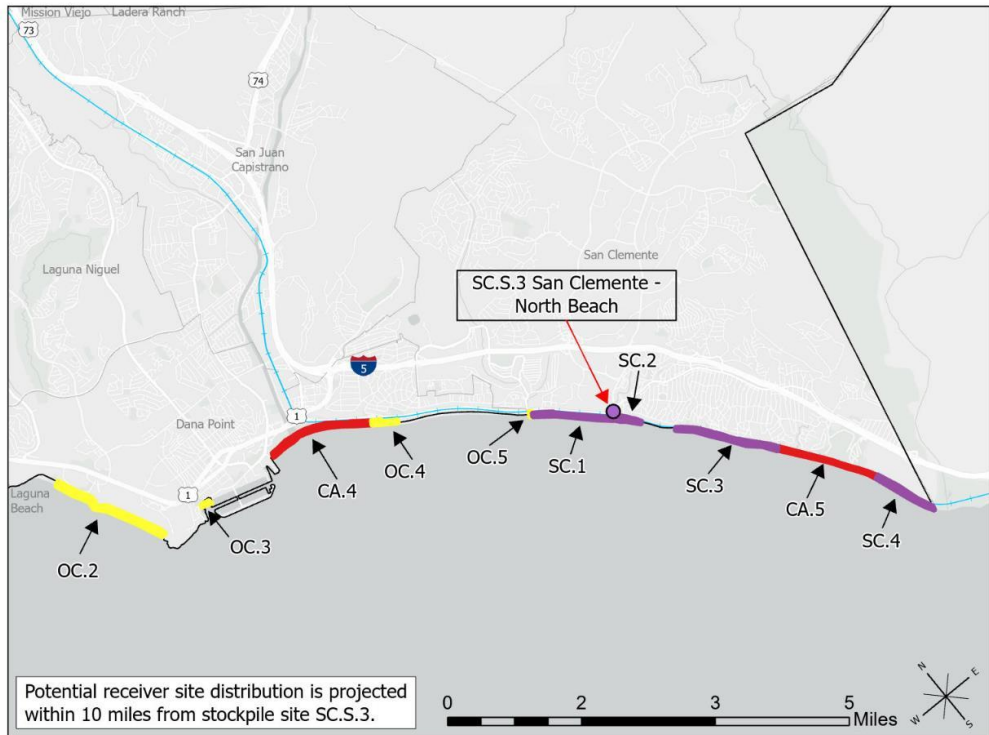


Figure 10. Potential receiver site distribution - stockpile site SC.S.3

Appendix C

Receiver Site and Stockpile Site Location Descriptions

California State Parks – Receiver Sites

CA.1 Bolsa Chica State Beach

Bolsa Chica State Beach is located at the northern end of Huntington Beach. It is bounded by Warner Avenue to the north and Seapoint Street to the south and Pacific Coast Highway to the east. Amenities include plentiful parking, camping, restrooms and showers, lifeguards, a snack bar, and a beachside bike path. Just across Pacific Coast Highway is the Bolsa Chica Ecological Reserve that has hiking paths and conducts organized tours of the wetland and its inhabitants. Most of Bolsa Chica's visitors are local residents with a few overnight campers and their families.¹ Based on the relatively wide sandy beach but subject to wave runup and overtopping during extreme storm events (such as in January 2023), this is a *MEDIUM* need receiver site.

CA.2 Huntington Beach State Beach

Huntington Beach State Beach is the southernmost of the Huntington beaches, bordered by Pacific Coast Highway to the east, the Santa Ana River to the south, and Beach Boulevard to the north. There is a long and wide sandy beach that offers plentiful parking, volleyball, fire pits, lifeguards, restrooms and showers, seasonal snack stands, and a boardwalk. The crowd here tends to consist of Orange County families who come to enjoy the plentiful amenities and bike along the boardwalk. Although there is no overnight camping, the parking lot will often be filled with RVs. Surfing is less important here than at Huntington City Beach to the north, with the exception of a break at the mouth of the Santa Ana River at the southern end.² Based on the Coastal Regional Sediment Management Plan (CRSMP)³, this is a *LOW* need receiver site.

CA.3 Crystal Cove State Park

Wedged between Corona del Mar and Laguna Beach lies Crystal Cove State Park. There is a north and south entrance to the park, both located to the west of Pacific Coast Highway and each with its own parking and bathroom and shower facilities. Atop the bluff, there is a bike path that parallels the highway connecting the two entrances. At the mid-point is a small cafe crowded with park users and highway passers-by.

Overall, Crystal Cove has parking for up to 400 cars. El Moro campground overlooks the ocean with 27 recreational vehicle and 30 tent sites. Also, guests stay in any of the 21 historical cottages nestled amongst the bluff. From atop the bluff, numerous trails lead down to the beach. The beach consists of three distinct coves with narrow sandy areas and rocky reefs abutting the water. The beach is very popular with overnight visitors and local and county residents year-round. The southernmost cove, known as El Moro, is a popular surfing spot during large summertime south swells, but in the winter is dormant.

Off-season use consists mainly of walking the beach and trail and exploring the rocky point tide pools.⁴ Based on the existing narrow sandy beach, this is a *HIGH* need receiver site.

CA.4 Doheny State Beach

Doheny State Beach is located east of Dana Point Harbor, at the intersection of Pacific Coast Highway and Dana Point Harbor Drive. Amenities include lifeguards, a snack bar, bathrooms, showers, volleyball nets,

¹ Everest et al, 2013. *Orange County Coastal Regional Sediment Management Plan, Prepared for U.S. Army Corps of Engineers, County of Orange, and California Coastal Sediment Management Workgroup, Prepared by Everest International Consultants Inc., in association with Science Applications International Corporation and Dr. Phillip King.*

² Everest et al, 2013

³ Everest et al, 2013

⁴ Everest et al, 2013

barbeques, picnic areas, fire pits, and camping areas. The beach is popular year-round with overnight tourists, and local and county residents. There are a few reefs and a river mouth sandbar that produce soft but well-shaped waves that are popular with longboard and novice surfers and also make the waves safe for children.

There is also a large grassy area that is used in the summertime for concerts and events and otherwise is often crowded with visitors playing a range of games. In the park, there are 120 camping sites, and also many hotels in the area.⁵ The CRSMP⁶ identified this is a *MEDIUM* need receiver site, however, increased erosion over the past decade has now caused this to be a *HIGH* need receiver site.

CA.5 San Clemente State Beach

San Clemente State Beach can be reached off Avenida Calafia which intersects the Interstate 5 freeway. The park provides around 150 campsites, year-round lifeguard service, and restroom and shower facilities. Trails from the bluff top park lead to the beach. In the summer months, the beach and campground are filled with overnight visitors. In the winter, mostly local surfers remain. Where Avenida Calafia terminates near the beach is the San Clemente State Beach - Calafia.

The state provides a metered parking lot of 190 spots, a restroom and shower facility, and seasonal food and lifeguard service. The beach here is narrower than the beaches to the north or south, nevertheless due to the available amenities it is heavily populated by local, county, and tourist beachgoers when the weather is favorable. In the winter, surfers remain.

The San Clemente Inn is just a few blocks from this beach, and a few other hotels are located east of the freeway.⁷ The railroad runs along the back of the beach. Based on the existing beach widths and its “Stable” rating⁸, this is a *MEDIUM* need receiver site.

California State Parks – Stockpile Sites

CA.S.1 Huntington Beach State Beach Parking Lot

The backbeach area along Huntington Beach State Beach will also be considered as a sand source site. The wind-blown sand would be stockpiled within the parking lot (?), for potential use at other beach receiver sites.

Orange County Parks – Receiver Sites

OC.1 Newport Dunes

The Newport Dunes Waterfront Resort is located in Upper Newport Bay and is owned by OC Parks. The resort includes a public beach, aquatic park, marina, RV camping, and resort amenities. The Newport Dunes marina and lagoon are periodically dredged, and the dredge material is disposed at an offshore open ocean site. Based on existing conditions, this is a *LOW* need receiver site.

OC.2 Salt Creek Beach

Salt Creek Beach County Park includes the beaches of Salt Creek Beach and Dana Strands (aka “Strands Beach”). This is a popular year-round beach. It is located west of Pacific Coast Highway at the foot of Niguel

⁵ Everest et al, 2013

⁶ Everest et al, 2013

⁷ Everest et al, 2013

⁸ Moffatt & Nichol, 2023b

Road and receives the majority of South Orange County residents pouring to the nearest beach from inland communities. It has over 1,000 parking spots and a variety of amenities are there to accommodate visitors.

The beach includes a seasonal snack bar and lifeguards, bathrooms and showers, a large grassy area with picnic areas, volleyball courts and a basketball court. Salt Creek is also an important beach for surfing and bodyboarding. The majority of visitors are from Orange County communities, but the beach also has a consistent flow of overnight tourists; the Ritz Carlton is located just above the beach and the St. Regis just across the street. The southern portion of the beach, known as Dana Strands, has a funicular elevator to shuttle patrons down the steep bluff to the beach.⁹

The majority of Salt Creek Beach is owned/managed by OC Parks, with the exception of a small segment of shoreline at the far south end owned by the City of Dana Point. Based on the existing sandy beach width, this is a *MEDIUM* need receiver site.

OC.3 Baby Beach

At the northern end of Dana Point Harbor, southwest of Dana Point Harbor Drive, is a small sandy beach circumvented by a series of grassy areas and a small parking lot. Buoys denote a small swimming zone. This beach is mainly used by tourists and county residents who come to picnic while children swim safely in the still water. Kayak rentals are also available, and the beach serves as a safe and useful place to launch. Restroom and seasonal lifeguard service is provided, and the snack bar at Dana Cove Beach is a short walk away. In the winter, attendance drops significantly.¹⁰ Based on the CRSMP¹¹, this is a *LOW* need receiver site.

OC.4 Capistrano Beach County Park

Capistrano Beach County Park is located directly west of Coast Highway on Beach Road. The narrow beach is used mostly by county residents and overnight tourists from the nearby hotels. In the summer, amenities here are plentiful and the waves are calm, attracting families who can safely swim. A large parking lot provides metered spaces.¹² Based on the CRSMP¹³, this is a *HIGH* need receiver site.

OC.5 Poche Beach

Poche Beach is a little pocket beach at the very south end of Dana Point, in between the private homeowner communities of Capistrano Bay District and Capistrano Shores. Within the beach area, Poche Creek (or Prima Deshecha Cañada storm drain) empties to the ocean. Accessing this beach is difficult as there is no parking on this section of Pacific Coast Highway nor El Camino Real and surrounding communities are gated. Based on the narrow sandy beach, this is a *HIGH* need receiver site.

Orange County Parks – Stockpile Sites

OC.S.1 Lot at Confluence (Bolsa Chica & Edinger)

The stockpile site at the confluence of the C02/C04 (Bolsa Chica and Edinger) flood control channels is located in northern Orange County (within City of Huntington Beach) at the corner of Bolsa Chica Street and Edinger Avenue.

⁹ Everest et al, 2013

¹⁰ Everest et al, 2013

¹¹ Everest et al, 2013

¹² Everest et al, 2013

¹³ Everest et al, 2013

The site has two segments. The first, roughly triangular site is bordered by the flood channels to the north, west and south, and Bolsa Chica Street to the east. Current items being stored at this site include rock riprap, sandbags, fencing, barricades, traffic cones and stop signs. The long and narrow second site is a maintenance dirt road. It runs parallel to and is bordered by Edinger Avenue on its southern side and a stream to its northern side. Combined, the two sites span an area of roughly 23,000 square yards (4.8 acres).

OC.S.2 Lot adjacent to the Santa Ana Bike Trail across from OC Sanitation District (Costa Mesa)

The D03 D/S California @ E01 Bike Trail stockpile site (Figure 4-8) is located just south of the 405 freeway, bordered to the west by the Santa Ana River ("E01") and to the east by the Greenville-Banning flood channel ("D03"), within the City of Costa Mesa. It is 4 miles upstream of the Santa Ana River ocean outlet. The site is accessible by a gated access road, controlled by Orange County Public Works, off of California Street. The available stockpile capacity is very limited with a surface area of roughly 1,000 square yards (0.2 acres). Current items being stored at this site include sandbags, fencing, barricades, traffic cones and stop signs.

The site's relative proximity to the coast, and latitudinal location makes it a suitable storage location for nourishments at north county receiver beaches such as Huntington Beach Bluffs (7 miles away) and West Newport Beach (7 miles).

Historically, the triangular site that borders Edinger Avenue and Bolsa Chica Street has been utilized more for storage than the dirt road. However, it is likely the dirt road will be utilized more in the future as there have been previous noise complaints at the triangular site from homeowners to the east of Bolsa Chica Street as a result of construction vehicles depositing material into the site. These past complaints arose from the deposition of larger, bulkier items such as rock riprap, which generates significantly more noise than sand. Therefore, the first triangular site should still be considered as an option for this program.

OC.S.3 Great Park (former Tustin Marine Base)

This potential stockpile site (Figure 4-10) is a large plot of undeveloped land owned by Orange County Public Works, located in the City of Irvine, near the former Tustin Marine Base. The site is bordered by Marine Way to the north, an Orange County Transit Authority yard to the west, and other undeveloped plots of land to the south and east. The site has the most storage availability of any of the identified stockpile sites, with a surface area of roughly 47,500 square yards (9.8 acres).

Additionally, the site is located in a fairly unpopulated area, relatively distant from residential properties and not near any major streams, storm channels, or other environmental areas. A significant pro of this site is the adjacency to the rail line, which opens the possibility of utilizing train transport of sand from this site to the beaches.

OC.S.4 Audubon Basin (City of Irvine)

The Audubon Basin, I02B01 site (Figure 4-9) is a stormwater detention basin maintained by Orange County Public Works. It is located directly southeast of the California Highway 73 at the intersection with El Toro Road within the City of Aliso Viejo. Storage is available directly south and east of the basin along a dirt access road. The site has moderately available storage area with a surface area of roughly 5,500 square yards (1.1 acres). Current items being stored at this site include sandbags and rock.

The site's relative proximity to the coast, and latitudinal location makes it a suitable storage location for nourishments at south county receiver beaches such as Doheny and Capistrano Beaches (10 miles away). Additionally, the site is located in a fairly unpopulated area, relatively distant from residential properties.

City of Huntington Beach – Receiver Sites

HB.1 Sunset Beach

Sunset Beach is a residential community, within the City of Huntington Beach, with a wide sandy beach that offers free parking, restrooms and showers, lifeguards, and volleyball courts. Beach activities such as surfing, windsurfing and kite surfing dominate water sports, and many visitors can be found simply enjoying the sand and sun. There are numerous hotels in the area and many beach users are overnight tourists or visitors from Orange and Los Angeles Counties. There are a few restaurants in the immediate area.

HB.2 Huntington Harbor Beaches

Huntington Harbor contains a small number of pocket beaches; some accompanied by parks and play areas. These beaches are used primarily by local residents and visitors to the marina. Recreational amenities such as lifeguards are very limited. Access is also difficult for non-residents. Kayak Beach is along Pacific Coast Highway and is a popular launching area for kayakers and standup paddleboarders. Based on the relatively lower erosion rates of Huntington Harbor beaches, these are *LOW* and *MEDIUM* need receiver sites.

HB.3 Huntington Beach Bluffs

Huntington Beach Bluffs, also known as Dog Beach, is along the northern section of Huntington Beach, bordered by Seapoint Avenue to the north and Goldenwest Street to the south. This is one of the few locations in Orange County where dogs are allowed on the beach without a leash. The beach is very popular year-round with local residents and their pets. It is also popular with surfers attracted to the waves, which tend to be larger here than other nearby local beaches. Amenities are metered parking, seasonal lifeguard service, restrooms, and a pedestrian/bicycle trail. Huntington Beach Bluffs is owned by the California State Parks, but is maintained/managed by the City of Huntington Beach via a Lease of State Lands. Based on the CRSMP¹⁴, this is a *HIGH* need receiver site.

City of Huntington Beach – Stockpile Sites

HB.S.1 City of Huntington Beach Gothard Street

This potential stockpile site is a fenced area owned by the City of Huntington Beach and currently used by the City for staging and stockpiling for its Capital Improvement Project. It has a surface area of roughly 4,500 square yards (0.9 acres). A key advantage of this site is its proximity to main transit ways.

City of Newport Beach – Receiver Sites

NB.1 West Newport Beach

West Newport Beach is located to the west of Pacific Coast Highway, immediately south of Huntington Beach. Homes and condos align the landward edge the sandy beach. The beach offers volleyball courts, showers, and seasonally operated lifeguard towers. In the winter, when lifeguards are off duty, the surf and sand are observed by cameras atop each tower and a jeep patrol.

This is also the case for the beaches to the south. The beach is a popular surfing destination. At the middle and southern end of the beach, eight rock jetties spaced about 300 feet apart (the “Newport groin field”) inhibit sediment migration, creating reliable sandbars, making the waves break hollow, and attracting surfers.

A grassy park inland of the homes, along Pacific Coast Highway, provides metered parking, restrooms, playgrounds, picnic tables, and at the southern end, racquetball, basketball, and tennis courts. Across Pacific Coast Highway are restaurants and hotels. This beach swells with tourists and locals in the summer

¹⁴ Everest et al, 2013

and attracts a reduced but still consistent crowd in the winter, mostly local surfers, joggers, and families utilizing the park. A boardwalk extends along the peninsula which is heavily utilized by bikers and walkers year-round.¹⁵

At the southern/eastern limit of this area is Newport Pier and McFadden Plaza, where there are numerous shops and restaurants, a bathroom and shower facility, a boardwalk, a playground and grassy area, and metered public parking. Based on the CRSMP¹⁶ this is a *MEDIUM* need receiver site.

NB.2 Newport Harbor Beaches

There are 32 small beaches (including China Cove, Balboa Island, Harbor Patrol, Bayside Village Marina, Balboa Marina, as well as others) located within Newport Harbor and Newport Bay. Of these 32 beaches, two are owned/maintained by the County of Orange and the remaining are owned/maintained by the City of Newport Beach or within private islands. The beaches within the harbor are accessible mostly by residents of the homes adjoining the private docks, people who rent the houses seasonally, or members of a local yacht club. A study of visitation patterns on Balboa Island concluded that most (57 percent) visitors were local residents.

Attendance at these beaches is limited and concentrated mostly on the beaches with better access and lifeguard services. Many of the sandy stretches are quasi-private and the frequent boat lines and docks also limit access and recreational value as does the water quality inside the harbor and the narrow beach width. This area contains a number of smaller beaches that have limited amenities and host perhaps 10,000 – 15,000 visitors per year, mostly in the summer.

China Cove is located on the east side of Newport Harbor Entrance Channel, northwest of Corona del Mar State Beach. There are two small sandy coves, separated by a row of houses that are both accessible via Cove Street or a footpath from Ocean Boulevard, where visitors must park. Other than a seasonal volleyball court in the east cove, there are no amenities here. The beach is located within the harbor and the waves are calm, so it serves as a useful launching point for kayaks or small watercraft. The beach is mostly used by locals and in the winter the crowd drops to sporadic walkers and kayakers.¹⁷ Based on the CRSMP¹⁸, beaches within Newport Harbor are *HIGH* and *MEDIUM* need receiver sites.

NB.3 Balboa Beach

Balboa Beach extends along the Balboa Peninsula, south of Newport Pier to the Newport Harbor entrance. The Balboa Pier Plaza and beach here are similar to that of Newport Pier; there are numerous shops, a bathroom and shower facility, a boardwalk, a playground and grassy area, and metered public parking lots. There is also a café at the end of the pier. Surfing is less popular at Balboa Pier than at West Newport due to a steeply sloping beach and reduced wave quality, which has also made the pier popular for fishing. The beach to the south of Balboa Pier has similar characteristics to West Newport Beach, but with a smaller crowd.

Street parking becomes scarcer as the peninsula thins, and the boardwalk ends about halfway down the beach. At the south end of the beach are a jetty and a small park offering views across the channel and into the bay. The jetty focuses waves to create the notorious Wedge surf break, attracting board and body

¹⁵ Everest et al, 2013

¹⁶ Everest et al, 2013

¹⁷ Everest et al, 2013

¹⁸ Everest et al, 2013

surfers and boogie boarders during large swells.¹⁹Based on the existing sandy beach width at Balboa Beach, this is a *MEDIUM* need receiver site.

NB.4 Corona del Mar Beach

Corona del Mar Beach is situated immediately east of the Newport Bay channel and southwest of Ocean Boulevard. A paid parking lot of over 500 spots is provided at the beach as well as street parking above the beach on the bluff. There are restrooms, showers, volleyball nets, lifeguards, and a restaurant on the beach. The beach is used mostly by general beachgoers, many of them families local to the city or county, with a minority of tourists exploring the rocky point or enjoying the views from atop the bluff.

The water in the cove is deep, and the waves are usually calm. However, with a large south swell a wave forms along the jetty at the north end of the beach, attracting a steady stream of surfers.²⁰ It is owned by the California State Parks but maintained/managed by the City of Newport Beach via a Lease of State Lands. Based on the CRSMP²¹, this is a *LOW* need receiver site.

NB.5 Little Corona del Mar Beach

Little Corona del Mar Beach (aka “Poppy’s”) is a small pocket beach with access via only a path from/to the top of the bluff to/from the beach. It is owned by the California State Parks but maintained/managed by the City of Newport Beach via a Lease of State Lands. Based on the CRSMP²², this is a *LOW* need receiver site.

City of Newport Beach – Stockpile Sites

NB.S.1 Newport Beach North Star Beach Parking Lot

This potential stockpile site is a fenced dirt lot owned by the City of Newport Beach and used primarily for vehicular parking for the Newport Aquatic Center and North Star Beach. It is along the Upper Newport Bay shoreline and has a surface area of roughly 12,500 square yards (2.5 acres).

City of San Clemente – Receiver Sites

SC.1 Capistrano Shores

Capistrano Shores is a beachfront community within the City of San Clemente. The community consists of approximately 90 homes along the shoreline, which are accessed by a single entrance and a roadway along the landward side of the homes. Similar to Capistrano Bay District, the sandy beach is extremely narrow and many homes are protected by rock revetment and seawalls. This segment also includes the “Shorecliffs” area at the north end of the Capistrano Shores community. Based on the extremely narrow sandy beach and its “Critical” erosion hot spot rating²³, this is a *HIGH* need receiver site.

SC.2 San Clemente North Beach

The northern section of San Clemente’s coast is, for the most part, a thin stretch of sand just west of the railroad tracks that caters to surfers. The width of the beach depends on the tide. These beaches can be reached via pedestrian paths off of Mariposa and Buena Vista streets and parking is limited to the residential streets. The exception is at the north end, where a metered parking lot of about 250 spots located just

¹⁹ Everest et al, 2013

²⁰ Everest et al, 2013

²¹ Everest et al, 2013

²² Everest et al, 2013

²³ Moffatt & Nichol, 2023b

across El Camino Real caters to the patrons of the Ole Hanson Beach Club, a Metrolink station, and a wide beach that has seasonal lifeguards and snack bar, and a playground and restrooms.

This beach is popular with bodyboarders and local and county families in the summertime, but in winter is popular for surfing. The north end is also where the San Clemente Pedestrian Beach Trail begins.²⁴ The CRSMP²⁵, identified this is a *MEDIUM* need receiver site. However, increased erosion over the past decade and its “Threatened” erosion hot spot rating²⁶, it is now a *HIGH* need receiver site.

SC.3 San Clemente Central City Beaches

At the foot of Avenida del Mar at the center of San Clemente sits the San Clemente Pier; the San Clemente City Beach stretches to the north and south. The Pier is crowded year-round with all types of beach users. There are a few hotels and numerous condominiums located nearby, so overnight tourists represent a significant source of tourism, especially in the summer. The Pier is also popular with local and county residents who surf, bodyboard, fish, or dine at the restaurants on the pier, the snack bar on the beach, or any of the establishments located across the street from the beach in the area known as the “Pier Bowl”.

Parking is provided in a metered lot of around 170 parking spots, plus additional metered street parking. Additional amenities at the beach include bathroom and shower facilities, shaded picnic areas, and a playground. Just north of the pier is the San Clemente City Lifeguard Headquarters. Farther north of the Pier is Linda Lane Beach Park, located at the base of Linda Lane. This beach has similar amenities to the Pier and is just a short walk away. This beach, however, is slightly less crowded and caters more to local and county families.

Farther south from the San Clemente pier is the “T-Street” beach. T-Street Beach is a popular surfing destination located at the intersection of Esplanade and W. Paseo de Cristobal. Near the beach there are 30 metered parking spots and additional street parking further up the two streets and within the residential area. A pedestrian bridge leads over the railroad tracks to the beach where there are lifeguards, a seasonal snack bar, a restroom, and shower facilities.

T-Street is very popular with locals and county residents year-round. In the summer, surfing is prohibited from 10:00am to 6:00pm, and swimmers, bodyboarders, and sunbathers dominate the wide sandy beach. During summer mornings and evenings, and in the winter, surfing is popular at the centrally located reef break.²⁷ Based on the CRSMP,²⁸ and the “Critical” and “Threatened” erosion hot spot ratings along this shoreline²⁹, this is a *HIGH* need receiver site.

SC.4 Cyprus Shore/Cottons

The beach backing Cottons surf break is in the City of San Clemente, between San Clemente State Beach and the Orange County Border. It is the northernmost beach in the Trestles area, accessible via a paved path off of Christianitos Road that runs to Trestles (through San Onofre State Beach and the San Mateo Wetlands). Parking is available on the east side of the Interstate 5 in a paid lot of just over 100 spots or on the adjacent street. There are no amenities here apart from a pit toilet at the base of the path. Cottons is a well-regarded surfing destination, and the beach is primarily used by surfers.

²⁴ Everest et al, 2013.

²⁵ Everest et al, 2013.

²⁶ Moffatt & Nichol, 2023b

²⁷ Everest et al, 2013.

²⁸ Everest et al, 2013.

²⁹ Moffatt & Nichol, 2023b

In the winter, the demographic is mostly local and southern California residents, however in the summer the beach is crowded with traveling surfers. Cottons is also the location of President Nixon's Western White House, La Casa Pacifica, which sits atop Cottons overlooking the ocean.³⁰ The railroad runs along the back of the beach. Based on the narrow sandy beach and its "Critical" erosion hot spot rating³¹, this is a *HIGH* need receiver site.

City of San Clemente – Stockpile Sites

SC.S.1 San Clemente – Avenida Vista Hermosa and La Plata

This potential stockpile site is an empty lot at the southwest corner of Avenida Vista Hermosa and La Plata and is owned by the City of San Clemente. It has a surface area of roughly 9,100 square yards. A key advantage of this site is its proximity to main transit ways.

SC.S.2 San Clemente Water Reclamation Plant Yard

As part of a previous City of San Clemente opportunistic beach program, the USACE Regional General Permit (RGP) 66 included utilization of a stockpile site along Avenida Pico between El Camino Real and Avenida Vista Hermosa. The site is a maintenance yard within the City of San Clemente Water Reclamation Plant. The site has moderately available storage area with a surface area of roughly 3,200 square yards.

SC.S.3 San Clemente – North Beach

This site is located between El Camino Real and Calle Deshecha near Avenida Pico and is owned by the City of San Clemente. It is relatively small (1,800 square yards) but is close to sand receiving beaches, e.g. North Beach and Capistrano Shores.

City of Seal Beach – Receiver Sites

SB.1 West Seal Beach

The "West Beach" reach of Seal Beach is located northwest of the Seal Beach Pier and offers a wide beach with volleyball nets, restrooms and showers, and a small café and parking lot. Homes align the landward edge of the beach. This beach is less crowded than the one to the south of the pier. Kite surfing, wind surfing, board surfing, body surfing, and boogie boarding are popular. Based on the historic and current wide sandy beach, this is a *LOW* need receiver site.

SB.2 East Seal Beach

This reach of Seal Beach is located southeast of the Seal Beach Pier and is less wide, but typically more crowded than the reach to the north. A public walkway runs along the back of the beach. Surfing, body surfing, and boogie boarding are popular. During the winter months, a sand dike is constructed to protect residences from winter storms. Based on the CRSMP³², this is a *HIGH* need receiver site.

SB.3 Surfside Beach

Surfside is a private residential community within the City of Seal Beach, located between Anaheim Bay and Sunset Beach. This beach is primarily used by local families and a few surfers willing to make the walk from Sunset Beach to a wave that breaks near the base of the east jetty of Anaheim Bay. There are no

³⁰ Everest et al, 2013

³¹ Moffatt & Nichol, 2023b

³² Everest et al, 2013

facilities here and beach users from outside Surfside generally must park at Sunset Beach. Based on the CRSMP³³, this is a *HIGH* need receiver site.

³³ *Everest et. al., 2013*

Appendix D

Beach Nourishment History by Location

California State Parks

Receiver Sites	Year/s	Approximate Volume (cubic yards)	Sand Source	Project Owner
CA.1 Bolsa Chica State Beach*	Bolsa Chica State Beach has been and continues to be nourished	Unknown	hydraulic pipeline as part of ongoing maintenance dredging at the Bolsa Chica Wetlands	unknown
CA.2 Crystal Cove State Park	2023	15,000	Talbert Channel Outlet/Santa Ana River Ocean Outlet	CA State Parks
CA.3 Doheny State Beach	1964	94,000	San Juan Creek	unknown
CA.3 Doheny State Beach	1966	842,000	Camp Pendleton and/or San Juan Creek	unknown
CA.3 Doheny State Beach	1969	365,000	Likely Dana Point Harbor Construction	unknown
CA.3 Doheny State Beach	1970	126,000	Dana Point Harbor construction	unknown
CA.3 Doheny State Beach	2023	25,000	Santa Ana River	County of Orange and State Parks
CA.4 Huntington Beach State Beach*	2009-2010	150,000	HB Wetlands	HB Wetlands Conservancy
CA.4 Huntington Beach State Beach	1989-ongoing	5,000-15,000 per year	Talbert Chanel Ocean Outlet (OCPW Ocean Outlets Maintenance Program)	OCPW
CA.5 San Clemente State Beach*	none/unknown**	none/unknown**	none/unknown**	none/unknown**

*See Preliminary Implementation Guidelines for more details (Appendix A)

**There is no record of beach nourishment at this site, but it is likely there has been no nourishment activity at this site.

Orange County Parks

Receiver Sites	Year/s	Approximate Volume (cubic yards)	Sand Source	Project Owner
OC.1 Baby Beach	2008	6,000	Dana Point Harbor maintenance dredging	County of Orange
OC.1 Baby Beach	2016	8,000	Dana Point Harbor maintenance dredging	County of Orange
OC.2 Capistrano Beach County Park	1969	212,000	Unknown	unknown
OC.2 Capistrano Beach County Park	1999-2000	32,000	Dana Point Harbor maintenance dredging	unknown
OC.2 Capistrano Beach County Park	2009	48,000	Dana Point Harbor maintenance dredging	County of Orange
OC.2 Capistrano Beach County Park	2016	65,000	Dana Point Harbor maintenance dredging	County of Orange
OC.2 Capistrano Beach County Park	2023	20,000	Santa Ana River	County of Orange
OC.2 Capistrano Beach County Park	2024	20,000	Santa Ana River	County of Orange
OC.3 Newport Dunes	none/unknown**	none/unknown**	none/unknown**	none/unknown**
OC.4 Poche Beach	none/unknown**	none/unknown**	none/unknown**	none/unknown**
OC.5 Salt Creek Beach*	none/unknown**	none/unknown**	none/unknown**	none/unknown**

*See Preliminary Implementation Guidelines for more details (Appendix A)

** There is no record of beach nourishment at this site, but it is likely there has been no nourishment activity at this site.

City of Huntington Beach

Receiver Sites	Year/s	Approximate Volume (cubic yards)	Sand Source	Project Owner
HB.1 Huntington Beach Bluffs	2006	400,000	Bolsa Chica Wetlands restoration and tidal inlet	USFWS
HB.1 Huntington Beach Bluffs	2008-current	65,000-450,000, every 1-3 years	Bolsa Chica Wetlands tidal inlet	SLC
HB.2 Huntington Harbor Beaches	2016-2017	17,500 (total for five harbor beach sites)	Santa Ana River	City of Huntington Beach and OCPW

City of Newport Beach

Receiver Sites	Year/s	Approximate Volume (cubic yards)	Sand Source	Project Owner
NB.1 Balboa Beach	2019	10,000	Santa Ana River Ocean Outlet Maintenance	OCPW
NB.1 Balboa Beach	2020	5,000	Santa Ana River Ocean Outlet Maintenance	OCPW
NB.1 Balboa Beach	2021	5,000	Santa Ana River Ocean Outlet Maintenance	OCPW
NB.1 Balboa Beach	2021	55,000 (nearshore placement)	Newport Bay Entrance Channel	USACE
NB.2 Corona del Mar Beach	Unknown ¹	1,000/year	Unknown	unknown
NB.3 Newport Harbor Beaches	2014	500 (China Cove)	Marine Park dredging	City of Newport Beach
NB.3 Newport Harbor Beaches	2016-2017	10,000 (China Cove and Balboa Island)	Santa Ana River	City of Newport Beach and OCPW
NB.4 Little Corona del Mar Beach	Unknown ²	1,000/year	Unknown	unknown
NB.5 West Newport Beach*	1935-2009	9,000,000	Santa Ana River, Balboa Peninsula, Newport Harbor	USACE
NB.5 West Newport Beach	2016-2017	600,000	Santa Ana River	OCPW
NB.5 West Newport Beach	2003-ongoing	20,000-200,000	Santa Ana River Ocean Outlet Maintenance	OCPW
NB.5 West Newport Beach	2023-2024	71,000	Santa Ana River	USACE

*See Preliminary Implementation Guidelines for more details (Appendix A)

¹ Everest, 2017

² Everest, 2017

City of San Clemente

Receiver Sites	Year/s	Approximate Volume (cubic yards)	Sand Source	Project Owner
SC.1 Capistrano Shores	none/unknown*	none/unknown*	none/unknown*	none/unknown*
SC.2 Cyprus Shore/Cottons	none/unknown*	none/unknown*	none/unknown*	none/unknown*
SC.3 San Clemente Central City Beaches	1964	300,000	Upland construction of SONGS power plant	Southern California Edison
SC.3 San Clemente Central City Beaches	2024	196,000	Offshore borrow site	USACE and City of San Clemente
SC.4 San Clemente North Beach	2005	5,000	Santa Ana River	City of San Clemente and OCPW
SC.4 San Clemente North Beach	2016-2017	12,000	Santa Ana River	City of San Clemente and OCPW
SC.4 San Clemente North Beach	2024	40,000	Santa Ana River	City of San Clemente and OCPW
SC.4 San Clemente North Beach	2025	2,500	unknown	Orange County Transportation Authority (OCTA)

*There is no record of beach nourishment at this site, but it is likely there has been no nourishment activity at this site.

City of Seal Beach

Receiver Sites	Year/s	Approximate Volume (cubic yards)	Sand Source	Project Owner
SB.1 East Beach	1963-1988	370,000	Anaheim Bay, West Beach, San Gabriel River	unknown
SB.1 East Beach	1994-2015	400,000 (up to 100,000 in a single project)	Offshore dredging and inland sources	City of Seal Beach
SB.2 Surfside Beach	1945 - 2009 ³	20,000,000 (multiple events, up to ~2,000,000 per event)	Offshore Borrow Sites	USACE
SB.2 Surfside Beach	2016	47,000	Huntington Harbor	OC Parks
SB.2 Surfside Beach	2021	100,000 (nearshore placement)	Anaheim Bay	U.S. Navy
SB.2 Surfside Beach	2023-2024	811,000	Offshore borrow site	USACE
SB.3 West Beach	none/unknown*	none/unknown*	none/unknown*	none/unknown*

*There is no record of beach nourishment at this site, but it is likely there has been no nourishment activity at this site.

³ Everest et al, 2013

Appendix E
Air Quality Assessments

SCOUP

Construction Trucks Emission Analysis

07/14/2024



moffatt & nichol

Document Verification

Client:

Project name: SCOUP

Document title: Emission Analysis

Document sub-title: N/A

Status: Draft

Date: 07/14/2025

Project number: 210606/14

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Source data: N/A

	Description	Date	Prepared by	Verified by	Approved by
A	Initial Draft for Review	07/10/2025	FG	AZ	
B	Draft	07/14/2025	FG	AZ	

Outline

1. Introduction
2. Inputs and Emission Factors
3. Results



01

Introduction

Project Background

- › The task corresponds to address the emissions of a construction project with several scenarios for a trucking operation.
- › There are three scenarios of trips per week:

Maximum Monthly Truck Trips	Maximum number of Weekly Truck Trips	Maximum Daily Number of Truck Trips Projected	Maximum Hourly Number of Truck Trips Projected	Intervals (minutes)
3840	960	160	16	3.75
1920	480	80	8	7.5
1440	360	60	6	10

- › There are three durations for the operation for each scenario:
 - 15 weeks
 - 22 weeks
 - 30 weeks
- › The objective of the project is to have an estimate of the emissions of pollutants for each scenario and requirements and compare them to the SCAQMD thresholds (daily).
- › Emissions must include passenger vehicles round trips to the field site.
- › Emissions must include idling for trucks for 10 minutes at site.
- › Only emissions from trucks and passenger cars are included in this analysis as per definition for the project. No other equipment is considered.

Scenario Notation

Scenarios	1	2	3
a	960 weekly trips / 15 weeks	480 / 15	360 / 15
b	960 / 22	480 / 22	360 / 22
c	960 / 30	480 / 30	360 / 30

In the following slides, Scenarios will be called as following:

Scenario 1: 960 weekly trips

Scenario 2: 480 weekly trips

Scenario 3: 360 weekly trips

Cases for each scenario:

a) 15 weeks

b) 22 weeks

c) 30 weeks

Introduction to Emission Task

- › The objective of the emission task is to obtain the emission projection for the construction project.
- › Emissions came from construction trucks used in the project and the trips from and to the construction site.
- › The list of equipment considering in the emission analysis include:
 - › Strong Arms
 - › Bottom Dumps
 - › Super 10s
- › The calculation was done using Emissions Estimation formula with EMFAC model emission factors.
- › There is little information on the characteristics of the trucks, such as horsepower, age and mileage. Therefore, the calculation must consider the data that we are certain about: Travel time/distance and Idling time at site.



02

Inputs and Emission Factors

Inputs

- › Weekly number of truck trips
- › Durations of the Project
- › Distance to the construction site (15 miles)
- › Idling time in the construction site (10 minutes)
- › Passenger vehicles round trip (37 miles)
- › Passenger vehicle daily trips (10)

Emission Factors Running Engine (grams/mile)

NOx_RUNEX	PM2.5_RUNEX	PM10_RUNEX	CO2_RUNEX	CH4_RUNEX	N2O_RUNEX	ROG_RUNEX	TOG_RUNEX	NH3_RUNEX	SOx_RUNEX	CO_RUNEX
1.1377	0.0131	0.0137	1,551.5748	0.0716	0.2484	0.0124	0.0854	0.2755	0.0139	0.4915

Strong Arms, Bottom Dumps, Super 10s are classified T7 Class 8 in EMFAC Model (2021 version for 2025 calendar year):

Using Los Angeles area distribution:

- Diesel Single Dump: 22.88%
 - Electricity Single Dump: 0.26%
 - Natural Gas Single Dump: 1.65%
 - Diesel Other: 68.98%
 - Electricity Other: 0.94%
 - Natural Gas Other: 5.28%
- Aggregating all Emission Factors, we obtain an averaged representative value for T7 Class 8.

Emission Factors Idling Engine (grams/hour)

NOx_IDLEX	PM2.5_IDLEX	PM10_IDLEX	CO2_IDLEX	CH4_IDLEX	N2O_IDLEX	ROG_IDLEX	TOG_IDLEX	SOx_IDLEX	CO_IDLEX
0.8648	0.0006	0.0007	199.1110	0.0923	0.0326	0.0732	0.1726	0.0016	1.2238

Strong Arms, Bottom Dumps, Super 10s are classified T7 Class 8 in EMFAC Model (2021 version for 2025 calendar year):

Using Los Angeles area distribution:

- Diesel Single Dump: 22.88%
 - Electricity Single Dump: 0.26%
 - Natural Gas Single Dump: 1.65%
 - Diesel Other: 68.98%
 - Electricity Other: 0.94%
 - Natural Gas Other: 5.28%
- Aggregating all Emission Factors, we obtain an averaged representative value for T7 Class 8.
- There are no NH3 idling emissions in the EMFAC Model.

Emission Factors Running Passenger Vehicle: Vehicle Share (EMFAC Model)

Region	Calendar Year	Vehicle Category	Fuel	Population	Total VMT	%
Los Angeles (SC)	2025LDA		Gasoline	3261717.882	128067964.6	47.59%
Los Angeles (SC)	2025LDA		Diesel	8115.47098	234266.2649	0.09%
Los Angeles (SC)	2025LDA		Electricity	193284.3415	9414235.572	3.50%
Los Angeles (SC)	2025LDA		Plug-in Hybrid	98452.19235	4526938.566	1.68%
Los Angeles (SC)	2025LDT1		Gasoline	307303.6162	11174163.84	4.15%
Los Angeles (SC)	2025LDT1		Diesel	107.1360043	2101.61697	0.00%
Los Angeles (SC)	2025LDT1		Electricity	1046.875547	45556.73451	0.02%
Los Angeles (SC)	2025LDT1		Plug-in Hybrid	677.1342963	34223.91571	0.01%
Los Angeles (SC)	2025LDT2		Gasoline	1598846.897	65845213.92	24.47%
Los Angeles (SC)	2025LDT2		Diesel	5200.085859	223595.1163	0.08%
Los Angeles (SC)	2025LDT2		Electricity	14017.6954	505882.2277	0.19%
Los Angeles (SC)	2025LDT2		Plug-in Hybrid	16355.85292	792451.7915	0.29%
Los Angeles (SC)	2025LHD1		Gasoline	123869.9548	4952849.986	1.84%
Los Angeles (SC)	2025LHD1		Diesel	58715.67018	2596323.511	0.96%
Los Angeles (SC)	2025LHD1		Electricity	1406.155134	98271.34501	0.04%
Los Angeles (SC)	2025LHD2		Gasoline	18894.4929	706862.803	0.26%
Los Angeles (SC)	2025LHD2		Diesel	26698.07852	1155746.821	0.43%
Los Angeles (SC)	2025LHD2		Electricity	363.0686742	24101.85724	0.01%
Los Angeles (SC)	2025MCY		Gasoline	150473.4563	988230.8863	0.37%
Los Angeles (SC)	2025MDV		Gasoline	952282.7935	36302116.46	13.49%
Los Angeles (SC)	2025MDV		Diesel	11031.50419	427142.2782	0.16%
Los Angeles (SC)	2025MDV		Electricity	15185.9899	547666.3841	0.20%
Los Angeles (SC)	2025MDV		Plug-in Hybrid	9770.106857	434969.1711	0.16%

Emission Factors Running Engine (grams/mile): Passenger Vehicles

NO _x _RUNEX	PM2.5_RUNEX	PM10_RUNEX	CO ₂ _RUNEX	CH ₄ _RUNEX	N ₂ O_RUNEX	ROG_RUNEX	TOG_RUNEX	NH ₃ _RUNEX	SO _x _RUNEX	CO_RUNEX
0.0757	0.0016	0.0017	314.6772	0.0039	0.0068	0.0183	0.0253	0.0369	0.0031	0.8895

- › Used share of vehicles from typical passenger distribution in California.

Emission Formula

Equation 6.1

$$E = \textit{Activity} \times \textit{EF}$$

Where:

E = Emissions (grams/year)

$\textit{Activity}$ = Activity (average number of miles driven per truck, hours of idle operation)

\textit{EF} = Emission factor (amount of pollutant emitted per unit of activity), g/mile or g/hour



03

Results

Truck Idling: Scenario 1

Scenario 1				NOx IDLEX	PM2.5 IDLEX	PM10 IDLEX	CO2 IDLEX	CH4 IDLEX	N2O IDLEX	ROG IDLEX	TOG IDLEX	SOx IDLEX	CO IDLEX
			g/day	20.7563	0.0150	0.0158	4,778.6640	2.2151	0.7822	1.7559	4.1432	0.0393	29.3723
			g/hour	0.8648	0.0006	0.0007	199.1110	0.0923	0.0326	0.0732	0.1726	0.0016	1.2238
	Trip	10	Minutes	0.1441	0.0001	0.0001	33.1852	0.0154	0.0054	0.0122	0.0288	0.0003	0.2040
	Weekly 1	960	Metric Tons	0.0001	0.0000	0.0000	0.0319	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002
a)	Weeks	15	Metric Tons	0.0021	0.0000	0.0000	0.4779	0.0002	0.0001	0.0002	0.0004	0.0000	0.0029
b)	Weeks	22	Metric Tons	0.0030	0.0000	0.0000	0.7009	0.0003	0.0001	0.0003	0.0006	0.0000	0.0043
c)	Weeks	30	Metric Tons	0.0042	0.0000	0.0000	0.9557	0.0004	0.0002	0.0004	0.0008	0.0000	0.0059

Idling produces 0.48 metric tons of CO2 emissions for a 15-week Project, 0.7 metric tons for a 22-week Project and 0.96 metric tons for a 30-week Project.

Idling Emission (lb per Day) for Three Scenarios

	Trips per day/Length		NOx IDLEX	PM2.5 IDLEX	PM10 IDLEX	CO2 IDLEX	CH4 IDLEX	N2O IDLEX	ROG IDLEX	TOG IDLEX	SOx IDLEX	CO IDLEX
Trip	10 Minutes		0.1441	0.0001	0.0001	33.1852	0.0154	0.0054	0.0122	0.0288	0.0003	0.2040
Scenario 1	160		23.0625	0.0167	0.0175	5,309.6266	2.4613	0.8691	1.9510	4.6035	0.0436	32.6359
Lb per day			0.0508	0.0000	0.0000	11.7057	0.0054	0.0019	0.0043	0.0101	0.0001	0.0719

	Trips per day/Length		NOx IDLEX	PM2.5 IDLEX	PM10 IDLEX	CO2 IDLEX	CH4 IDLEX	N2O IDLEX	ROG IDLEX	TOG IDLEX	SOx IDLEX	CO IDLEX
Trip	10 minutes		0.1441	0.0001	0.0001	33.1852	0.0154	0.0054	0.0122	0.0288	0.0003	0.2040
Scenario 2	80		11.5313	0.0083	0.0088	2,654.8133	1.2306	0.4346	0.9755	2.3018	0.0218	16.3179
Lb per day			0.0254	0.0000	0.0000	5.8529	0.0027	0.0010	0.0022	0.0051	0.0000	0.0360

	Trips per day/Length		NOx IDLEX	PM2.5 IDLEX	PM10 IDLEX	CO2 IDLEX	CH4 IDLEX	N2O IDLEX	ROG IDLEX	TOG IDLEX	SOx IDLEX	CO IDLEX
Trip	10 minutes		0.1441	0.0001	0.0001	33.1852	0.0154	0.0054	0.0122	0.0288	0.0003	0.2040
Scenario 3	60		8.6484	0.0062	0.0066	1,991.1100	0.9230	0.3259	0.7316	1.7263	0.0164	12.2384
Lb per day			0.0191	0.0000	0.0000	4.3896	0.0020	0.0007	0.0016	0.0038	0.0000	0.0270

Passenger Vehicles: Scenario 1

Scenario 1				NOx_	PM2.5_	PM10_	CO2_	CH4_	N2O_	ROG_	TOG_	NH3_	SOx_	CO_
			g/mile	0.0757	0.0016	0.0017	314.6772	0.0039	0.0068	0.0183	0.0253	0.0369	0.0031	0.8895
	Trip	37	miles	g/trip	2.8006	0.0599	0.0647	11,643.0578	0.1452	0.2532	0.6759	0.9349	1.3666	32.9107
	Weekly 1	50		Grams	140.0276	2.9949	3.2340	582,152.8917	7.2591	12.6610	33.7971	46.7429	68.3297	1,645.5340
a)	Weeks	15		Metric Tons	0.0021	0.0000	0.0000	8.7323	0.0001	0.0002	0.0005	0.0007	0.0010	0.0247
b)	Weeks	22		Metric Tons	0.0031	0.0001	0.0001	12.8074	0.0002	0.0003	0.0007	0.0010	0.0015	0.0362
c)	Weeks	30		Metric Tons	0.0042	0.0001	0.0001	17.4646	0.0002	0.0004	0.0010	0.0014	0.0020	0.0494
	lb per Day	10		Lb	0.06	0.00	0.00	256.69	0.00	0.01	0.01	0.02	0.03	0.73

Passenger vehicles produce 8.73 metric tons of CO2 for a 15-week project, 12.81 metric tons for a 22-week project and 17.46 metric tons for a 30-week project.

In pounds per day, the total CO2 emissions produced is 256.69 lb per day.

Scenario 1, 960 Trips per Week: Total Emission

Scenario 1					NOx	PM2.5	PM10	CO2	CH4	N2O	ROG	TOG	NH3	SOx	CO
					1.1377	0.0131	0.0137	1,551.5748	0.0716	0.2484	0.0124	0.0854	0.2755	0.0139	0.4915
	Trip	15	miles	g/trip	17.0658	0.1971	0.2061	23,273.6220	1.0739	3.7262	0.1854	1.2816	4.1324	0.2082	7.3732
	Idle			Metric Tons	0.0001	0.0000	0.0000	0.0319	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002
	Weekly 1	960		Metric Tons	0.0164	0.0002	0.0002	22.3427	0.0010	0.0036	0.0002	0.0012	0.0040	0.0002	0.0071
	Passenger			Metric Tons	0.0001	0.0000	0.0000	0.5822	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0016
a)	Weeks	15		Metric Tons	0.2499	0.0029	0.0030	344.3508	0.0158	0.0539	0.0034	0.0196	0.0605	0.0031	0.1338
b)	Weeks	22		Metric Tons	0.3666	0.0042	0.0044	505.0478	0.0232	0.0791	0.0049	0.0287	0.0888	0.0045	0.1962
c)	Weeks	30		Metric Tons	0.4999	0.0058	0.0060	688.7016	0.0316	0.1079	0.0067	0.0391	0.1211	0.0062	0.2676

This scenario produces 344.35 metric tons (MT) of CO2 for 15 weeks, 505.05 MT of CO2 when Project lasts 22 weeks and 688.7 MT of CO2 for the Project lasting 30 weeks.

Scenario 2, 480 Trips per Week: Total Emissions

Scenario 2					NOx	PM2.5	PM10	CO2	CH4	N2O	ROG	TOG	NH3	SOx	CO
	Trip	15	miles	g/trip	17.0658	0.1971	0.2061	23,273.6220	1.0739	3.7262	0.1854	1.2816	4.1324	0.2082	7.3732
	Idle			Metric Tons	0.0001	0.0000	0.0000	0.0319	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002
	Weekly 2	480		Metric Tons	0.0082	0.0001	0.0001	11.1714	0.0005	0.0018	0.0001	0.0006	0.0020	0.0001	0.0035
	Passenger			Metric Tons	0.0001	0.0000	0.0000	0.5822	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0016
a)	Weeks	15		Metric Tons	0.1271	0.0015	0.0015	176.7805	0.0081	0.0271	0.0020	0.0103	0.0308	0.0016	0.0807
b)	Weeks	22		Metric Tons	0.1863	0.0021	0.0022	259.2780	0.0118	0.0397	0.0030	0.0152	0.0451	0.0023	0.1184
c)	Weeks	30		Metric Tons	0.2541	0.0029	0.0031	353.5609	0.0161	0.0542	0.0040	0.0207	0.0616	0.0032	0.1614

This scenario produces 176.78 MT of CO2 for 15 weeks, 259.28 MT of CO2 when Project lasts 22 weeks and 353.56 MT of CO2 for the Project lasting 30 weeks.

Scenario 3, 360 Trips per Week: Total Emissions

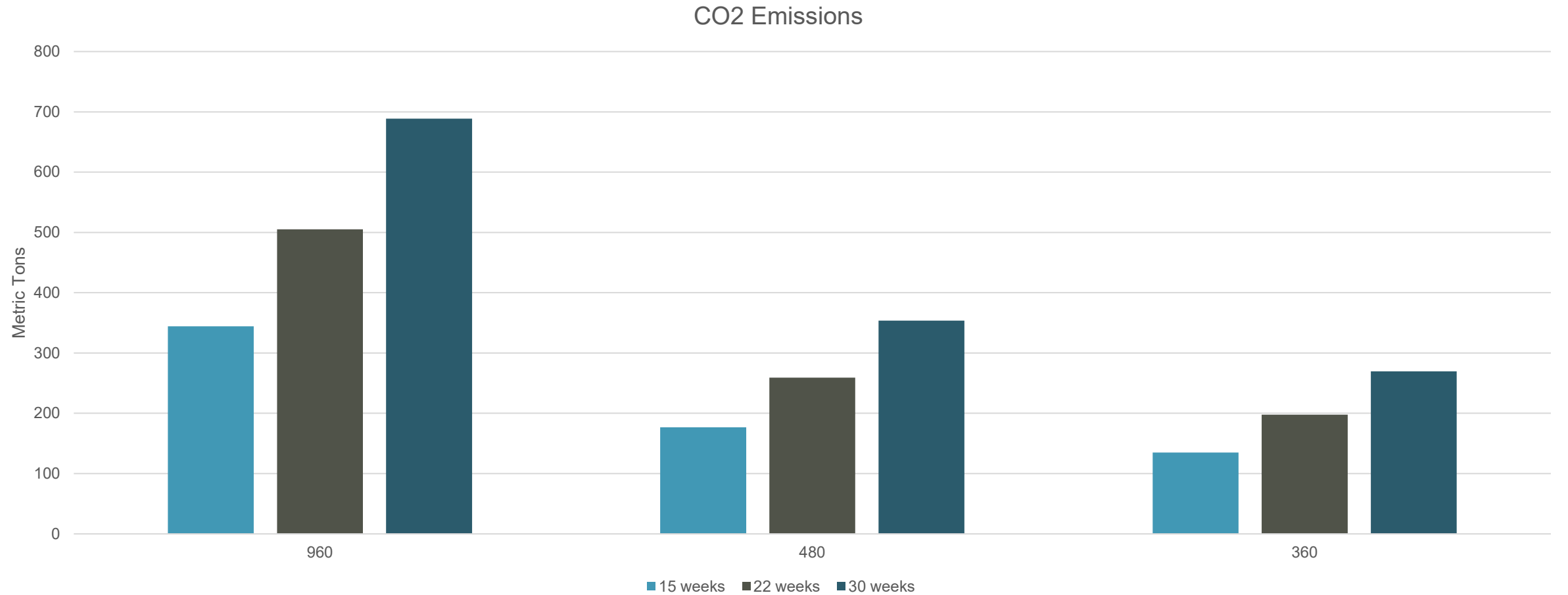
Scenario 3				NOx	PM2.5	PM10	CO2	CH4	N2O	ROG	TOG	NH3	SOx	CO
Trip	15	miles	g/trip	17.0658	0.1971	0.2061	23,273.6220	1.0739	3.7262	0.1854	1.2816	4.1324	0.2082	7.3732
Idle			Metric Tons	0.0001	0.0000	0.0000	0.0319	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002
Weekly 3	360		Metric Tons	0.0061	0.0001	0.0001	8.3785	0.0004	0.0013	0.0001	0.0005	0.0015	0.0001	0.0027
Passenger			Metric Tons	0.0001	0.0000	0.0000	0.5822	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0016
a) Weeks	15		Metric Tons	0.0963	0.0011	0.0012	134.8879	0.0061	0.0204	0.0017	0.0080	0.0233	0.0012	0.0674
b) Weeks	22		Metric Tons	0.1413	0.0016	0.0017	197.8356	0.0090	0.0299	0.0025	0.0118	0.0342	0.0018	0.0989
c) Weeks	30		Metric Tons	0.1927	0.0022	0.0023	269.7758	0.0123	0.0408	0.0034	0.0161	0.0467	0.0024	0.1349

This scenario produces 134.89 MT of CO2 for 15 weeks, 197.84 MT of CO2 when Project lasts 22 weeks and 269.78 MT of CO2 for the Project lasting 30 weeks.

Summary of Scenario results – total annual CO2 emissions (tons)

Cases \ Scenarios	1: 960 weekly trips	2: 480 weekly trips	3: 360 weekly trips
a) 15 weeks	344.35	176.78	134.89
b) 22 weeks	505.05	259.28	197.84
c) 30 weeks	688.7	353.56	269.78

Results: Summary – Total Emissions



SCAQMD thresholds

- › NO_x: 100 lb/day
- › VOC: 75 lb/day
- › PM₁₀: 150 lb/day
- › PM_{2.5}: 55 lb/day
- › SO_x: 150 lb/day
- › CO: 550 lb/day
- › Lead: 3 lb/day



South Coast Air Quality Management District

21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

South Coast AQMD Air Quality Significance Thresholds

Mass Daily Thresholds ^a		
Pollutant	Construction	Operation
NO_x	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM₁₀	150 lbs/day	150 lbs/day
PM_{2.5}	55 lbs/day	55 lbs/day
SO_x	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day

160 daily trips (960 weekly trips): Daily Emission

			NOx	IPM2.5	PM10	CO2	CH4	N2O	ROG	TOG	NH3	SOx	CO
			1.1377	0.0131	0.0137	1,551.5748	0.0716	0.2484	0.0124	0.0854	0.2755	0.0139	0.4915
Trip	15 miles	g/trip	17.0658	0.1971	0.2061	23,273.6220	1.0739	3.7262	0.1854	1.2816	4.1324	0.2082	7.3732
Daily1	160	grams	2,730.5253	31.5365	32.9746	3,723,779.5177	171.8254	596.1921	29.6583	205.0594	661.1823	33.3174	1,179.7085
Pound		Lb	6.0198	0.0695	0.0727	8,209.5286	0.3788	1.3144	0.0654	0.4521	1.4577	0.0735	2.6008
Idle		Lb	0.0508	0.0000	0.0000	11.7057	0.0054	0.0019	0.0043	0.0101		0.0001	0.0719
Passenger		lb	0.0617	0.0013	0.0014	256.6855	0.0032	0.0056	0.0149	0.0206	0.0301	0.0025	0.7256
Total		lb	6.1324	0.0709	0.0742	8,477.9198	0.3874	1.3219	0.0846	0.4828	1.4878	0.0761	3.3983
Threshold		lb	100	55	150	N/A	N/A	N/A	75	N/A	N/A	150	550

All total values of pollutants are below SCAQMD thresholds.

CO2 emissions are 8,477.92 lb per day.

80 daily trips (480 weekly trips): Daily Emission

			NOx	PM2.5	PM10	CO2	CH4	N2O	ROG	TOG	NH3	SOx	CO
			1.1377	0.0131	0.0137	1,551.5748	0.0716	0.2484	0.0124	0.0854	0.2755	0.0139	0.4915
Trip	15 miles	g/trip	17.0658	0.1971	0.2061	23,273.6220	1.0739	3.7262	0.1854	1.2816	4.1324	0.2082	7.3732
Daily1	160	grams	1,365.2626	15.7683	16.4873	1,861,889.7589	85.9127	298.0960	14.8291	102.5297	330.5912	16.6587	589.8542
Pound		Lb	3.0099	0.0348	0.0363	4,104.7643	0.1894	0.6572	0.0327	0.2260	0.7288	0.0367	1.3004
Idle		Lb	0.0254	0.0000	0.0000	5.8529	0.0027	0.0010	0.0022	0.0051		0.0000	0.0360
Passenger		lb	0.0617	0.0013	0.0014	256.6855	0.0032	0.0056	0.0149	0.0206	0.0301	0.0025	0.7256
Total		lb	3.0971	0.0361	0.0378	4,367.3026	0.1953	0.6637	0.0497	0.2517	0.7590	0.0393	2.0619
Threshold		lb	100	55	150	N/A	N/A	N/A	75	N/A	N/A	150	550

All pollutants follow SCAQMD thresholds.

CO2 emissions are 4,367.3 lb per day.

60 daily trips (360 weekly trips): Daily Emission

			NOx	PM2.5	PM10	CO2	CH4	N2O	ROG	TOG	NH3	SOx	CO
			1.1377	0.0131	0.0137	1,551.5748	0.0716	0.2484	0.0124	0.0854	0.2755	0.0139	0.4915
Trip	15 miles	g/trip	17.0658	0.1971	0.2061	23,273.6220	1.0739	3.7262	0.1854	1.2816	4.1324	0.2082	7.3732
Daily1	160	grams	1,023.9470	11.8262	12.3655	1,396,417.3192	64.4345	223.5720	11.1219	76.8973	247.9434	12.4940	442.3907
Pound		Lb	2.2574	0.0261	0.0273	3,078.5732	0.1421	0.4929	0.0245	0.1695	0.5466	0.0275	0.9753
Idle		Lb	0.0191	0.0000	0.0000	4.3896	0.0020	0.0007	0.0016	0.0038		0.0000	0.0270
Passenger		lb	0.0617	0.0013	0.0014	256.6855	0.0032	0.0056	0.0149	0.0206	0.0301	0.0025	0.7256
Total		lb	2.3382	0.0274	0.0287	3,339.6483	0.1473	0.4992	0.0410	0.1939	0.5767	0.0301	1.7278
Threshold		lb	100	55	150	N/A	N/A	N/A	75	N/A	N/A	150	550

All pollutants follow SCAQMD thresholds.

CO2 emissions are 3,339.65 lb per day.

Conclusions

- › An emission analysis was performed using available data, assumptions on characteristics of the construction project and standardized methodology provided by the EMFAC model and Emission estimation formulas for vehicles. The analysis shows that the project is within daily thresholds under the SCAQMD regulation.
- › The Project produces a maximum of 680.7 metric tons of CO₂ for the whole duration. This happens for Scenario 1 (960 weekly trips). Scenario 2 produces a maximum of 353.56 metric tons of CO₂ and Scenario 3 a total of 269.78 metric tons under the longest Project. In a daily basis this means 8,477.92 lb per day of CO₂ for Scenario 1. This is aligned with a 2025 approved fleet of trucks under the T7 classification using the benchmark of a California typical fleet.

Thank you

SCOUP

Construction Rail Freight Emission Analysis

07/15/2024



moffatt & nichol

Document Verification

Client:

Project name: SCOUP

Document title: Emission Analysis

Document sub-title: N/A

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Version	Description	Date	Prepared by	Verified by	Approved by
A	Initial Draft for Review	07/15/2025	FG	AZ	--
B	Draft	07/17/2025	--	--	--

Outline

1. Introduction
2. Inputs and Emission Factors
3. Results



01

Introduction

Project Background

- › For a construction project in California, a rail service is programmed for moving cargo related to the project.
- › This rail service consists of 100 cargo cars and is planned to use 100% new 4400 BHP locomotives (Tier 4).
- › The service is set to operate once per week for 54 weeks.
- › Emissions must be calculated for this rail service, comparing them to the SCAQMD thresholds.
- › The projected emissions will be compared to an average rail service using current day locomotives ranging from Tier 0 to Tier 4 following statistics from CARB.
- › Daily emissions for the rail service will be added to the truck emissions of the same construction project. The combined emission will also be compared to the SCAQMD thresholds.



02

Inputs and Emission Factors

Inputs

- › Number of weekly trips (1 per week)
- › Maximum number of weeks (54)
- › Length of the round trip (19.8 miles)
- › Speed of the trip (30 miles per hour, therefore each trip takes 0.66 hours)
- › Engine Power (4,400 BHP)
- › Idling time at site (8 hours per trip)

Emission Factors for Long Haul Rail Services (grams per bhp-hr)

Table 1 - Line-Haul Emission Factors (g/bhp-hr)

	PM ₁₀	HC	NO _x	CO
UNCONTROLLED	0.32	0.48	13.00	1.28
TIER 0	0.32	0.48	8.60	1.28
TIER 0+	0.20	0.30	7.20	1.28
TIER 1	0.32	0.47	6.70	1.28
TIER 1+	0.20	0.29	6.70	1.28
TIER2	0.18	0.26	4.95	1.28
TIER 2+ & TIER 3	0.08	0.13	4.95	1.28
TIER 4	0.015	0.04	1.00	1.28

+ INDICATES THAT THESE ARE THE REVISED STANDARDS IN 40 CFR PART 1033

EPA suggests g/bhp-hr or g/gal (fuel consumption) for estimating emissions.

From EPA-420-F09-025: Emission Factors for Locomotives – Technical Highlights

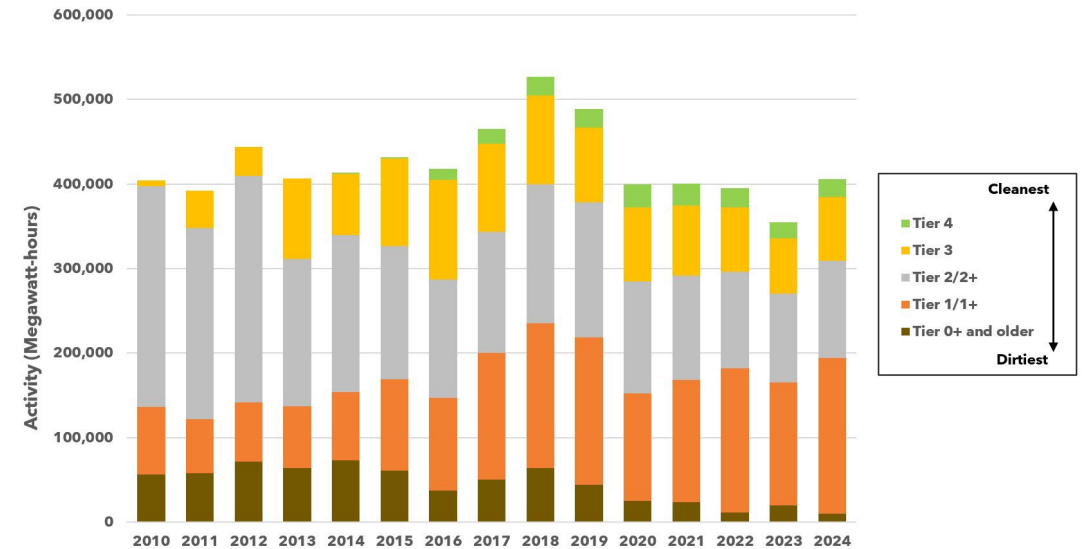
Emission Factors Idling Engine

- › EPA Locomotive Emission Standards, 40 CFR Part 1033 recommends using 4% of rated power for idling in Tier 0 to Tier 2 engines and 3% of rated power for Tier 3 to Tier 4 engines. This values are used as Load Factor for the idling engine when calculating emissions.
- › Emission factors stay the same for 4,400 BHP engines.

2024 Locomotive Share by CARB

A weighted average of the statistics reported by CARB on the usage of Union Pacific and BNSF locomotives allows to generate a weighted emission factor for each pollutant in grams per bhp-hr.

Tier	Union Pacific	MWh	BNSF Railway	MWh	Average
Pre Tier 0	0.04%	73	0.27%	553	0.15%
Tier 0	2.64%	5,286	2.03%	4,067	2.30%
Tier 1	51.29%	102,502	40.90%	81,754	45.39%
Tier 2	26.22%	52,412	31.36%	62,681	28.35%
Tier 3	14.71%	29,406	23.02%	46,001	18.58%
Tier 4	5.10%	10,188	5.50%	10,984	5.22%



Aggregated Emission Factor Combining UP and BNSF Fleet Mixing

PM	HC	NOX	CO
0.22	0.33	5.63	1.28

Emission Factors for PM25 and VOC

- › EPA recommends using the following emission factors for PM2.5 and VOC (Volatile Organic Compound):
 - › PM2.5 is set to be 0.97 times the Particulate Matter (PM).
 - › VOC is set to be 1.053 times the Hydrocarbons (HC).

- › EPA doesn't have specific emission factors for CO2 or SOX for rail freight. A calculation of those pollutants requires knowledge of the composition of fuel that the locomotive is using and its gal/hour consumption but is still an approximation by EPA acknowledgment in their recommendations.

SCAQMD thresholds

- › NO_x: 100 lb/day
- › VOC: 75 lb/day
- › PM₁₀: 150 lb/day
- › PM_{2.5}: 55 lb/day
- › SO_x: 150 lb/day
- › CO: 550 lb/day
- › Lead: 3 lb/day



South Coast Air Quality Management District

21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

South Coast AQMD Air Quality Significance Thresholds

Mass Daily Thresholds ^a		
Pollutant	Construction	Operation
NO_x	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM₁₀	150 lbs/day	150 lbs/day
PM_{2.5}	55 lbs/day	55 lbs/day
SO_x	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day



03

Results

Emissions per Trip: Tier 4 Engines (Daily Emissions, one trip per week)

Engine Status	PM	HC	NOX	CO	BHP	Hr	PM Trip	HC Trip	NOX Trip	CO Trip	VOC Trip	PM25 Trip
Tier 4 Trip	0.015	0.04	1	1.28	4400	0.66	43.56	116.16	2904	3717.12	122.3165	42.2532
Tier 4 Idling	0.015	0.04	1	1.28	132	8	15.84	42.24	1056	1351.68	44.47872	15.3648
Total (grams)	--	--	--	--	--	--	59.4	158.4	3960	5068.8	166.7952	57.618
Daily (lb)	--	--	--	--	--	--	0.130955	0.349212	8.730306	11.17479	0.36772	0.127026
Threshold (lb)	--	--	--	--	--	--	150	N/A	100	550	75	55

With Tier 4 engines, the Project is within SCAQMD daily emission thresholds by itself.

Total Daily Emissions: Adding Project Trucks Values in lb, Rail Tier 4

--	Daily Trips	PM	HC	NOX	CO	VOC	PM25
--	Rail Tier 4	0.1310	0.3492	8.7303	11.1748	0.3677	0.1270
a)	Truck 160	0.0742	--	6.1324	3.3983	0.0846	0.0709
--	Total	0.2052	0.3492	14.8627	14.5731	0.4523	0.1979
--	Threshold	150.0000	N/A	100.0000	550.0000	75.0000	55.0000

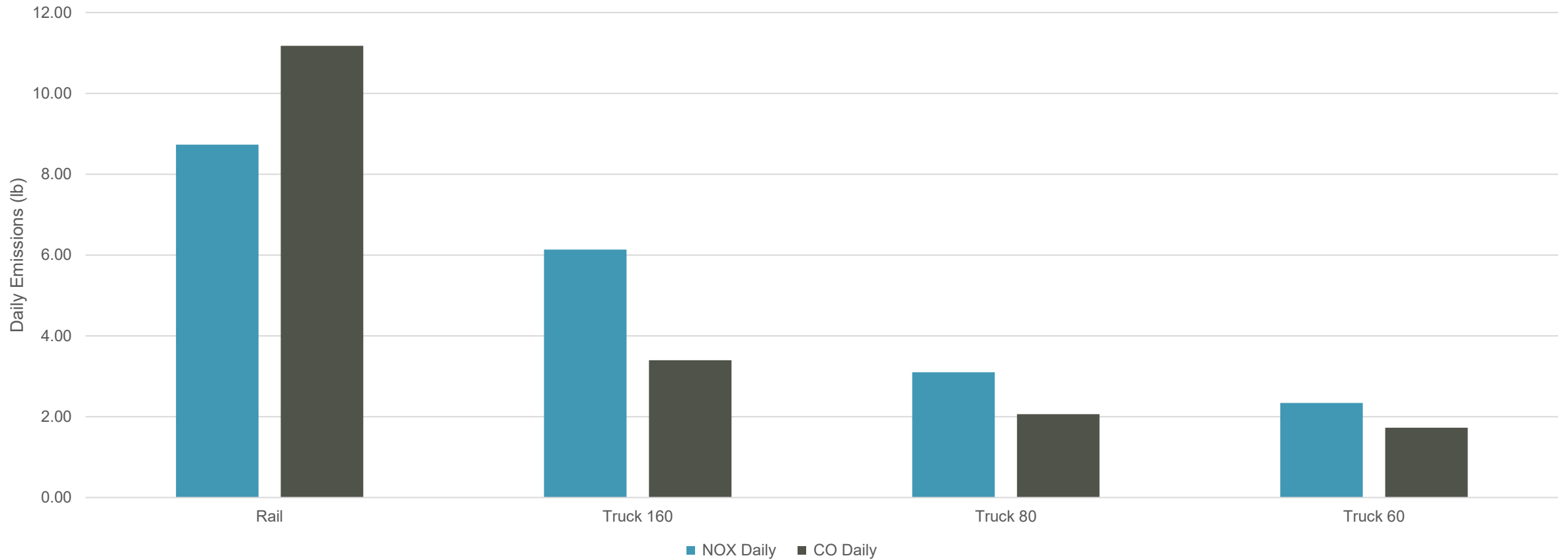
--	Daily Trips	PM	HC	NOX	CO	VOC	PM25
--	Rail Tier 4	0.1310	0.3492	8.7303	11.1748	0.3677	0.1270
b)	Truck 80	0.0378	--	3.0971	2.0619	0.0497	0.0361
--	Total	0.1688	0.3492	11.8274	13.2367	0.4174	0.1631
--	Threshold	150.0000	N/A	100.0000	550.0000	75.0000	55.0000

--	Daily Trips	PM	HC	NOX	CO	VOC	PM25
--	Rail Tier 4	0.1310	0.3492	8.7303	11.1748	0.3677	0.1270
c)	Truck 60	0.0287	--	2.3382	1.7278	0.0410	0.0274
--	Total	0.1597	0.3492	11.0685	12.9026	0.4087	0.1544
--	Threshold	150.0000	N/A	100.0000	550.0000	75.0000	55.0000

With Tier 4 engines, the Project is within SCAQMD thresholds for all truck daily trips.

Comparison between Truck and Rail daily emissions: Tier 4 Engines

Tier 4 Engines Daily Emissions



Total Rail Emissions Tier 4 Engines (1 Weekly Trip, 54-week Project) Values in Metric Tons

Rail Movement	PM Year	HC Year	NOX Year	CO Year	VOC Year	PM25 Year
Tier 4 Trip	0.0024	0.0063	0.1568	0.2007	0.0066	0.0023
Tier 4 Idling	0.0009	0.0023	0.0570	0.0730	0.0024	0.0008
Total	0.0032	0.0086	0.2138	0.2737	0.0090	0.0031

The Project produces 0.214 MT of NOX and 0.274 MT of CO per year as main pollutants with Tier 4 engines.

Emission Calculation with current Engines

- › For comparison purposes, the calculations for current distribution of engines both for Union Pacific and BNSF is provided.
- › It is expected to see increase in emissions specially in NOX and PM, which have improved by a relevant factor in newer locomotives.

Emissions per Trip: Current Engines, Travel

Tier	% of total	PM	HC	NOX	CO	BHP	Hr	PM Trip	HC Trip	NOX Trip	CO Trip	VOC Trip	PM25 Trip
Pre Tier 0	0.15%	0.32	0.48	13	1.28	4400	0.66	929.28	1393.92	37752	3717.12	1467.798	901.4016
Tier 0	2.30%	0.32	0.48	8.6	1.28	4400	0.66	929.28	1393.92	24974.4	3717.12	1467.798	901.4016
Tier 1	45.39%	0.32	0.47	6.7	1.28	4400	0.66	929.28	1364.88	19456.8	3717.12	1437.219	901.4016
Tier 2	28.35%	0.18	0.26	4.95	1.28	4400	0.66	522.72	755.04	14374.8	3717.12	795.0571	507.0384
Tier 3	18.58%	0.08	0.13	4.95	1.28	4400	0.66	232.32	377.52	14374.8	3717.12	397.5286	225.3504
Tier 4	5.22%	0.015	0.04	1	1.28	4400	0.66	43.56	116.16	2904	3717.12	122.3165	42.2532
Average (grams)	--	0.22	0.33	5.63	1.28	--	--	638.3258	944.1179	16363.68	3717.12	994.1562	619.176
Daily (lb)	--	--	--	--	--	--	--	1.407268	2.081424	36.07574	8.194847	2.191739	1.36505

Emissions per Trip: Current Engines, Idling

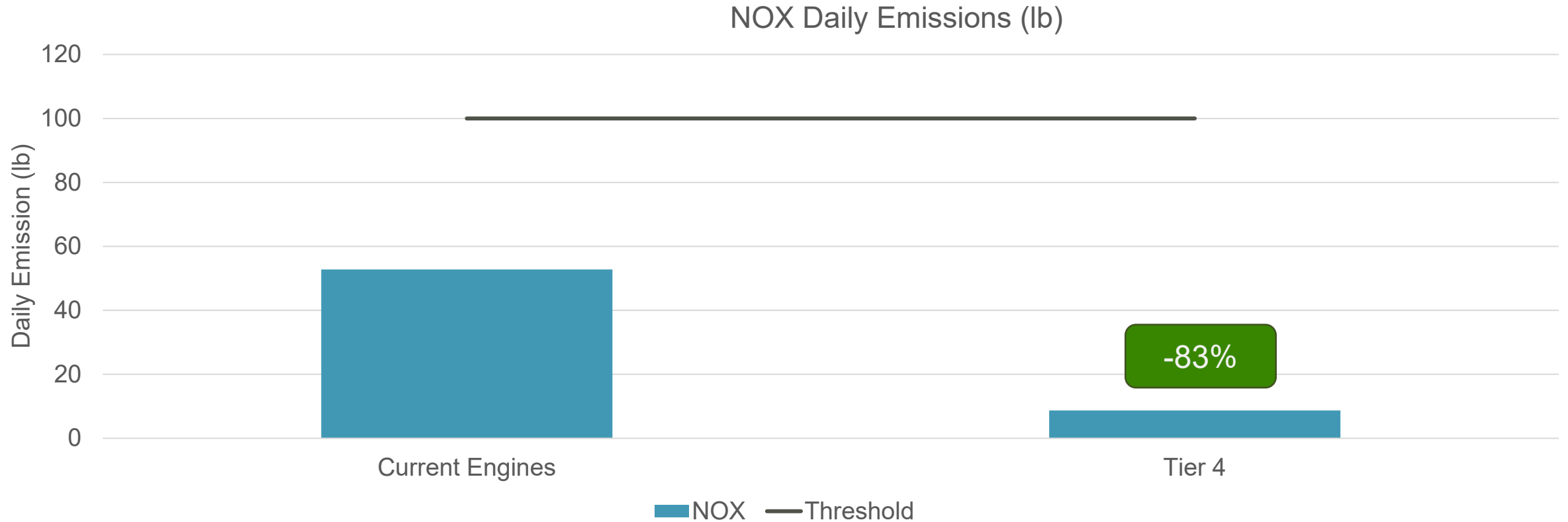
Tier	% of total	PM	HC	NOX	CO	BHP	Hr	PM Trip	HC Trip	NOX Trip	CO Trip	VOC Trip	PM25 Trip
Pre Tier 0	0.15%	0.32	0.48	13	1.28	4400	0.66	450.56	675.84	18304	1802.24	711.6595	437.0432
Tier 0	2.30%	0.32	0.48	8.6	1.28	4400	0.66	450.56	675.84	12108.8	1802.24	711.6595	437.0432
Tier 1	45.39%	0.32	0.47	6.7	1.28	4400	0.66	450.56	661.76	9433.6	1802.24	696.8333	437.0432
Tier 2	28.35%	0.18	0.26	4.95	1.28	4400	0.66	253.44	366.08	6969.6	1802.24	385.4822	245.8368
Tier 3	18.58%	0.08	0.13	4.95	1.28	4400	0.66	84.48	137.28	5227.2	1351.68	144.5558	81.9456
Tier 4	5.22%	0.015	0.04	1	1.28	4400	0.66	15.84	42.24	1056	1351.68	44.47872	15.3648
Average (grams)	--	0.22	0.33	5.63	1.28	--	--	303.9845	448.5187	7591.854	1695.037	472.2902	294.865
Daily (lb)	--	--	--	--	--	--	--	0.670171	0.988814	16.73717	3.736916	1.041222	0.650066

Emissions per Trip, Total Current Engines

	PM Trip	HC Trip	NOX Trip	CO Trip	VOC Trip	PM25 Trip
Travel (grams)	638.32582	944.117903	16363.68268	3717.12	994.156152	619.17605
Idling (grams)	303.98451	448.518704	7591.853767	1695.03654	472.290195	294.86497
Total (grams)	942.3103	1,392.6366	23,955.5364	5,412.1565	1,466.4463	914.0410
Daily (lb)	2.0774	3.0702	52.8129	11.9318	3.2330	2.0151
Threshold (lb)	150	N/A	100	550	75	55

With current engines, the Project is within SCAQMD thresholds. There is an important increase in NOX emissions, which reach 52.81 lb per day, but are still halfway from the total threshold.

Comparison: Daily NOX Emissions



NOX is the closest pollutant to the threshold according to the calculation. Other pollutants are well within the threshold

Total Daily Emissions: Adding Project Trucks Values in Lb, Rail Averages

--	Rail and Truck Trips	PM Trip	HC Trip	NOX Trip	CO Trip	VOC Trip	PM25 Trip
--	Rail Avg	2.0804	3.0746	52.8524	11.9327	3.2376	2.0180
a)	Truck 160	0.0742		6.1324	3.3983	0.0846	0.0709
--	Total	2.1546	3.0746	58.9848	15.3310	3.3222	2.0889
--	Threshold	150.0000	N/A	100.0000	550.0000	75.0000	55.0000

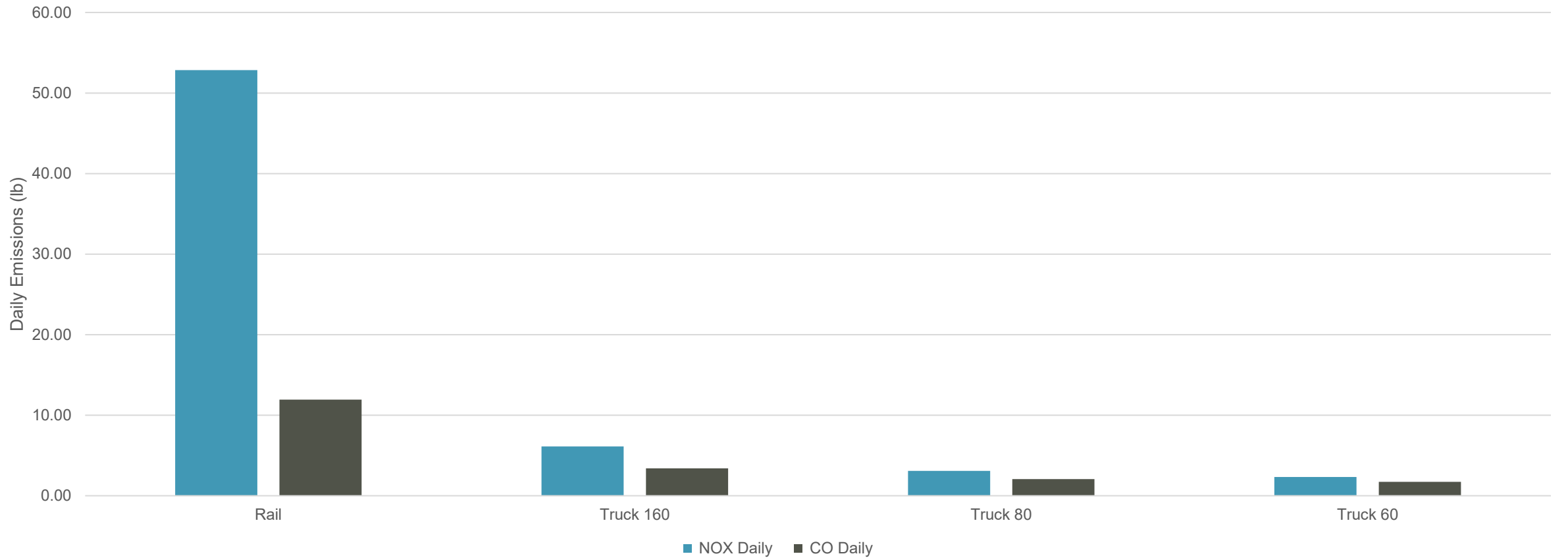
--	Rail and Truck Trips	PM Trip	HC Trip	NOX Trip	CO Trip	VOC Trip	PM25 Trip
--	Rail Avg	2.0804	3.0746	52.8524	11.9327	3.2376	2.0180
b)	Truck 80	0.0378		3.0971	2.0619	0.0497	0.0361
--	Total	2.1182	3.0746	55.9495	13.9946	3.2873	2.0541
--	Threshold	150.0000	N/A	100.0000	550.0000	75.0000	55.0000

--	Rail and Truck Trips	PM Trip	HC Trip	NOX Trip	CO Trip	VOC Trip	PM25 Trip
--	Rail Avg	2.0804	3.0746	52.8524	11.9327	3.2376	2.0180
c)	Truck 60	0.0287		2.3382	1.7278	0.0410	0.0274
--	Total	2.1091	3.0746	55.1906	13.6605	3.2786	2.0454
--	Threshold	150.0000	N/A	100.0000	550.0000	75.0000	55.0000

With Current engines, the Project is within SCAQMD thresholds combining truck and rail emissions for all truck scenarios.

Comparison between Truck and Rail daily emissions: Current Engines

Current Engines Daily Emissions



Comparison: Rail and Truck Emissions

Vehicle	Truck 160	Truck 160	Truck 160	Truck 160	Truck 80	Truck 80	Truck 80	Truck 80	Truck 80	Truck 60	Truck 60	Truck 60	Truck 60
Rail and Truck	NOX Daily	% NOX	CO Daily	% CO	NOX Daily	% NOX	CO Daily	% CO	NOX Daily	% NOX	CO Daily	% CO	NOX Daily
Rail Tier 4	8.7303	58.74%	11.1748	76.68%	8.7303	73.81%	11.1748	84.42%	8.7303	78.88%	11.1748	86.61%	8.7303
Truck	6.1324	41.26%	3.3983	23.32%	3.0971	26.19%	2.0619	15.58%	2.3382	21.12%	1.7278	13.39%	2.3382

Vehicle	Truck 160	Truck 160	Truck 160	Truck 160	Truck 80	Truck 80	Truck 80	Truck 80	Truck 80	Truck 60	Truck 60	Truck 60	Truck 60
Rail and Truck	NOX Daily	% NOX	CO Daily	% CO	NOX Daily	% NOX	CO Daily	% CO	NOX Daily	% NOX	CO Daily	% CO	NOX Daily
Rail Current Fleet	52.8524	89.60%	11.9327	77.83%	52.8524	89.60%	11.9327	77.83%	52.8524	95.76%	11.9327	87.35%	52.8524
Truck	6.1324	10.40%	3.3983	22.17%	6.1324	10.40%	3.3983	22.17%	2.3382	4.24%	1.7278	12.65%	2.3382

In daily emissions, rail emissions are important for CO and NOX for this project.

The equivalent emissions per day with rail Tier 4 and truck are with 228 trucks for NOX. To move the same cargo than a 100-car rail service, it usually would need around 600 trucks, therefore rail emissions are close to 3 times lower in rate to move the same load.

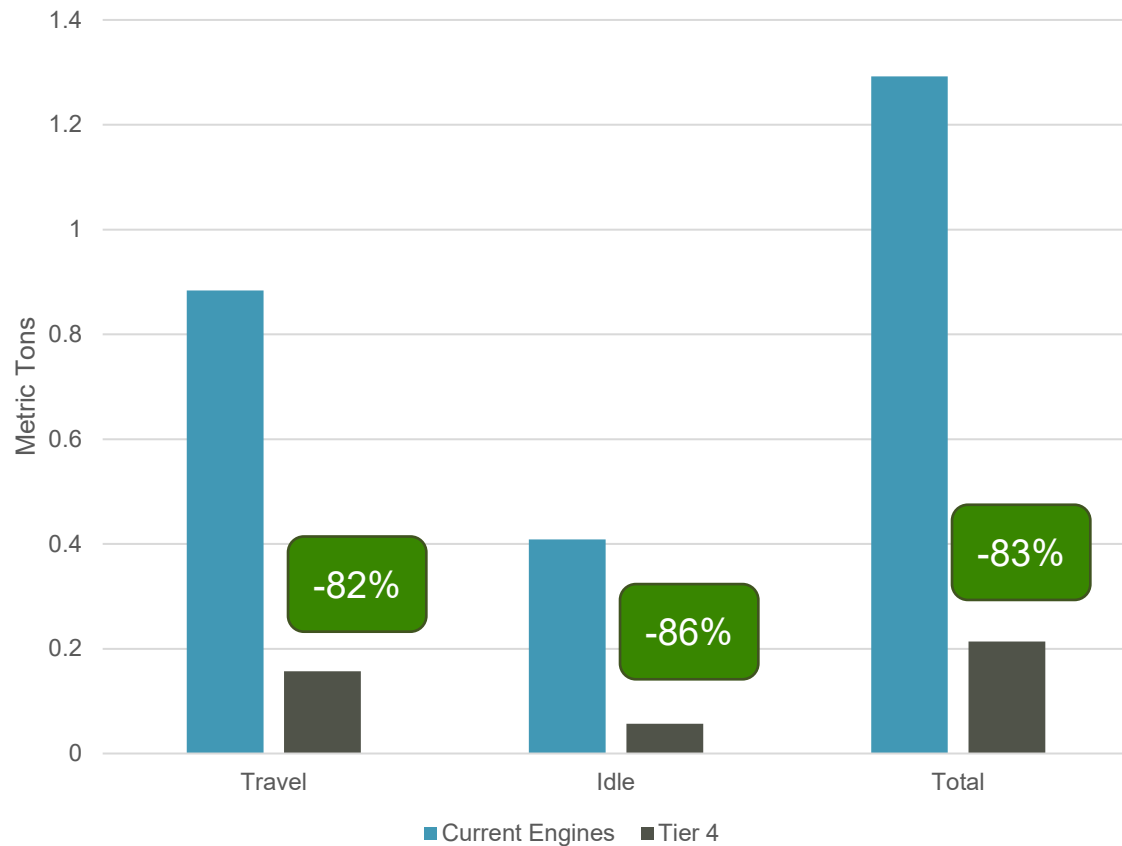
Total Rail Emissions Current Fleet (1 weekly trip, 54-week Project) Values in Metric Tons

Fleet Activity	PM Year	HC Year	NOX Year	CO Year	VOC Year	PM25 Year
Current Fleet Trip	0.0345	0.0510	0.8836	0.2007	0.0537	0.0334
Current Fleet Idle	0.0164	0.0242	0.4084	0.0914	0.0254	0.0159
Total	0.0508	0.0751	1.2921	0.2921	0.0791	0.0493

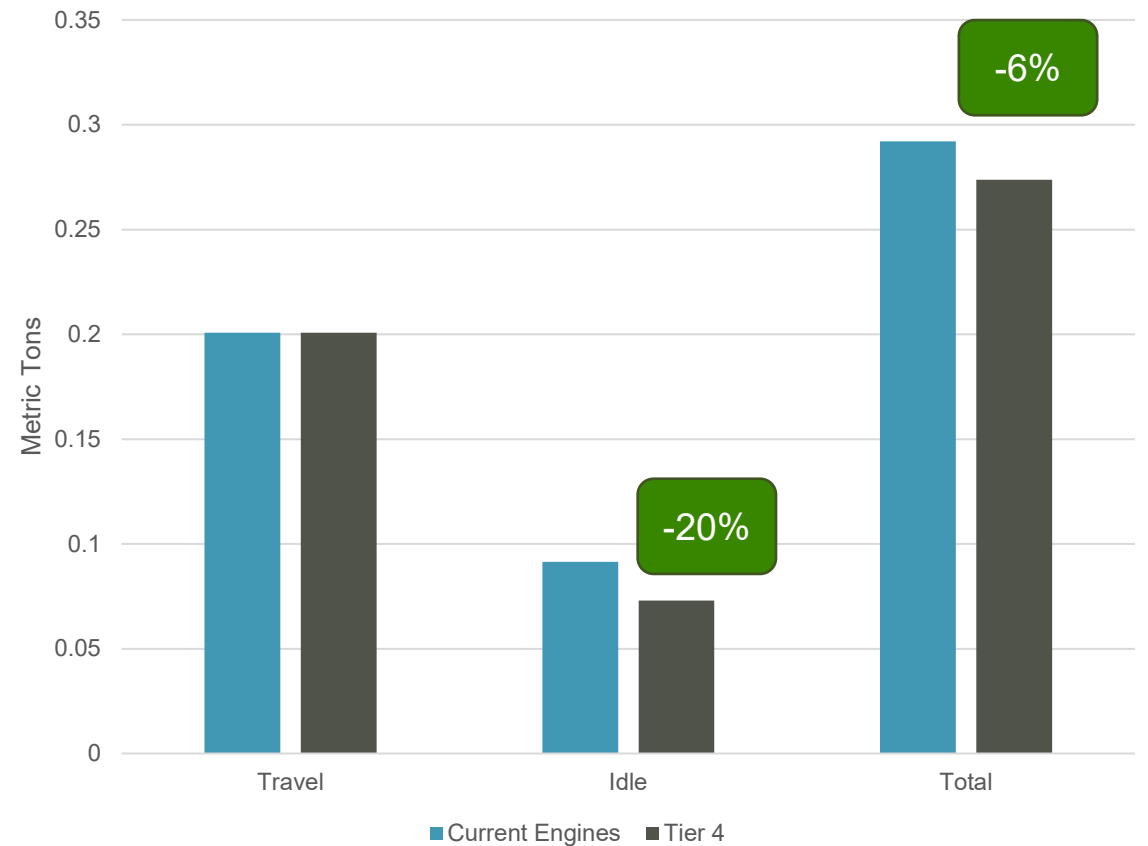
The Project produces 1.292 MT of NOX and 0.292 MT of CO per year as main pollutants with current fleet engines. PM and PM25 emissions would increase by 58.75%.

Total Rail Emission Comparison Current Fleet vs. Tier 4: NOX, CO

NOX Total Emissions (metric tons)



CO Total Emissions (metric tons)



CO2 Emissions: Emissions in Metric Tons

Calculation Values	Value
Fuel consumption travel	1 gal/mile
Fuel consumption idling	3.5 gal/hour
Fuel density	3,200 g/gal
Carbon content of fuel	87%
Emission factor CO2	10,217 g/gal
Fuel consumption travel	19.8 gal
Fuel consumption idling	28 gal
Total fuel consumption	47.8 gal

Emissions	Metric Tons
Emissions per travel trip	0.2023
Emissions per idling (trip)	0.2861
Total emissions per trip (daily)	0.4884
Total emissions Project (54 weeks)	26.3721

Conclusions

- › An emission analysis was performed using available data, assumptions on characteristics of the rail service for a construction project and standardized methodology provided by EPA.
- › Calculations show that either case, i.e., the project by rail-only or combined with the trucking operation, is within SCAQMD thresholds.
- › An assumption of the project is the use of newer Tier 4 engines. By using an engine weighted from the current fleet available for cargo rail in California, as per CARB data, some pollutants such as NOX and PM increase considerably. The calculation shows that the project using the current engine fleet is still within SCAQMD thresholds.

Thank you

APPENDIX F
Terrestrial Biological Assessment Report

ORANGE COUNTY SAND COMPATIBILITY AND OPPORTUNISTIC USE PROGRAM TERRESTRIAL BIOLOGICAL RESOURCES ASSESSMENT REPORT

Updated August 2025

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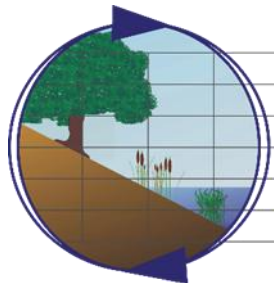


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1.0 INTRODUCTION

1.1 PURPOSE OF THIS REPORT

Merkel & Associates, Inc (M&A) has prepared this terrestrial biological assessment report for the Orange County Sand Compatibility and Opportunistic Use Program (OC SCOUP), that once implemented, will use clean sediment from various sources located within and/or in close proximity of Orange County for beach nourishment purposes. The OC SCOUP plans to utilize upland stockpile sites for storing beach quality source material.

The purpose of this assessment is to catalog terrestrial biological resources at each potential stockpile site, including an evaluation of habitats and associated terrestrial biological resources, as well as potential sensitive species including federal and state threatened and endangered species under the Endangered Species Act (ESA) and the California ESA (CESA), Special Plants and Animals under the California Natural Diversity Database (CNDDDB; including the California Rare Plant Ranking [CRPR]), and California Department of Fish and Wildlife (CDFW) species of special concern. This report also assesses the potential project impacts and mitigation that may result from the utilization of these stockpile locations.

1.2 PROJECT LOCATION

The potential stockpile sites were chosen based on current site-specific conditions and proximity to coastal Orange County beaches that may benefit from the OC SCOUP beach replenishment. The nine proposed stockpile sites are located throughout Orange County, California, from Huntington Beach, the northern most location, to San Clemente in the south (Figure 1). Listed from north to south the proposed stockpile sites are named and numbered, as follows:

- CO2/CO4 Confluence (Bolsa Chica and Edinger)
- Gothard Street
- DO3 D/S California at E01 Bike Trail
- North Star
- Audubon Basin I02B01
- Hermosa/La Pata
- Avenida Pico/El Camino Road; and
- North Beach Stockpile Site

1.3 PROJECT DESCRIPTION

The OC SCOUP is designed to obtain beach-quality sand as surplus material from upland sources and to streamline the approval process for implementing beach fill projects.

While the sediment removal will be addressed by existing authorizations on a per-project basis, there are limited to no authorizations which allow for this sediment to be placed on local beaches (Moffatt and Nichol, 2023). The proposed OC SCOUP will obtain regulatory approvals in advance to allow for beach nourishment projects to occur as sediment source opportunities arise, eliminating the need for individual permits for each project and avoid maintenance sediment (and presumably sediment managed by other government entities) being disposed of in upland areas due to lack of a streamlined process for timely approval of beach nourishment. Once implemented, this program will allow beach fills to occur based on a pre-approved set of criteria that each opportunistic project would be required to meet, such as chemical

characteristics of the source sand, grain size compatibility with the receiving site beach sand, color, debris content, placement location, and/or biological monitoring.

This report will consider potential terrestrial stockpile sites for storing opportunistic sediment to be placed on beaches during the appropriate times, and potential avoidance or mitigation measures that may be required at each specific location related to this stockpile storage.

Figure 1-1. Vicinity Map

2.0 METHODS

2.1 LITERATURE AND DATA REVIEW

Prior to field surveys, the following available resources were reviewed to assist in determining potential biological resources for each of the potential stockpile sites. This review included examination of aerial photography for the Project site (Google Earth Pro, ESRI 2023); soil types (USDA-NRCA 2007); California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDDB) and U.S. Fish and Wildlife Service (USFWS) special status species records for the Project vicinity (CNDDDB 2024, USFWS 2024a); federally designated critical habitat (USFWS 2024b); as well as National Wetland Index data on jurisdictional habitats and waters (USFWS-NWI 2022).

2.2 RECONNAISSANCE-LEVEL FIELD SURVEYS

Following the literature review and desktop assessment, M&A biologist Gina M. Krantz completed a series of reconnaissance-level field surveys which included walking the sites or scanning from the perimeter with binoculars, depending on the size of the site and accessibility (Table 2-1). Table 2-2 gives the approximate center coordinates, as well as the nearest cross streets for each site.

Table 2-1. Survey Date(s), Time(s), Conditions

Survey Site(s) #	Survey Type	Date	Time	Conditions (Start to End) ¹	Biologist(s)
1 through 4	Reconnaissance-level Field Survey	2024 30 Oct	1050-1545	Weather: 10%-0% cc Wind: 0-2 mph Temperature: 66-84° F	Gina M. Krantz
5 through 8	Reconnaissance-level Field Survey	2024 5 Nov	1100-1530	Weather: 25%-20% cc Wind: 2-6 mph Temperature: 71-64° F	Gina M. Krantz

¹cc refers to cloud cover; mph refers to miles per hour; °F refers to degrees Fahrenheit

Table 2-2. Survey Site Locations

Survey Sites	Latitude	Longitude	Nearest Cross Streets
1. CO2/CO4 Confluence (Bolsa Chica and Edinger)	33°43'50.6"N	118°02'32.0"W	Bolsa Chica Street and Edinger Avenue
2. Gothard Street	33°41'53.5"N	118°00'10.6"W	Gothard Street and Talbert Avenue
3. DO3 D/S California at E01 Bike Trail	33°41'27.3"N	117°56'11.3"W	California Street and Alaska Avenue
4. North Star	33°37'28.7"N	117°53'39.4"W	White Cliffs Drive and North Star Lane
5. Audubon Basin I02B01	33°35'21.4"N	117°45'04.9"W	El Toro Road and California State Route 73
6. Hermosa/La Pata	33°27'47.0"N	117°36'16.9"W	Avenida Vista Hermosa and Avenida La Pata

Survey Sites	Latitude	Longitude	Nearest Cross Streets
7. Avenida Pico/El Camino Road	33°26'05.5"N	117°37'46.2"W	East Avenida Pico and West Avenida Vista Hermosa
8. North Beach Stockpile Site	33°25'56.9"N	117°37'56.8"W	East Avenida Pico and North El Camino Real,

Abbreviations: N refers to North, E refers to East; W refers to West.

Existing vegetation types were delineated onto a color aerial photograph of the study area. The vegetation types were classified according to the Manual of California Vegetation (MCV) classification system (Sawyer et al. 2009), as well as updates included in MCV Online (CNPS 2024b). In the case that a site could not be classified using the MCV system, another appropriate habitat classification system such as Holland (1986) code classification system as modified by Oberbauer et al. (2008) was applied. A list of detectable flora and fauna species was recorded in a field notebook. Plant identifications were either resolved in the field or later determined through verification of voucher specimens, and wildlife species were determined through direct observation (aided by binoculars), identification of songs, call notes and alarm calls, or by detection of sign (e.g., burrows, tracks, scat, etc.). In addition, each site was assessed for the potential of the queried list of sensitive species to occur onsite, and any other potential occurrences were assessed in the field based on the existing biological conditions. Photographs of each site were taken to record the biological resources present, and data collected from the survey were digitized into current Geographical Information System (GIS) Environmental Systems Research Institute (ESRI) software platforms.

2.2.1 SCIENTIFIC NOMENCLATURE

The scientific and common names utilized for the floral and faunal resources were noted according to the following scientific nomenclature: flora, Calflora (2018); amphibians and reptiles, Crother (2017); birds, American Ornithologists’ Union (1998 and 2024); and mammals, (species level) Wilson and Reeder (2005), as updated by Mammal Diversity Database (2023) and Hall (1981) for subspecies.

2.2.2 GENERAL SURVEY LIMITATIONS

Biological inventories are generally subject to various survey limitations. Depending on the season and time of day during which field surveys are conducted, some species may not be detected due to temporal species variability. The biological surveys conducted for this project were performed during daylight hours in fall; thus, some breeding wildlife species, nocturnal wildlife species, and/or annual plant species may not have been detected. Based on the literature review performed, as well as knowledge of species-specific habitat requirements, it is anticipated that any additional species potentially present on the project site can be fairly accurately predicted and that the surveys conducted were sufficient in obtaining a thorough review of the terrestrial biological resources potentially present within each of the nine sites.

2.2.3 APPLICABLE REGULATIONS

The following federal, state, and regional or local plans and regulations have been considered and are applicable to this report:

2.2.3.1 Federal

Endangered Species Act

The Endangered Species Act of 1973 (ESA) protects plants and wildlife that are listed as endangered or threatened by USFWS. Section 9 of the ESA prohibits “take” of endangered wildlife, where “take” is defined as to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct” (50 Code of Federal Regulations [CFR] 17.3). The term “harm” is defined as an “act which actually kills or injures wildlife,” including through “significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife.” The term “harass” means an act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns, including breeding, feeding or sheltering (50 CFR 17.3). For flora, this statute governs removing, possessing, maliciously damaging, or destroying any endangered plant on federal land, as well as removing, cutting, digging up, damaging, or destroying any endangered plant on non-federal land in knowing violation of state law. Under Section 7 of the ESA, lead federal agencies are required to consult with the USFWS if the lead agency determines that its actions may adversely affect an endangered species (including flora) or its critical habitat. Through consultation and the issuance of a biological opinion, the USFWS may issue an incidental take statement allowing take of the species that is incidental to another authorized activity, provided the action will not jeopardize the continued existence of the species. In cases where the federal agency determines its action may affect, but would be unlikely to adversely affect, a federally listed species, the agency may choose to informally consult with the USFWS. Concurrence from the USFWS concludes the informal process.

Migratory Bird Treaty Act

Under the Migratory Bird Treaty Act (MBTA) of 1918, it is unlawful, except as permitted by the USFWS, to “take, possess, transport, sell, purchase, barter, import, or export all species of birds protected by the MBTA, as well as their feathers, parts, nests, or eggs. Take means to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect (50 CFR 10.12).” It is important to note that “take” as defined under the federal MBTA is not synonymous with “take” as defined under the federal ESA. The MBTA definition of “take” lacks a “harm and harassment” clause comparable to “take” under the ESA as described above; thus, the MBTA authority does not extend to activities beyond the nests, eggs, feathers, or specific bird parts (i.e., activities or habitat modification in the vicinity of nesting birds that do not result in “take” as defined under the MBTA are not prohibited).

2.2.3.1 State

California Environmental Quality Act

The California Environmental Quality Act (CEQA) of 1970 requires state, local, and other agencies to evaluate the environmental implications of their decisions and to avoid or reduce, when feasible, the significant environmental impacts of their decisions (California Public Resource Code [PRC] Section 21000 et seq.; Guidelines Section 15000 et seq.). When avoiding or minimizing environmental damage is not feasible, CEQA requires agencies to prepare a written statement of overriding considerations when they decide to approve a project that will cause one or more significant impacts on the environment (PRC Section 21002; Guidelines Section. 15021(a)). Under the direction of CEQA, the California Resources Agency has adopted regulations referred to as state CEQA Guidelines, which provide detailed procedures that agencies must follow to implement the law.

California Endangered Species Act

The California Endangered Species Act (CESA) authorizes the California Fish and Game Commission to designate endangered, threatened, and rare species and to regulate the taking of these species (California Fish and Game Code [FGC] Sections 2050–2098). The CESA defines endangered species as those whose continued existence in California is jeopardized. State-listed threatened species are those not presently facing extinction, but that may become endangered in the foreseeable future. FGC Section 2080 prohibits the taking of state-listed plants and animals. Unlike the federal ESA, the CESA does not include harassment within its take definition and as such, has a statutorily higher threshold standard for take than does the federal ESA. Pursuant to Section 2081 of the code, the CDFW may authorize individuals or public agencies to import, export, take, or possess state-listed endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized if the take is incidental to an otherwise lawful activity, impacts of the authorized take are minimized and fully mitigated, the permit is consistent with any regulations adopted pursuant to any recovery plan for the species, and the project operator ensures adequate funding to implement the measures required by the CDFW. The CDFW makes this determination based on available scientific information and considers the ability of the species to survive and reproduce. When a species is both state- and federally-listed, an expedited request for consistency with the USFWS biological opinion may be issued through a request for Section 2080.1 consistency determination, if take authorization under the CESA is required.

California Fish and Game Code

Sections 3503, 3503.5, and 3513 of the California Fish and Game Code prohibit the “take, possession, or destruction of bird nests or eggs.” Section 3503 states: “It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto.” Section 3513 states: “It is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act.”

2.2.3.2 Regional/Local

Orange County Natural Communities Conservation Plan/Habitat Conservation Plan

The Orange County Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP), approved in 1996, encompasses a total area of approximately 208,000 acres split into the Coastal and Central subregions, with approximately 37,000 acres preserved in a Reserve System containing special linkages, existing use areas, and other designated open space areas. The goal of the NCCP/HCP is to protect and preserve coastal sage scrub in the Reserve System, as well as associated habitats and species, including three Target Species, thirty-six Identified Species, and four habitat types. The NCCP/HCP includes long-term monitoring requirements for populations of the Target Species, specifying these taxa be treated as if they were listed under CESA and ESA. The proposed project stockpile sites are spread between five cities within Orange County: Huntington Beach, Costa Mesa, Newport Beach, Aliso Viejo, and San Clemente. Apart from Costa Mesa, the four remaining cities are signatories of the Orange County NCCP/HCP and are a part of the existing Reserve.

City General Plans

The eight potential stockpile sites are spread between five cities within Orange County: Huntington Beach, Costa Mesa, Newport Beach, Aliso Viejo, and San Clemente. Each one has a general plan that guides future development and conservation within the respective city. The Costa Mesa General Plan (2015) contains a

separate Open Space and Recreation Element, similar to the NCCP/HCP Reserve System, that maps lands to be preserved within the city.

3.0 SURVEY RESULTS

3.1 LAND USE AND PHYSICAL CHARACTERISTICS

All potential stockpile sites are found within Orange County, California, in both coastal and inland areas. While most of these locations are in highly urbanized areas, the Audubon Basin (Site 5) is adjacent to a relatively large section of natural habitat, still surrounded by development. A brief description of the land use and physical characteristics for each individual potential stockpile site are found below.

1. CO2/CO4 Confluence (Bolsa Chica and Edinger)

The 4.46-acre potential stockpile site is broken into two areas adjacent to each other: a long and narrow area along a slightly elevated access road consisting of dirt and gravel as well as a triangular open and flat area currently being used for equipment storage also comprised of dirt and gravel. This location is adjacent to a school and residential development to the south, and a cement lined tidally influenced open water channel supporting narrow strips of salt marsh habitat to the north. This location is within the Coastal Zone. Soils are mapped as Bolsa silty clay loam, drained, and Bolsa clay loam, drained. Access to the site is from Edinger Road.

2. Gothard Street

The 0.93-acre potential stockpile site is an existing temporary storage area comprised of dirt and bare ground with uncovered soil stockpiles. This location is surrounded by a relatively small patch of disturbed Diegan Coastal Sage Scrub habitat and dirt trails adjacent to Huntington Beach Sports Complex surrounded by the greater Huntington Beach area. Sulley Miller Lake/Lake Ranc is approximately 220 feet south of this location. This site is located outside of the Coastal Zone. Soils are mapped as xeralfic arrents, loamy, 2 to 9 percent slopes. Access to the site is from Gothard Street.

3. DO3 D/S California at E01 Bike Trail

The 0.15-acre potential stockpile site is a relatively small lot comprised of dirt and asphalt. This location is adjacent to the Santa Ana River Trail and Greenville Banning Channel confluence with the fully concrete lined portion of Santa Ana River, with minor trail landscaping of vegetated berms to the northwest, and Greenville-Banning Channel, a concrete-lined drainage in close proximity to the southeast. Residential development is found to the northeast and further southeast. This site is located outside of the Coastal Zone as well. Soils are mapped as Metz loamy sand, moderate fine substratum. Access to the site is from the Santa Ana River trail from Gisler Avenue.

4. North Star

The 2.57-acre potential stockpile site is a mostly unvegetated dirt parcel that is actively used as parking lot for North Star Beach. This location is adjacent to the Newport Aquatic Center to the north and North Star Beach to the east, which is found within Newport Harbor, north of the Coast Highway bridge. This site is located within the Coastal Zone. Soils are mapped as beaches. Access to the site is from White Cliffs Drive.

5. Audubon Basin I02B01

The 0.99-acre potential stockpile site is an enclosed Orange County Public Works (OCPW) gravel lot with some exposed dirt near the external fencing. This location is part of an existing developed OCPW basin that supports wetland vegetation surrounded by the California State Route 73 and residential development to the north, open space within Laguna Canyon and Laguna Coast Wilderness Park to the

south and west, and additional residential development further to the east. This site is within the Coastal Zone. Soils are mapped as Soper gravelly loam, 30 to 50 percent slopes, Capistrano sandy loam 2 to 9 percent slopes, and Capistrano sandy loam, 9 to 15 percent slopes. Access to the site is via El Toro Road near the California State Route 73 southbound onramp.

6. Hermosa/La Pata

The 1.89-acre potential stockpile site is an empty lot comprised of dirt and bare ground recently mowed or disced, with a dry detention basin in the southern portion. Based on historic aerials, this site has been cleared at least once a year since the mid-1990s, often being used as a construction yard or parking for construction vehicles. This location is surrounded by residential development on all sides. Retail stores and the Forrester Ridgeline Trail are directly north of this location, Vista Hermosa Sports Park directly to the west and Orange County Fire Station No. 59 adjacent to the south. Soils are mapped as Bosanko clay, 15 to 30 percent slopes. Access to the site is from the intersection of Avenida Vista Hermosa and Avenida La Pata.

7. Avenida Pico/El Camino Road

The 0.75-acre potential stockpile site is an existing fenced construction storage area comprised of dirt and bare ground with vehicles, equipment, and uncovered soil stockpiles stored there at the time of this survey. The location is adjacent to the City of San Clemente Maintenance facility to the east, Pico Park to the west, and residential development to the north and south. This site is located within the Coastal Zone. Soils are mapped as Alo clay, 9 to 15 percent slopes, and Alo clay, 30 to 50 percent slopes. Access to the site is from Avenida Pico and El Camino Road.

8. North Beach Stockpile Site

The 0.41-acre potential stockpile site is an existing dirt lot used for night markets and food truck gatherings. This location is adjacent to restaurants to the east and west, Pico Park and trail summit to the north, as well as residential development to the north and south. This site is located within the Coastal Zone. Soils are mapped as Sorrento clay loam, 2 to 9 percent slopes, and beaches. Access to the site is from Avenida Pico and El Camino Road.

3.2 BIOLOGICAL RESOURCES

3.2.1 VEGETATION COMMUNITIES

Based on the field surveys, the eight potential stockpile sites were mapped using at least one of the following two vegetation types: Disturbed Habitat, and/or Urban/Developed (Figures 3-1 through 3-8). Please note that while Disturbed Habitat and Urban/Developed are not in the MCV, these descriptions, originating from the Holland (1986) code classification system as modified by Oberbauer et al. (2008), will be used to describe partially unvegetated areas commonly mowed or disced, as well as gravel, pavement, or landscaped areas identified within the potential stockpile sites. A list of floral species observed or detected within each site is included as Appendix 1.

Figure 3-1. C02/C04 Confluence Biological Resources Map

Figure 3-2. Gothard Street Biological Resources Map

Figure 3-3. D03 D/S California at E01 Bike Trail Biological Resources Map

Figure 3-4. North Star Biological Resources Map

Figure 3-5. Audubon Basin I01B02 Biological Resources Map

Figure 3-6. Hermosa/La Pata Biological Resources Map

Figure 3-7. Avenida Pico/El Camino Road Biological Resources Map

Figure 3-8. North Beach Stockpile Site Biological Resources Map

Areas mapped as Disturbed Habitat typically support bare ground or a predominance of non-native plant species (typically invasive/weedy in nature and introduced by human action), excluding non-native grasses, in response to regular human disturbance. Eight of the potential stockpile locations were mapped as all or partially disturbed habitat. Below is a brief description of habitat at each of these locations. Areas are mapped as Urban/Developed include gravel or paved surfaces, as well as landscaped areas. Three of the potential stockpile sites contain Urban/Developed areas and are described below.

1. CO2/CO4 Confluence (Bolsa Chica and Edinger)

CO2/CO4 Confluence (Bolsa Chica and Edinger; Site 1) has Disturbed Habitat mapped in the center of the triangular portion of the site. This area within Site 1 is comprised of dirt with some gravel and little to no vegetation. The majority of this site is mapped as urban/developed. Gravel areas were mapped as urban/developed, being used as access roads and active construction storage. One area along Edinger Avenue supports a very limited amount of alkali weed (*Cressa truxillensis*) where it appears that stormwater runoff from the adjacent access road collects where construction BMP straw wattles occur along the chain link fencing.

2. Gothard Street

Gothard Street (Site 2) is entirely mapped as Disturbed Habitat. Comprised mostly of bare ground and soil stockpiles, this site has little vegetation except for two Brazilian pepper trees (*Schinus terebinthifolius*) in the center and common non-native forb species along the perimeter fencing dominated by horseweed (*Erigeron canadensis*), castor bean (*Ricinis communis*), and horehound (*Marrubium vulgare*). Other species along the fence line include black mustard (*Brassica nigra*) and the occasional native chapparal candle (*Hesperoyucca whippleyi*).

3. DO3 D/S California at E01 Bike Trail

DO3 D/S California at E01 Bike Trail (Site 3) is predominately mapped as Disturbed Habitat consisting of dirt and some gravel with little to no vegetation. The all-gravel portion of the site is mapped as urban/developed.

4. North Star

North Star Parking Lot (Site 4) is entirely mapped as Disturbed Habitat. This sandy site is an active parking lot but contains sparse patches of telegraph weed (*Heterotheca grandiflora*) along the perimeter.

5. Audubon Basin I02B01

The southwest portion of Audubon Basin I01B02 (Site 5) is mapped as Disturbed Habitat. This relatively small dirt patch along the perimeter fence is dominated by horseweed with telegraph weed with tumbleweed (*Salsola tragus*) present as well. Most of this site is an unvegetated gravel lot and is mapped as urban/developed.

6. Hermosa/La Pata

Hermosa/La Pata (Site 6) is entirely mapped as Disturbed Habitat, dominated by both the non-native forb species bristly ox-tongue (*Helminthotheca echiodes*) with approximately 20 percent cover, as well as the native shrub Menzie's goldenbush (*Isocoma menziesii* var. *menziesii*) with approximately 30 percent cover. No other plant species were detectable due to the dried up and mowed/disc'd condition of the remaining plant material fragments. A dry made man detention basin is present in the southern portion of the site with a similar species composition and cover.

7. Avenida Pico/El Camino Road

Avenida Pico/El Camino Real (Site 7) is entirely mapped as Disturbed Habitat. This active construction storage area is mostly bare dirt ground with a few sparse patches of desiccated annual weedy forbs.

8. North Beach Stockpile Site

North Beach Stockpile Site (Site 8) is also entirely mapped as disturbed habitat. Similar to Site 8, this fenced lot is mostly bare dirt ground with mixed gravel in some areas as well as sparse patches of weedy annuals.

3.2.2 FAUNAL RESOURCES

The eight potential stockpile sites occur mostly within urban or suburban Orange County, surrounded all or in part by development. As a result, most wildlife encountered during the survey were common urban adapted species. A brief description of fauna observed or detected during field surveys and the potential for fauna to use each site is discussed below. A list of fauna species observed or detected within each potential stockpile site is included as Appendix 2.

1. CO2/CO4 Confluence (Bolsa Chica and Edinger)

Within this site, common urban adapted avian species such as the European starling (*Sturnus vulgaris*) and killdeer (*Charadrius vociferous*) were observed and/or detected. Due to this site being adjacent to a fully tidal open water channel, species observed offsite within the channel include common open water and marsh species such as American wigeon (*Mareca americana*), double-crested cormorant (*Phalacrocorax auritus*), osprey (*Pandion haliaetus*), and an unidentified dowitcher species (*Limnodromus* sp.). No reptiles or mammals were detected at this site, although if present would be limited to urban tolerant ubiquitous species.

2. Gothard Street

Within the Gothard Street potential stockpile site, common urban adapted avian species such as the house finch (*Haemorhous mexicanus*), house wren (*Troglodytes aedon*), yellow-rumped warbler (*Dendroica coronata*) and the California towhee (*Melospiza crissalis*) were observed and/or detected. An American kestrel (*Falco sparverius*) was observed offsite to the south within the riparian habitat surrounding Lake Ranc. No reptile or mammal species were detected at this site; however, potential reptile species that may utilize this site would be limited to common species such as southern alligator lizard (*Elgaria multicarinata*) and gopher snake (*Pituophis catenifer*).

3. DO3 D/S California at E01 Bike Trail

Hutton's vireo (*Vireo huttoni*), an avian species often associated with oak woodlands, as well as common urban adapted species such as the white-crowned sparrow (*Zonotrichia leucophrys*) and the yellow-rumped warbler were observed and/or detected within the landscape trees and/or shrubs within this site. No reptiles were detected at this site, and the only mammal species detected was the California ground squirrel (*Spermophilus beecheyi nudipes*). The potential for reptile species and additional mammal species to occur onsite would be limited to common urban tolerant species.

4. North Star

Common urban adapted avian species such as the American crow (*Corvus brachyrhynchos*), black phoebe (*Sayornis nigricans*), and rock pigeon (*Columba livia*) were observed and/or detected within the North Star location. No reptiles were detected, and the only mammal species detected (i.e., scat) onsite was

domestic dog (*Canis familiaris*). The potential for reptile species and additional mammal species to occur onsite would be limited to common urban tolerant species.

5. Audubon Basin I02B01

Common urban adapted species including killdeer were observed at this potential stockpile site, as well as common bird species associated with the adjacent native scrub habitat and/or freshwater marsh and riparian habitat within the detention basin such as blue-gray gnatcatcher (*Poliptila caerulea*) and common yellowthroat (*Geothlypis trichas*). Turkey vulture (*Cathartes aura*) and red-shouldered hawk (*Buteo lineatus*) were observed and/or detected offsite in the surrounding hills. The common reptile species western fence lizard was detected as well. No mammals were present during the time of the survey, but coyote have potential to use this site. The potential for additional reptile species and mammal species to occur onsite would be limited to common urban tolerant species.

6. Hermosa/La Pata

Cassin's kingbird, a common avian species often associated with open scrub habitat, was the only avian species detected at this location. No reptiles were observed; however, common species such as the western fence lizard (*Sceloporus occidentalis*) may also be present. Mammal species detected (i.e., gopher holes) included valley pocket gopher (*Thomomys bottae*). The potential for additional reptile species and mammal species to occur onsite would be limited to common urban tolerant species.

7. Avenida Pico/El Camino Road

No faunal species were observed or detected at the time of this survey; however, common avian species such as house finch and rock pigeon have the potential to use this site, as well as common reptile species such as the western fence lizard. The potential for mammal species to occur onsite would be limited to common urban tolerant species.

8. North Beach Stockpile Site

Similar to Site 7, no faunal species were observed or detected at the time of this survey. Again, common avian species such as house finch, rock pigeon, and western gull (*Larus occidentalis*) have the potential to utilize this site, as well as common reptile species such as the western fence lizard or side-blotched lizard (*Uta stansburiana*) due to the extent of sandy soils onsite.

3.2.3 SENSITIVE, RARE, THREATENED, AND ENDANGERED SPECIES

Only one sensitive floral species was detected at any of the potential stockpile sites. One paniculate tarplant (*Deinandra paniculata*), a CRPR 4.2 species, was detected within the disturbed habitat mapped in the southwestern portion of Audubon Basin (Site 5; Figure 3-5). While most of this site is covered in a layer of gravel, the small portion of disturbed habitat is bare ground with sparse vegetation cover. This site is adjacent to slopes covered in native habitat where the seed source may have originated; however, this species is also known to occur in disturbed areas with sandy soils similar to this site.

According to CNDDDB records and including the species above, 27 flora and 45 fauna sensitive species occur regionally within the vicinity (approximately two miles) of all eight potential stockpile sites. Maps of CNDDDB occurrences within the vicinity of each of the eight potential stockpile sites can be found in Appendix 3. Of these 72 species, none have at least a moderate potential to occur at any of the eight locations. More information about these remaining species, including sensitivity codes, habitat requirements, and a brief explanation of why each is not expected or has a low potential to be found within each of the eight potential stockpile sites can be found in Appendix 4.

3.2.4 JURISDICTIONAL AQUATIC RESOURCES

No jurisdictional aquatic resources were found, and none are expected within any of the eight potential stockpile sites; however, as mentioned above, aquatic resources are located adjacent and offsite from three sites: CO2/CO4 Confluence (Site 1), Gothard Street (Site 2), and D03 D/S California at E01 Bike Trail (Site 3).

Site 1 is adjacent to the Bolsa Chica Westminster Channel which supports tidally influenced open water and salt marsh habitat dominated by pickleweed (*Salicornia* sp.). Site 2 is approximately 220 feet north of Lake Ranc and the surrounding riparian habitat. Site 3 is adjacent to the cement channelized Santa Anna River that supports open water to the north, and an unnamed, potentially jurisdictional cement lined channel that also supports open water to the south.

3.2.5 WILDLIFE CORRIDORS

Wildlife corridors are important in preserving species diversity. In the absence of corridors, habitats become isolated islands surrounded by development. Fragmented habitats support lower numbers of species and increase the likelihood of extinction for species restricted to small areas. Connections between areas of open space are integral to maintaining biological diversity and population viability. For the purposes of this report, we have defined wildlife corridor as a linear landscape feature utilized by resident or transient wildlife for movement between two blocks of habitat.

Each of the eight potential stockpile sites are surrounded entirely or mostly by urban development, with many being fenced as well. These locations are also all currently or have previously been used as storage, parking, or construction staging and provide limited value for wildlife movement due to the size, disturbed condition, human activities, and isolated nature, from a wildlife corridor perspective, of each location.

The Orange County NCCP/HCP Reserve includes conserved large tracts of natural habitat that are interconnected by habitat linkages that function as wildlife movement corridors. Wildlife corridors typically support topography that provides a path of least resistance in terms of energetics such as along canyon bottoms/riparian corridors and along ridgelines. The Orange County NCCP/HCP identifies habitat linkages within the Reserve in Section 3.6 through 3.9 and shown in Figures 11-13, 22, and 75. None of the project locations are located within any of the linkages identified in Sections 3.6 through 3.9 of the OC NCCP/HCP.

3.3 ORANGE COUNTY NCCP/HCP AND LOCAL GENERAL PLANS

Of the eight potential stockpile sites, one is located within the Orange County NCCP/HCP Reserve System, and one is located within one mile of the Reserve System but separated by existing urban development. The additional six sites are not located within or near Reserve System lands or identified special linkages. Site 5, Audubon Basin I02B01, is located within Non-Reserve Open Space designated land, meaning it was publicly owned prior to the adoption of the NCCP/HCP and is therefore not subjected to the development requirements of the Reserve. Site 4, North Star Parking Lot, is located approximately one mile southwest of the Upper Newport Bay Nature Preserve.

Site 1 and Site 2 are found within the city of Huntington Beach. Site 1, CO2/CO4 Confluence, is not designated as Open Space. Site 2, Gothard Street, is designated as Open Space-Park, which according to the Huntington Beach General Plan (2017), provides for public parks and recreation facilities as well as other ancillary uses such as temporary equipment storage.

Site 3, DO3 D/S California at E01 Bike Trail is found within the City of Costa Mesa, and is not designated as open space.

Site 4, North Star Parking Lot, is located within the City of Newport Beach. The southern portion of this site is designated as Residential, and the northern portion is designated as Parks and Recreation by the City of Newport Beach General Plan (2006).

Site 5, Audubon Basin I02B01, is located within the City of Aliso Viejo. As stated previously, the City of Aliso Viejo is a signatory of the Orange County NCCP/HCP, and the site is mapped as Non-Reserve Open Space within the city's General Plan (2014).

Sites 6, 7, and 8 are located within the City of San Clemente. Site 6, Hermosa/La Pata, is designated as Neighborhood Commercial by the city's General Plan (2021). Site 7, Avenida Pico/El Camino Road, and Site 8, North Beach Stockpile Site, are both designated as Mixed Use.

Due to the proposed project being limited to temporary storage of sediment within existing disturbed or developed areas at each site and is not expected to impact any native plant communities (i.e., coastal sage scrub, riparian plant communities), implementation of the proposed project will be consistent with the rules and regulations of the Orange County NCCP/HCP as well as the general plans discussed above.

4.0 IMPACT ASSESSMENT & RECOMMENDED AVOIDANCE AND MITIGATION MEASURES

4.1 IMPACT ASSESSMENT

Most of the eight potential stockpile sites where proposed sediment storage may occur are located within already developed or disturbed areas that are not expected to support sensitive flora, fauna, and native habitats. However, there are three sites where sensitive biological resources were documented within or adjacent to the site. No direct impacts are proposed to jurisdictional aquatic resources as none occur within any of the eight sites; however, there are jurisdictional aquatic resources located in proximity to the three (Sites 1, 3, and 5) sites referenced above. Project activities at these sites may potentially impact (e.g., sedimentation, increased turbidity, reduced water quality) these jurisdictional resources as a result of potential discharge into the waterway if stockpiled soils are not properly stored and contained. Direct and indirect impacts to migratory nesting birds protected by the federal Migratory Bird Treaty Act (MBTA) and California Fish and Game (CFG) Code Sections 3503 and 3513 may also occur if project activities occur during the avian nesting season (January 15 – September 15).

It is anticipated that the placement, storage, and eventual removal of sediment stockpiles at most of these sites will cause minimal disturbance to onsite and/or surrounding flora, fauna, and habitats; however, the below recommended measures will ensure avoidance of impacts to biological resources as a result of project activities.

4.2 RECOMMENDED AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES

The following sediment storage best management practices (BMPs) and MBTA/CFG Code compliance measures are recommended to avoid direct or indirect impacts at all eight potential stockpile sites:

- Placement of stockpiles within each site should be located within relatively flat terrain that is not in close proximity to and does not slope toward a sensitive biological resource such as a jurisdictional aquatic resource or native habitat.
- Stockpiles not scheduled to be utilized within 14 days of placement should be considered non-active immediately, and the following protective measures should be implemented:
 - Temporary perimeter sediment barriers such as compost berms, temporary silt dykes, fiber rolls, silt fences, sandbags, gravel bags, or biofiltration bags should be used.
 - A suitable covering should be installed securely to protect the stockpile from wind and rain.
 - Length of storage should be taken into consideration when choosing an appropriate cover.
- Regular inspections and maintenance of these BMPs, with particular attention during the rainy season, should occur for the duration of stockpile storage at each site.
- To avoid direct impacts to migratory birds and/or raptor active nests protected under the federal MBTA and CFG Code Sections 3503 and 3513, removal of habitat that supports active nests within the project impact area should occur outside of the breeding season for applicable species. The bird breeding season is generally defined as January 15 to August 31 for raptor species; February 15 to September 15 for other non-raptor birds. If removal of habitat outside the breeding season is not feasible, then an active bird nest survey is required to determine if any protected migratory bird and/or raptor active nests occur within the project impact area during the breeding season. The nest survey is required to be conducted within 3 days prior to initiating project stockpiling activities onsite during the bird breeding season (January 15 – September 15). If any active nests are detected, the area should be flagged and an appropriate

buffer mapped for the species present, as determined by a qualified biologist. This buffer should be avoided until the nesting cycle is complete.

4.3 SITE SPECIFIC AVOIDANCE AND MITIGATION RECOMMENDATIONS

Below are site specific measures to ensure no project related impacts. Three out of the eight sites have the following additional measures.

1. C02/C04 Confluence

- In order to avoid impacts to open water and salt marsh habitats in the adjacent Bolsa Chica Westminster Channel, a buffer large enough to install, maintain, and inspect stockpile BMPs should be left between any stockpiled soil and the upper edge of the adjacent cement channel.
 - The triangular portion of this site should be used for stockpile storage of sediment with greater than 35 percent fines if stored over wet season.

2. D03 D/S California at E01 Bike Trail

- In order to avoid impacts to the unnamed cement lined channel adjacent to this site to the southeast, a buffer large enough to install, maintain, and inspect stockpile BMPs should be left between any stockpiled soil and upper edge of the adjacent cement river channel.

3. Audubon Basin I02B01

- In order to avoid impacts to paniculate tarplant, a sensitive species, a survey should be performed by a qualified biologist prior to any storage event and, if found, any paniculate tarplant should be fenced off with ribbon or yellow rope and t-posts (Figure 3-5).
- In order to avoid impacts to adjacent native habitats and/or downstream aquatic jurisdictional resources, a buffer large enough to install, maintain, and inspect stockpile BMPs should be left between any stockpiled soil and the upper edge of the adjacent detention basin to the north, overflow channel located in the western portion of site that crosses the site and drains to native riparian habitat, and the brow ditch along the southern perimeter that drains to native riparian habitat.

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Appendix 1. Flora List

Appendix 2. Fauna List

Appendix 3. CNDDDB Occurrences Maps

Appendix 4. Potential Sensitive Species Table

APPENDIX G

Marine Resources Biological Assessment Report

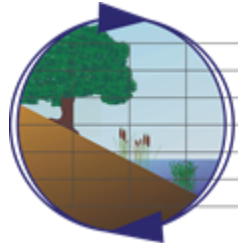
**MARINE BIOLOGICAL TECHNICAL STUDY AND
ESSENTIAL FISH HABITAT ASSESSMENT FOR
THE ORANGE COUNTY SAND COMPATABILITY AND OPPORTUNISTIC USE
PROGRAM**

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LIST OF ABBREVIATIONS

ASBS	Areas of Special Biological Significance
BMP	Best Management Practice
CCA	California Coastal Act
CCC	California Coastal Commission
CDFW	California Department of Fish and Wildlife
CEMP	California Eelgrass Mitigation Policy
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
cy	Cubic Yards
ESA	Endangered Species Act
EFH	Essential Fish Habitat
ft	Feet
FGC	Fish and Game Code
FMC	Fisheries Management Council
FMP	Fisheries Management Plan
HAPC	Habitat Area of Particular Concern
km	Kilometer
m	Meter
MHTL	Mean High Tide Line
MMPA	Marine Mammal Protection Act
MBTA	Migratory Bird Treaty Act
MLLW	Mean Lower Low Water
MPA	Marine Protected Area
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
OCPW	Orange County Department of Public Works
OCRSMP	Orange County Regional Sediment Management Plan
PFMC	Pacific Fishery Management Council
R&HA	Rivers and Harbors Appropriation Act
RBSP	Regional Beach Sand Project
RWQCB	Regional Water Quality Control Board
SANDAG	San Diego Association of Governments
SAR	Santa Ana River
SAV	Submerged Aquatic Vegetation
SCCAT	Southern California <i>Caulerpa</i> Action Team
SCoup	Sand Compatibility and Opportunistic Use Program
SLR	Sea Level Rise

SMCAs	State Marine Conservation Area
SMR	State Marine Reserve
SWRCB	State Water Resources Control Board
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service

1.0 INTRODUCTION

The County of Orange proposes to implement a Sand Compatibility and Opportunistic Use Program (SCOUP) with pre-established criteria that opportunistically and beneficially utilizes sediment from various sources located within and just outside of Orange County for beach nourishment purposes (Proposed Project). Excess sediment/sand is generated throughout Orange County by a variety of means and this excess sand has the potential for beneficial use as beach nourishment. Beach nourishment has multiple benefits including protection for coastal infrastructure, enhancement of public recreation, improvement of habitat areas, and stimulation of the local economy.

One such type of opportunity for excess sand is the 380 miles of flood channels and 4 dams managed and maintained by Orange County's Department of Public Works (OCPW). While sand sources currently owned and/or maintained by OCPW are a focus, other potential sources outside of OCPW jurisdiction are also considered as this program is intended to be flexible for any potential sand source in the Orange County watershed.

The basic premise of this program is that removal/excavation of the source sediment is already approved by local, State, and Federal agencies as appropriate. Thus, this program is only to obtain approvals for transporting and placing that source material opportunistically on Orange County beaches. The potential receiving sites for the opportunistic sand are public beaches within Orange County which are owned and managed by Orange County coastal cities (from north to south: Seal Beach, Huntington Beach, Newport Beach, Dana Point, and San Clemente), California State Parks, and OC Parks.

M&N (2025) provides preliminary implementation guidelines for utilizing the Orange County SCOUP. It provides specific criteria for material suitability based on grain size, chemical characteristics, color, and other properties. It recommends specific placement locations, rates, and timing in order to maximize the benefits of beach enhancement activities while minimizing environmental impacts, and a monitoring framework is also provided that balances economic feasibility with environmental sensitivity for varying project sizes and locations.

2.0 PROJECT LOCATION AND DESCRIPTION

2.1 PROJECT LOCATION

In an effort to grant sediment managers flexibility on placement of material and allow for the maximum potential opportunistic beach nourishment the majority of the Orange County coastline is considered for opportunistic nourishment. In order to allow for this generalized approach, a rigorous framework of site assessment and monitoring criterion has been created. Potential receiver sites are illustrated in Figure 2-1 and listed in Table 2-1 which also notes the need as well as the per event and annual maximum fill volume for each receiver site. These receiver sites have been identified based on OCPW discussions with City of Seal Beach, City of Huntington Beach, City of Newport Beach, City of Dana Point, City of San Clemente, Orange County Parks, and State Parks staff. All beaches within the City of Laguna Beach have been eliminated from further consideration because of existing sensitive resources, MPAs along the Laguna Beach shoreline, and difficult access for placing sand.

To determine maximum beach fill quantities, a target beach width was determined based on a natural shoreline condition at the subject receiver site, typically 50 – 100 feet (ft). The fill volume was calculated by a rule of thumb factor of 1.5 cubic yards (cy) of sand per 1 ft of beach width for every 1 linear ft of a beach shoreline length for a beach berm fill. For some beaches, such as West Seal Beach, fill estimates were based on estimates for dune creation/enhancement. To ensure these estimates were reasonable and environmentally suitable, a review of historic and/or upcoming nourishment projects and environmental conditions were examined for each receiver site.

Some of the potential receiver sites currently receive sand on a semi-regular basis through already existing programs, such as the OCPW Ocean Outlets Maintenance Program. It is important to note that nourishment events from these programs typically do not come close to providing the required volume of sand necessary to offset the coastal erosive forces contributing to beach width loss. Additionally, they only span a small portion of the entire beach area specified in each receiver site's description. Thus, while these beaches are nourished through other programs, it should not preclude them from being considered for the Orange County SCOUP program.

Table 2-1. Receiver Sites Summary Table

Receiver Site	Need	Per Event Maximum Fill (cy)	Per Year (Annual) Maximum Fill (cy)
West Beach, Seal Beach	Low	50,000	100,000
East Beach, Seal Beach	High	50,000	200,000
Surfside Beach	High	100,000	300,000
Sunset Beach	Medium	100,000	200,000
Huntington Harbour Beaches	Low-Medium	1,000-5,000	1,000-5,000
Bolsa Chica State Beach	Medium	100,000	300,000
Huntington Beach Bluffs	High	100,000	300,000
Huntington Beach State Beach	Low	50,000	200,000
West Newport Beach	Medium	100,000	300,000
Balboa Beach	Medium	100,000	200,000
Newport Harbor Beaches	Medium-High	1,000-10,000	1,000-10,000
Newport Dunes	Low	50,000	50,000
Corona Del Mar State Beach	Low	50,000	100,000
Little Corona del Mar	Low	5,000	5,000
Crystal Cove State Park	High	100,000	300,000
Salt Creek Beach	Medium	50,000	200,000
Baby Beach	Low	5,000	10,000
Doheny State Beach	Medium	100,000	300,000
Capistrano Beach County Park	High	50,000	150,000
Poche Beach	High	1,000	1,000
Capistrano Shores	High	100,000	300,000
San Clemente North Beach	High	50,000	150,000
San Clemente City Beaches	High	100,000	300,000
San Clemente State Beach	Medium	100,000	300,000
Cyprus Shore/Cottons Beach	High	100,000	300,000



Figure 2-1. Receiver Site Locations

2.2 PROJECT DESCRIPTION

This section outlines basic design elements for various beach placement methods and timing, which can be applied to beach nourishment projects at any of the receiver sites. For each potential beach receiver site, one or more potential sand placement locations within the beach profile (cross-section designs) will be identified. These potential placement locations are:

- on the dry beach as a beach berm;
- on the dry beach as a storm dike;
- below the mean high tide line;
- on the back beach as a dune; and
- on the back beach as a cliff/bluff stabilization measure.

A general beach plan view and cross section profile are provided for each below. Note that the relative scale of the horizontal and vertical axes shown in the cross-sections is not 1:1; the vertical scale is exaggerated, (so as to fit cross-section on single page), which makes the slopes appear much steeper than the slopes would actually be.

2.2.1 BEACH BERM

For this placement scenario, fill material is placed as a layer over the existing beach as a berm to widen the sandy beach. The berm will be a level surface extending a certain distance from the back of the beach toward the ocean, then sloping gradually into the water. The elevation, width, length, and slope of the berm will vary for each sand placement opportunity, depending upon the quantity of material to be placed, its qualities and the condition of the beach at the time. Typical design criteria are as follows:

- Beach berm crest height to match the natural beach berm elevation (typically +10 to +15 ft NAVD88 and include additional “freeboard elevation” to account for possible sea level rise (SLR) effects.
- Length and width of the berm based on dimensions of the project area and volume of sediment available for placement.
- Slope seaward of the berm with a constructed slope of 5:1 H:V, which will equilibrate relatively quickly over time to a flatter natural slope.

The typical plan view layout and cross-section for a beach berm placement design are shown in Figure 2-2.

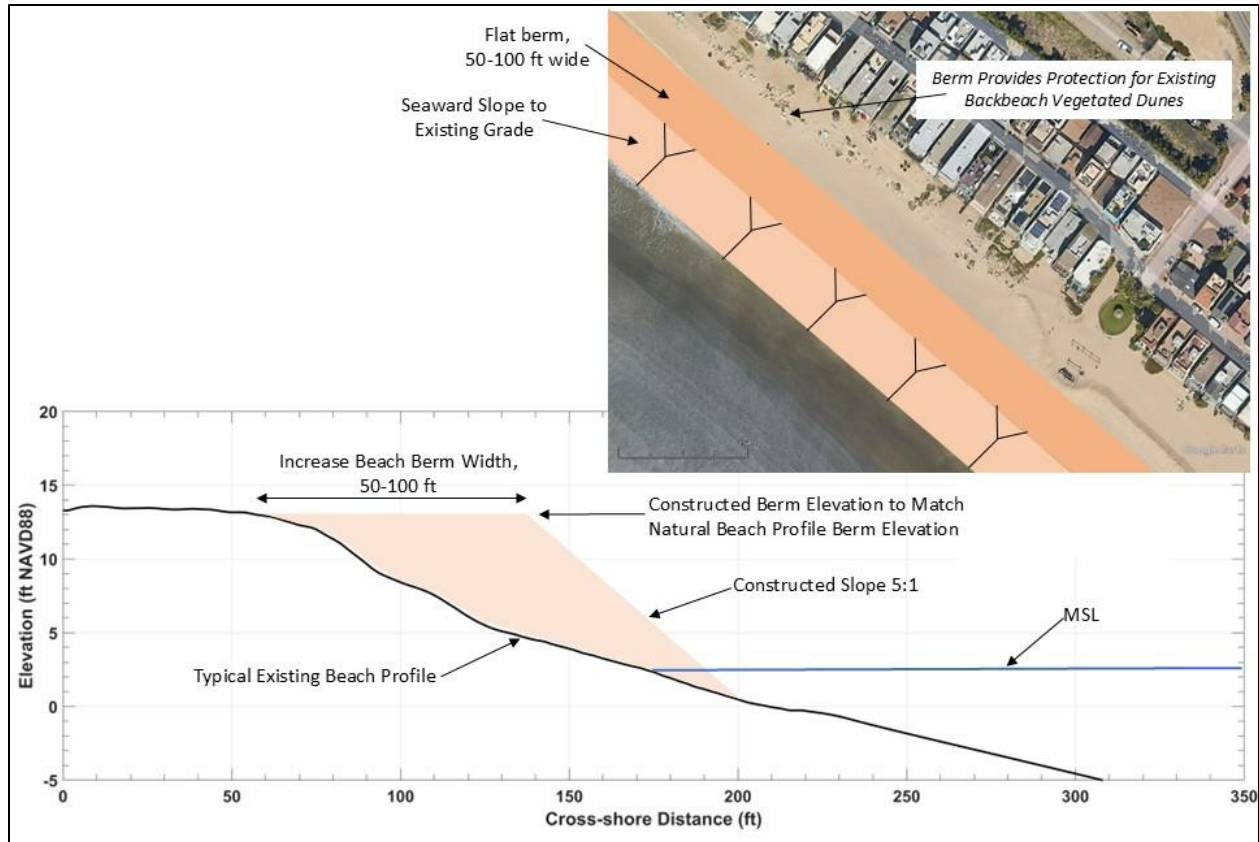


Figure 2-2. Beach Berm Design Plan View and Cross Section

2.2.2 BACKBEACH STORM DIKE

For this placement scenario, fill material is placed in a dike-type (linear mound) structure above the dry beach berm and serves to provide wave overtopping protection for landward infrastructure. This type of feature is typically constructed during the winter months when wave action is highest, and beach usage is lower and then flattened in the spring/summer months when beach usage increases. Similar to historic and ongoing dikes construction at Seal Beach East Beach, Sunset Beach, and Long Beach peninsula beach, the typical design criteria are as follows:

- Dike crest height to match the highest runup elevation (typically at least +20 ft NAVD88 for 100-year storm events);
- Dike crest width of at least 5 ft; and
- Dike side slopes of 3:1 H:V.

It is recognized that the higher dike elevation and steeper side slopes are more difficult for public access to the water but is considered a balance with wave overtopping protection. The typical plan view layout and cross-section for a beach dike placement design are shown in Figure 2-3.

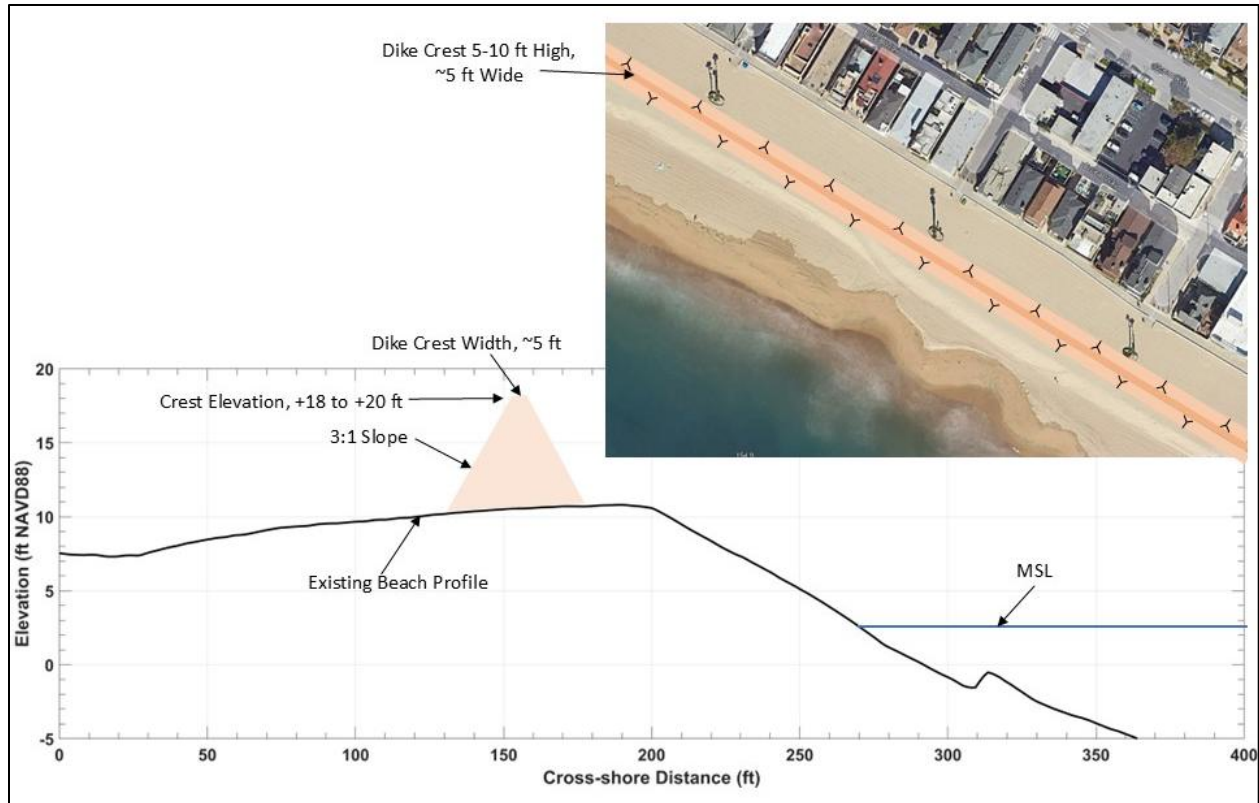


Figure 2-3. Beach Dike Design Plan View and Cross Section

2.2.3 BELOW MEAN HIGH TIDE LINE

For this placement option, fill is placed below the mean high tide line (MHTL), within the intertidal zone. This scenario is typically used if the source material is darker colored and finer grained than the native beach sand. Sand would be delivered to the beach and pushed by bulldozers to the water's edge. At low tide, the material is pushed as far seaward as possible so that it can be reworked by waves during the following rising tide. The fines would be gradually winnowed out by waves and currents, carried offshore, and sand would be left behind. This option differs from the previous berm placement approach in that, for this option, the fill is placed solely within the intertidal zone, e.g., from elevation +5 ft NAVD88 (approximate MHTL) to elevation 0 ft NAVD88, whereas for the berm option, the sand is placed much higher (e.g., at elevation +10 to +15 ft NAVD88). The typical plan view layout and cross-section for a below MHTL placement design are shown in Figure 2-4.

Placement of nourishment material within the intertidal zone may cause burying of invertebrate species. In order to mitigate invertebrate population, decline and encourage quick recolonization of affected areas, linear gaps can be implemented systematically along the placement footprint.

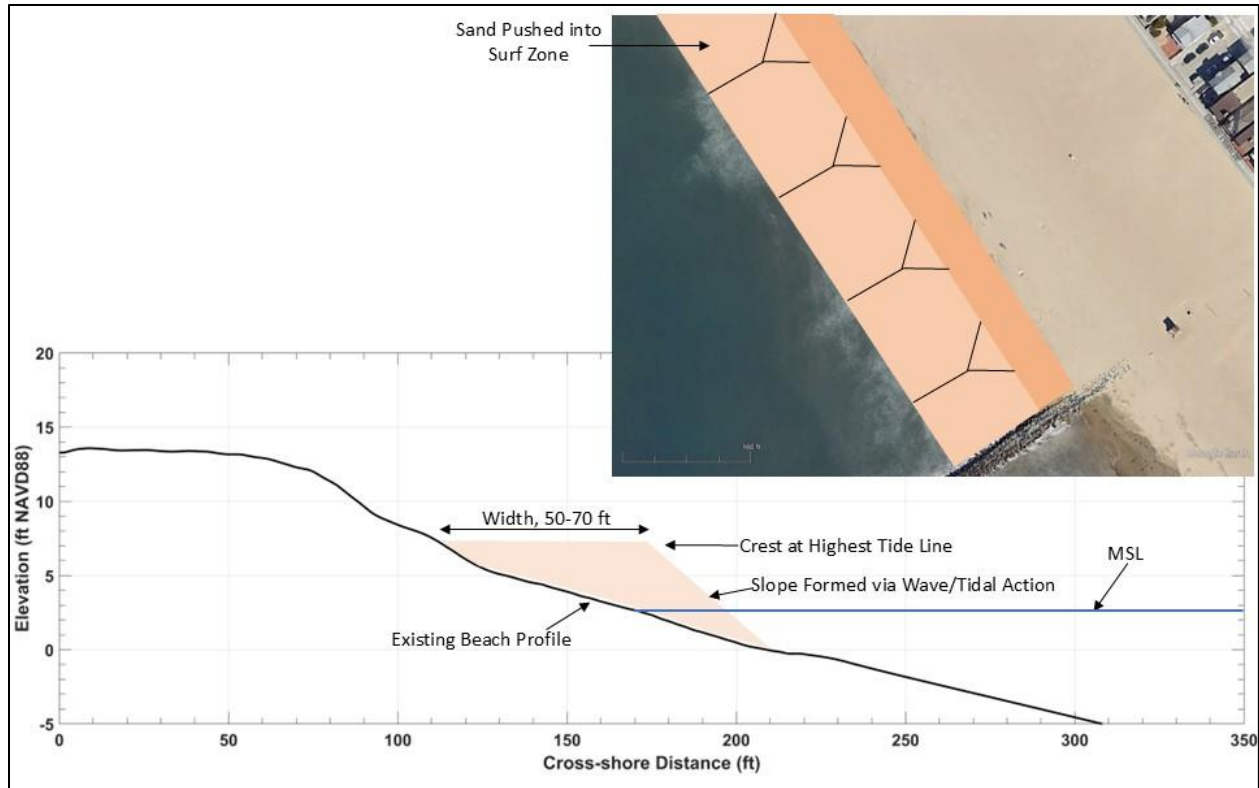


Figure 2-4. Below Mean High Tide Line Design Plan View and Cross Section

2.2.4 BACKBEACH DUNES

Finer-grained source sands may be suitable for placement along the back beach for creation of vegetated dunes, for beach receiver sites with wide sandy fronting berms. These systems provide an aesthetically pleasing buffer between the beach and upland infrastructure. Additionally, the vegetated systems introduce habitat for native vegetation and animal species including foraging birds. Dunes could be created by placing and grading imported sediment onto the back beach to form mounds and subsequently planting native vegetation species within the system. This dune placement option should be implemented in conjunction with beach berm construction if a wide sandy beach does not exist at the beach receiver site. The typical plan view layout and cross-section for a back beach dune placement design are shown in Figure 2-5.

Success of back-beach dunes has been recorded at Southern California beaches including Cardiff State Beach in Encinitas. Constructed in 2019, the Cardiff Living Shoreline is an innovative pilot project to assess the feasibility of utilizing dune systems for shoreline protection. Post-construction monitoring at Cardiff has shown that the dune system is an effective coastal resiliency measure that has performed well against multiple large storm and wave events.

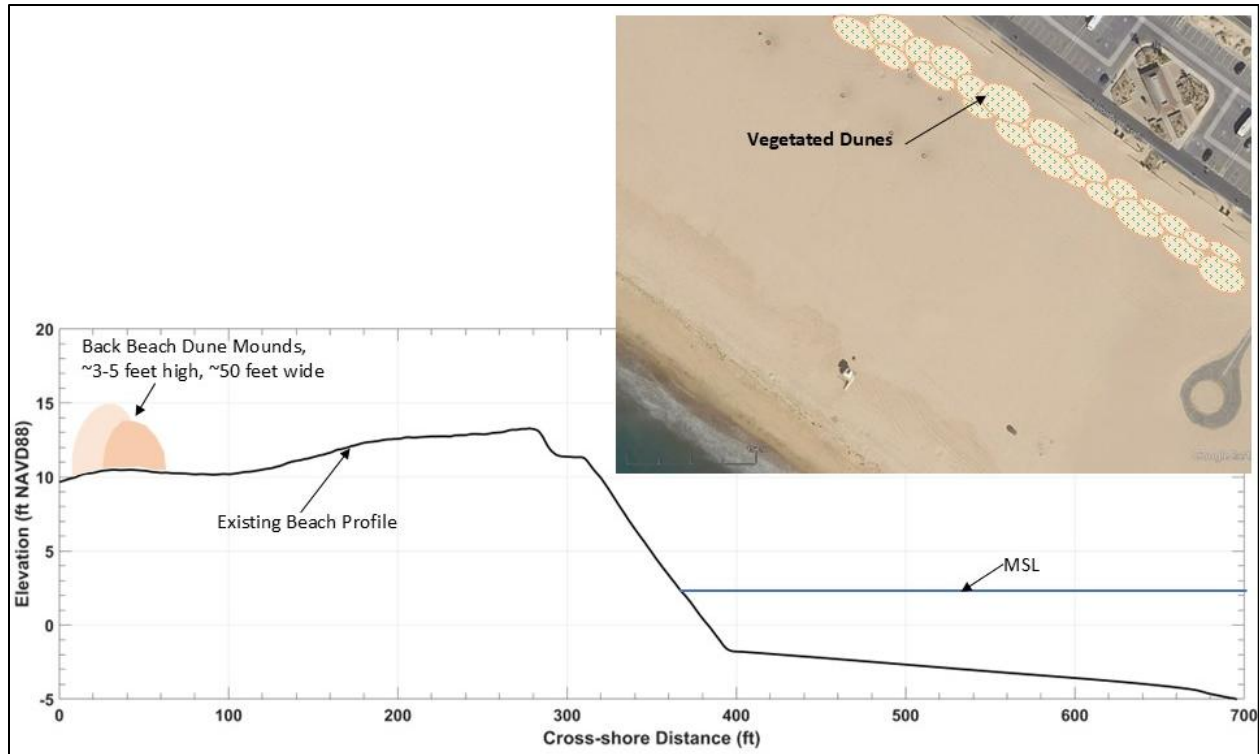


Figure 2-5. Backbeach Dunes Design Plan View and Cross Section

2.2.5 BACKBEACH BLUFF/CLIFF STABILIZATION

Many segments of the Orange County coastline are backed by bluffs. Increased levels of beach erosion result in less of a buffer between the ocean and the bluffs, which can cause increased scour at the bluff base and subsequently result in an increased risk of bluff erosion. Sediment from sand sources managed under this program may be suitable for placement along the back beach to help combat bluff erosion by creating a stabilizing layer of sand at the base of the bluff or as sand cover on bluff toe rock or seawall protection.

The typical plan view layout and cross-section for a back beach bluff/cliff stabilization placement design are shown in Figure 2-6.

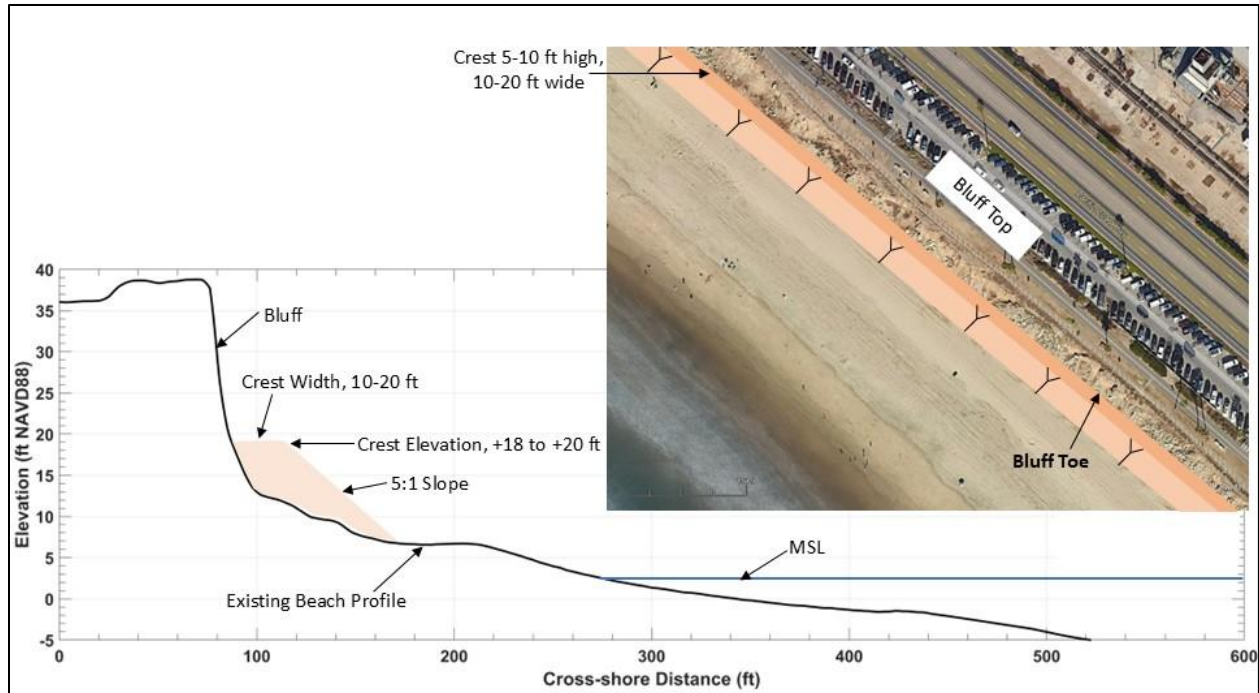


Figure 2-6. Backbeach Bluff/Cliff Stabilization Design Plan View and Cross Section

2.2.6 PLACEMENT BEYOND THE SURF ZONE

For nearshore placement beyond the intertidal zone, placement would be via hydraulic pipeline which is placed in the water and discharges the sand farther offshore. Historically, this type of placement method has only been utilized for harbor dredging projects where the source material was located close to the receiver beach. Compared to placement within the intertidal zone, hydraulic pumping is typically a more expensive and time-consuming process because of the equipment mobilization required. Based on the type of opportunistic sources identified in this program, e.g., upland sources, and the significant costs to implement, this type of placement is not currently included as a potential placement location option, (at least for the time being).

2.3 PLACEMENT TIMING

The placement location and timing of beach fill operations has been considered a significant factor by agencies in conditioning permits. Agencies typically specify that placement of the material should occur away from sensitive resources (least tern and snowy plover foraging activities), should not occur during grunion runs and least tern or snowy plover nesting, should not occur at public beaches during particularly high-use times, and should not be constructed in a manner to interrupt beach access. The typical “no-placement” time window occurs during the Spring and Summer months.

SCoup projects will generally try to avoid the “no-placement” time window to the best extent feasible. However, source sand opportunities from OCPW and other sediment manager’s activities are likely to arise year-round. Many times, source sediment availability overlaps the spring/summertime period when beach nourishment is least ideal, especially given that most flood facility maintenance cannot occur during the rainy season. When/if sediment sources become available during Spring and Summer months, the following can be implemented to minimize impacts:

- Stockpile source sand at an offsite location until beach placement timing is suitable;
- Avoid placement on receiving site beach during weekends;
- Limit the volume to be placed on the beach to minimize the time required to place the material; and
- Perform sensitive bird species and grunion monitoring as defined in Section 6.0.

2.4 PLACEMENT RATE

Beach fill placement rates have sometimes been restricted by regulatory agencies on previous beach fill projects, in order to control water turbidity levels and/or minimize impacts to benthic habitat. Controlled or limited beach fill placement rates will extend the sand placement period and the period of turbid conditions. The restriction has been applied to dredging projects and is expressed as a quantity of sand placed per year or month. The Orange County SCOUP proposes a maximum per nourishment and per year volume for each receiver site that will be implemented as part of the SCOUP program.

2.5 MONITORING

The SCOUP implementation guidelines include a monitoring framework applicable to any combination of sediment source, receiver site, and placement volume, by establishing different monitoring criteria “triggers” for varying categories of projects (M&N 2025). Monitoring for marine biological resources may include:

- Sensitive bird species;
- Grunion;
- Habitat Areas of Concern (estuaries, kelp beds, surfgrass, eelgrass, and rocky reefs);
- Tidal inlet monitoring; and
- Water quality monitoring

The monitoring criteria triggers for each receiver site are summarized in Table 2-2 and Table 2-3 and the following sections, with detailed protocols provided in M&N 2025. Note that monitoring requirements will be assessed prior to project implementation to determine if site-specific modifications or adjustments are necessary based on updated information.

2.5.1 SENSITIVE BIRD SPECIES MONITORING TRIGGER CRITERIA

Sensitive bird species monitoring would be required for any beach nourishment project occurring within the nesting season of California least tern and/or western snowy plover and for over-wintering areas for snowy plovers. The SCOUP receiver sites with potential sensitive birds nesting and over-wintering habitat are noted in Table 5-3.

2.5.2 GRUNION MONITORING TRIGGER CRITERIA

Grunion typically spawn from March through August during middle-of-the-night spring high tides at or above approximately mean high tide line (MHTL) on the beach. The eggs incubate then hatch after approximately two weeks, when the juvenile fish return to the sea during the subsequent spring high tide. Grunion monitoring would be required for any beach nourishment project occurring within the spawning season on any sandy beach where spawning could potentially occur and if sand is to be placed below MHTL. Grunion use sandy beaches for spawning, and thus beaches comprised mostly of cobble or with little to no dry beach during high tides, would likely not host grunion activity.

2.5.3 NEARSHORE MONITORING - HABITAT AREAS OF CONCERN

Federally designated habitat areas of particular concern (HAPCs) occurring within the Orange County coastline include the following: estuaries, kelp beds, surfgrass, eelgrass, and rocky reefs. While understory algae are included in habitat maps included in the Orange County Regional Sediment Management Plan (OCRSMP; Everest et al. 2013) it is only included as an indicator for the potential of HAPCs to exist and therefore the presence of understory algae alone is not considered a HAPC.

If a project occurs in an area known to have eelgrass, surfgrass, kelp or hard substrate within the vicinity, then monitoring of that habitat will be triggered. The exact distance offshore/downcoast considered to be "within the vicinity" will vary depending on the project size. The SCOUP receiver sites with potential sensitive habitat are noted in Table 5-3. Projects will be divided into three categories based on the volume of sand planned to be placed at the beach per event. These categories are defined as follows: small (<25,000 cy), medium (25,000 to 75,000 cy) and large (>75,000 cubic yards). Each monitoring activity will describe the general procedure as well as specific criteria for each project volume category. Criteria will be more stringent as project volume category increases. Eelgrass surveys would be in accordance with the California Eelgrass Mitigation Policy (CEMP) (NMFS 2014).

For small projects (<25,000 cy) on open ocean beaches, nearshore (rocky reef, surfgrass and/or kelp) monitoring is triggered only if the sand is placed below the MHTL **and** an HAPC (rocky reef, surfgrass and/or kelp) exists within 100 ft offshore of the sand placement area (directly offshore or within 1,000 upcoast of the sand placement area's upcoast limit or within 2,000 ft downcoast of the sand placement area's downcoast limit). Monitoring is not triggered if HAPC exists greater than 100 ft offshore in either the upcoast or downcoast direction.

For medium projects (25,000-75,000 cy) on open ocean beaches, nearshore (rocky reef, surfgrass and/or kelp) monitoring is triggered only if the sand is placed below the MHTL **and** an HAPC (rocky reef, surfgrass and/or kelp) exists within 300 ft offshore of the sand placement area (directly offshore or within 2,000 ft upcoast of the sand placement area's upcoast limit or within 5,000 ft downcoast of the sand placement area's downcoast limit). Monitoring is not triggered if HAPC exists greater than 300 ft offshore in either the upcoast or downcoast direction.

For large projects (>75,000 cy) on open ocean beaches, nearshore (rocky reef, surfgrass and/or kelp) monitoring is triggered only if the sand is placed below the MHTL **and** an HAPC (rocky reef, surfgrass and/or kelp) exists within 1,000 ft offshore of the sand placement area (directly offshore or within 2,000 ft upcoast of the sand placement area's upcoast limit or within 5,000 ft downcoast of the sand placement area's downcoast limit). Monitoring is not triggered if HAPC exists greater than 1,000 ft offshore in either the upcoast or downcoast direction.

2.5.4 TIDAL INLET MONITORING TRIGGER CRITERIA

For coastal wetlands/marshes, maintaining a connection to the ocean is essential for the health of the local ecosystem as tidal circulation from ebbing and flooding tides acts to constantly introduce important nutrients, flush out harmful pollutants and regulate important water quality parameters such as salinity and dissolved oxygen. Along the Orange County coastline, there are three wetlands/marshes with tidal inlets whose closure could cause and have caused negative ecosystem impacts on the upstream ecosystem. These wetlands/marshes include from north to south: Bolsa Chica Wetlands, Huntington Beach Wetlands Conservancy, and Santa Ana River Wetlands. Tidal inlet closures are a result of unmaintained shoaling that ultimately forms a sediment barrier between the wetland/marsh and open

ocean. Therefore, monitoring of any project that introduces an influx of sediment in the vicinity of one of these inlets should occur.

Tidal inlet monitoring is potentially required for sand placement at only the following beaches which are adjacent to the three tidal inlets cited above:

- Bolsa Chica State Beach
- Huntington Cliffs
- Huntington State Beach
- West Newport Beach

For small projects (<25,000 cy) at the four beach receiver sites above, tidal inlet monitoring is triggered if a tidal inlet exist within 1,000 ft downcoast or upcoast of the sand placement limits.

For medium projects (25,000 -75,000 cy) and large projects (>75,000 cy) at the four beach receiver sites above, tidal inlet monitoring is triggered if a tidal inlet exists within 2,500 ft downcoast or upcoast of the sand placement limits.

2.5.5 WATER QUALITY MONITORING - TURBIDITY MONITORING TRIGGER

Turbidity monitoring would only be required if:

- Sand is placed within the active intertidal zone (i.e., below the high tide line), and
- The project is a “large” project (sand placement volume exceeds 75,000 cy) or the project is a “medium” project (sand placement volume between 25,000 – 75,000 cy) with source material exceeding 25% fines.
- Nearshore biological resources (rocky reef, surfgrass, eelgrass, or kelp) are present

Table 2-2. Proposed Biological Monitoring Guidelines

Receiver Site/ Location ID	Per Event Volume (cy)	Grunion ¹	Least Tern ²	Snowy Plover ³	Reef ⁴	Surfgrass ⁴	Eelgrass ⁴	Kelp Bed ⁴
West Beach, Seal Beach/ SB.1	<25K	N	N	S	N	N	N	N
West Beach, Seal Beach/ SB.1	25K-75K	N	N	S	N	N	N	N
West Beach, Seal Beach/ SB.1	>75K	N	N	S	N	N	N	N
East Beach, Seal Beach/ SB.2	<25K	S	N	S	N	N	N	N
East Beach, Seal Beach/ SB.2	25K-75K	S	N	S	N	N	N	N
East Beach, Seal Beach/ SB.2	>75K	S	N	S	N	N	N	N
Surfside Beach/ SB.3	<25K	S	N	S	N	N	N	N
Surfside Beach/ SB.3	25K-75K	S	N	S	N	N	N	N
Surfside Beach/ SB.3	>75K	S	N	S	N	N	N	N
Sunset Beach/ HB.1	<25K	S	N	S	N	N	N	N
Sunset Beach/ HB.1	25K-75K	S	N	S	N	N	N	N
Sunset Beach/ HB.1	>75K	S	N	S	N	N	N	N
Huntington Harbour Beaches/ HB.2	<25K	N	N	N	N	N	Y	N
Huntington Harbour Beaches/ HB.2	25K-75K	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Receiver Site/ Location ID	Per Event Volume (cy)	Grunion ¹	Least Tern ²	Snowy Plover ³	Reef ⁴	Surfgrass ⁴	Eelgrass ⁴	Kelp Bed ⁴
Huntington Harbour Beaches/ HB.2	>75K	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bolsa Chica State Beach/ CA.1	<25K	S	N	S	N	N	N	N
Bolsa Chica State Beach/ CA.1	25K-75K	S	N	S	N	N	N	N
Bolsa Chica State Beach/ CA.1	>75K	S	N	S	N	N	N	N
Huntington Beach Bluffs/ HB.3	<25K	S	N	S	N	N	N	N
Huntington Beach Bluffs/ HB.3	25K-75K	S	N	S	N	N	N	N
Huntington Beach Bluffs/ HB.3	>75K	S	N	S	N	N	N	N
Huntington Beach State Beach/ CA.2	<25K	S	S	S	N	N	N	N
Huntington Beach State Beach/ CA.2	25K-75K	S	S	S	N	N	N	N
Huntington Beach State Beach/ CA.2	>75K	S	S	S	N	N	N	N
West Newport Beach/ NB.1	<25K	S	N	S	N	N	N	N
West Newport Beach/ NB.1	25K-75K	S	N	S	N	N	N	N
West Newport Beach/ NB.1	>75K	S	N	S	N	N	N	N
Balboa Beach/ NB.3	<25K	S	N	S	N	N	N	N

Receiver Site/ Location ID	Per Event Volume (cy)	Grunion ¹	Least Tern ²	Snowy Plover ³	Reef ⁴	Surfgrass ⁴	Eelgrass ⁴	Kelp Bed ⁴
Balboa Beach/ NB.3	25K-75K	S	N	S	N	N	N	N
Balboa Beach/ NB.3	>75K	S	N	S	Y	N	N	N
Newport Harbor Beaches/ NB.2	<25K	N	N	N	N	N	Y	N
Newport Harbor Beaches/ NB.2	25K-75K	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Newport Harbor Beaches/ NB.2	>75K	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Newport Dunes/ OC.1	<25K	N	N	N	N	N	Y	N
Newport Dunes/ OC.1	25K-75K	N	N	N	N	N	Y	N
Newport Dunes/ OC.1	>75K	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Corona Del Mar State Beach/ NB.4	<25K	S	N	N	Y	Y	N	N
Corona Del Mar State Beach/ NB.4	25K-75K	S	N	N	Y	Y	N	N
Corona Del Mar State Beach/ NB.4	>75K	S	N	N	Y	Y	N	Y
Little Corona del Mar/ NB.5	<25K	S	N	N	Y	Y	N	N
Little Corona del Mar/ NB.5	25K-75K	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Little Corona del Mar/ NB.5	>75K	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crystal Cove State Park/ NB.5	<25K	S	N	S	Y	Y	N	Y

Receiver Site/ Location ID	Per Event Volume (cy)	Grunion ¹	Least Tern ²	Snowy Plover ³	Reef ⁴	Surfgrass ⁴	Eelgrass ⁴	Kelp Bed ⁴
CA.3								
Crystal Cove State Park/ CA.3	25K-75K	S	N	S	Y	Y	N	Y
Crystal Cove State Park/ CA.3	>75K	S	N	S	Y	Y	N	Y
Salt Creek Beach/ OC.2	<25K	S	N	S	N	N	N	N
Salt Creek Beach/ OC.2	25K-75K	S	N	S	Y	Y	N	Y
Salt Creek Beach/ OC.2	>75K	S	N	S	Y	Y	N	Y
Baby Beach/ OC.3	<25K	N	N	N	N	N	Y	N
Baby Beach/ OC.3	25K-75K	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Baby Beach/ OC.3	>75K	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Doheny State Beach/ CA.4	<25K	S	N	S	Y	N	N	N
Doheny State Beach/ CA.4	25K-75K	S	N	S	Y	N	N	N
Doheny State Beach/ CA.4	>75K	S	N	S	Y	N	N	Y
Capistrano Beach County Park/ OC.4	<25K	S	N	N	N	N	N	N
Capistrano Beach County Park/ OC.4	25K-75K	S	N	N	N	N	N	N
Capistrano Beach County Park/ OC.4	>75K	S	N	N	Y	N	N	Y
Poche Beach/ OC.5	<25K	S	N	N	N	N	N	N
Poche Beach/ OC.5	25K-75K	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Receiver Site/ Location ID	Per Event Volume (cy)	Grunion ¹	Least Tern ²	Snowy Plover ³	Reef ⁴	Surfgrass ⁴	Eelgrass ⁴	Kelp Bed ⁴
Poche Beach/ OC.5	>75K	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Capistrano Shores/ SC.1	<25K	S	N	N	N	N	N	N
Capistrano Shores/ SC.1	25K-75K	S	N	N	N	N	N	N
Capistrano Shores/ SC.1	>75K	S	N	N	Y	N	N	Y
San Clemente North Beach/ SC.2	<25K	S	N	N	N	N	N	N
San Clemente North Beach/ SC.2	25K-75K	S	N	N	N	N	N	N
San Clemente North Beach/ SC.2	>75K	S	N	N	Y	N	N	Y
San Clemente City Beaches/ SC.3	<25K	S	N	N	N	N	N	N
San Clemente City Beaches/ SC.3	25K-75K	S	N	N	Y	Y	N	N
San Clemente City Beaches/ SC.3	>75K	S	N	N	Y	Y	N	Y
San Clemente State Beach/ CA.5	<25K	S	N	N	N	N	N	N
San Clemente State Beach/ CA.5	25K-75K	S	N	N	N	N	N	N
San Clemente State Beach/ CA.5	>75K	S	N	N	Y	N	N	Y
Cyprus Shore/Cottons Beach/ SC.4	<25K	S	N	S	Y	N	N	N
Cyprus Shore/Cottons Beach/ SC.4	25K-75K	S	N	S	Y	N	N	N
Cyprus Shore/Cottons Beach/ SC.4	>75K	S	N	S	Y	N	N	Y

Source: M&N 2025

Notes: The monitoring specified in this table identifies the potential need for monitoring based on the presence of resources in the vicinity of the maximum potential fill extent footprint. A specific sand placement event may or may not trigger monitoring depending upon the exact location of the event's sand placement within the maximum fill extent footprint.

A green box with Y refers to monitoring required.

A red box with N refers to monitoring not required.

A blue box with S refers to monitoring requirement dependent on seasonality of project.

¹Grunion monitoring is only necessary between March - August unless other spawning events predicted per CDFW for beach with placement below MHTL.

²Least Tern monitoring is only necessary between April 1st - September 15th.

³Snowy Plover monitoring is only necessary between March 1st - September 30th. Additional monitoring may be necessary where Snowy Plover are known to overwinter/roost.

⁴Nearshore monitoring is only required when sand is placed below the MHTL and nearshore sensitive biological resources are present

Table 2-3. Proposed Physical Monitoring Guidelines

Receiver Site/ Location ID	Per Event Volume (cy)	Turbidity ⁵	Surf Conditions ⁶	Beach Profiles	Tidal Inlet
West Beach, Seal Beach/ SB.1	<25K	N	N	N	N
West Beach, Seal Beach/ SB.1	25K-75K	N	N	N	N
West Beach, Seal Beach/ SB.1	>75K	N	N	N	N
East Beach, Seal Beach/ SB.2	<25K	N	N	N	N
East Beach, Seal Beach/ SB.2	25K-75K	Y	N	N	N
East Beach, Seal Beach/ SB.2	>75K	Y	Y	Y	N
Surfside Beach/ SB.3	<25K	N	N	N	N
Surfside Beach/ SB.3	25K-75K	Y	N	N	N
Surfside Beach/ SB.3	>75K	Y	Y	Y	N

Receiver Site/ Location ID	Per Event Volume (cy)	Turbidity ⁵	Surf Conditions ⁶	Beach Profiles	Tidal Inlet
Sunset Beach/ HB.1	<25K	N	N	N	N
Sunset Beach/ HB.1	25K-75K	Y	N	N	N
Sunset Beach/ HB.1	>75K	Y	Y	Y	N
Huntington Harbour Beaches/ HB.2	<25K	N	N	N	N
Huntington Harbour Beaches/ HB.2	25K-75K	N/A	N/A	N/A	N/A
Huntington Harbour Beaches/ HB.2	>75K	N/A	N/A	N/A	N/A
Bolsa Chica State Beach/ CA.1	<25K	N	N	N	Y
Bolsa Chica State Beach/ CA.1	25K-75K	Y	N	N	Y
Bolsa Chica State Beach/ CA.1	>75K	Y	Y	Y	Y
Huntington Beach Bluffs/ HB.3	<25K	N	N	N	N
Huntington Beach Bluffs/ HB.3	25K-75K	Y	N	N	Y
Huntington Beach Bluffs/ HB.3	>75K	Y	Y	Y	Y
Huntington Beach State Beach/ CA.2	<25K	N	N	N	Y
Huntington Beach State Beach/ CA.2	25K-75K	Y	N	N	Y
Huntington Beach State Beach/ CA.2	>75K	Y	Y	Y	Y
West Newport Beach/ NB.1	<25K	N	N	N	Y

Receiver Site/ Location ID	Per Event Volume (cy)	Turbidity ⁵	Surf Conditions ⁶	Beach Profiles	Tidal Inlet
West Newport Beach/ NB.1	25K-75K	Y	N	N	Y
West Newport Beach/ NB.1	>75K	Y	Y	Y	Y
Balboa Beach/ NB.3	<25K	N	N	N	N
Balboa Beach/ NB.3	25K-75K	Y	N	N	N
Balboa Beach/ NB.3	>75K	Y	Y	Y	N
Newport Harbor Beaches/ NB.2	<25K	N	N	N	N
Newport Harbor Beaches/ NB.2	25K-75K	N/A	N/A	N/A	N/A
Newport Harbor Beaches/ NB.2	>75K	N/A	N/A	N/A	N/A
Newport Dunes/ OC.1	<25K	N	N	N	N
Newport Dunes/ OC.1	25K-75K	Y	N	N	N
Newport Dunes/ OC.1	>75K	N/A	N/A	N/A	N/A
Corona Del Mar State Beach/ NB.4	<25K	N	N	N	N
Corona Del Mar State Beach/ NB.4	25K-75K	Y	N	N	N
Corona Del Mar State Beach/ NB.4	>75K	Y	Y	Y	N
Little Corona del Mar/ NB.5	<25K	N	N	N	N
Little Corona del Mar/ NB.5	25K-75K	N/A	N/A	N/A	N/A

Receiver Site/ Location ID	Per Event Volume (cy)	Turbidity ⁵	Surf Conditions ⁶	Beach Profiles	Tidal Inlet
Little Corona del Mar/ NB.5	>75K	N/A	N/A	N/A	N/A
Crystal Cove State Park/ CA.3	<25K	N	N	N	N
Crystal Cove State Park/ CA.3	25K-75K	Y	N	N	N
Crystal Cove State Park/ CA.3	>75K	Y	Y	Y	N
Salt Creek Beach/ OC.2	<25K	N	N	N	N
Salt Creek Beach/ OC.2	25K-75K	Y	N	N	N
Salt Creek Beach/ OC.2	>75K	Y	Y	Y	N
Baby Beach/ OC.3	<25K	N	N	N	N
Baby Beach/ OC.3	25K-75K	N/A	N/A	N/A	N/A
Baby Beach/ OC.3	>75K	N/A	N/A	N/A	N/A
Doheny State Beach/ CA.4	<25K	N	N	N	N
Doheny State Beach/ CA.4	25K-75K	Y	N	N	N
Doheny State Beach/ CA.4	>75K	Y	Y	Y	N
Capistrano Beach County Park/ OC.4	<25K	N	N	N	N
Capistrano Beach County Park/ OC.4	25K-75K	Y	N	N	N
Capistrano Beach County Park/ OC.4	>75K	Y	Y	Y	N
Poche Beach/	<25K	N	N	N	N

Receiver Site/ Location ID	Per Event Volume (cy)	Turbidity ⁵	Surf Conditions ⁶	Beach Profiles	Tidal Inlet
OC.5					
Poche Beach/ OC.5	25K-75K	N/A	N/A	N/A	N/A
Poche Beach/ OC.5	>75K	N/A	N/A	N/A	N/A
Capistrano Shores/ SC.1	<25K	N	N	N	N
Capistrano Shores/ SC.1	25K-75K	Y	N	N	N
Capistrano Shores/ SC.1	>75K	Y	Y	Y	N
San Clemente North Beach/ SC.2	<25K	N	N	N	N
San Clemente North Beach/ SC.2	25K-75K	Y	N	N	N
San Clemente North Beach/ SC.2	>75K	Y	Y	Y	N
San Clemente City Beaches/ SC.3	<25K	N	N	N	N
San Clemente City Beaches/ SC.3	25K-75K	Y	N	N	N
San Clemente City Beaches/ SC.3	>75K	Y	Y	Y	N
San Clemente State Beach/ CA.5	<25K	N	N	N	N
San Clemente State Beach/ CA.5	25K-75K	Y	N	N	N
San Clemente State Beach/ CA.5	>75K	Y	Y	Y	N
Cyprus Shore/Cottons Beach/ SC.4	<25K	N	N	N	N
Cyprus Shore/Cottons Beach/ SC.4	25K-75K	Y	N	N	N

Receiver Site/ Location ID	Per Event Volume (cy)	Turbidity ⁵	Surf Conditions ⁶	Beach Profiles	Tidal Inlet
Cyprus Shore/Cottons Beach/	>75K	Y	Y	Y	N

Source: M&N 2025

Notes: The monitoring specified in this table identifies the potential need for monitoring based on the presence of resources in the vicinity of the maximum potential fill extent footprint. A specific sand placement event may or may not trigger monitoring depending upon the exact location of the event’s sand placement within the maximum fill extent footprint.

A green box with Y refers to monitoring required.

A red box with N refers to monitoring not required.

A blue box with S refers to monitoring requirement dependent on seasonality of project.

⁵Turbidity monitoring is only required when sand is placed below the MHTL. Monitoring may not be necessary for medium projects if maximum fines of source sediment is less than or equal to 10% of maximum fines found at receiver site.

⁶Surf conditions ****DATA NEEDED****

3.0 PROJECT REGULATORY REQUIREMENTS

The Proposed Project is subject to the following regulations related to marine biological resources.

3.1 FEDERAL REGULATIONS

3.1.1 CLEAN WATER ACT

The federal Water Pollution Control Act Amendments of 1972 (33 United States Code [USC] 1251–1376), as amended by the Water Quality Act of 1987, and better known as the Clean Water Act (CWA), is the major federal legislation governing water quality. The purpose of the federal CWA is to “restore and maintain the chemical, physical, and biological integrity of the nation’s waters.” Discharges into waters of the United States are regulated under CWA Section 404. Waters of the United States include: 1) all navigable waters (including all waters subject to the ebb and flow of the tide); 2) all interstate waters and wetlands; 3) all other waters, such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, or natural ponds; 4) all impoundments of waters mentioned above; 5) all tributaries to waters mentioned above; 6) the territorial seas; and 7) all wetlands adjacent to waters mentioned above. Important applicable sections of the CWA are discussed below:

- Section 401 requires an applicant for any federal permit that proposes an activity that may result in a discharge to waters of the United States to obtain certification from the state that the discharge will comply with other provisions of the CWA. Certification is provided by the respective Regional Water Quality Control Board (RWQCB). A Section 401 permit from the RWQCB would be required for issuance of a permit by the U.S. Army Corps of Engineers (USACE).
- Section 404 regulates the discharge of dredged or fill materials to waters of the U.S. and provides for issuance of permits by the USACE.

3.1.2 RIVERS AND HARBORS APPROPRIATION ACT

The Rivers and Harbors Appropriation Act of 1899 (33 USC 403), commonly known as the Rivers and Harbors Act (R&HA), prohibits the construction of any bridge, dam, dike, or causeway over or in navigable waterways of the United States without congressional approval. Under R&HA Section 10, the USACE is authorized to permit structures in or over navigable waters. Building or modifying wharves, piers, jetties, and other structures in or over the waters of the San Diego coastline requires USACE approval through the Section 10 permit process.

3.1.3 ENDANGERED SPECIES ACT

The Endangered Species Act (ESA) protects plants and wildlife that are listed as endangered or threatened by the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS). ESA Section 9 prohibits the taking of endangered wildlife, where taking is defined as to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct” (50 Code of Federal Regulations [CFR] 17.3). The term “harm” is defined as an “act which actually kills or injures wildlife,” including through “significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife.” The term “harass” means an act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns, including breeding, feeding or sheltering (50 CFR 17.3). For plants, this statute governs removing,

possessing, maliciously damaging, or destroying any endangered plant on federal land, as well as removing, cutting, digging up, damaging, or destroying any endangered plant on non-federal land in knowing violation of state law. Under ESA Section 7, lead federal agencies are required to consult with the USFWS or NMFS if the lead agency determines that its actions, including permit approvals or funding, may adversely affect an endangered species (including plants) or its critical habitat. Through consultation and the issuance of a biological opinion, the USFWS or NMFS may issue an incidental take statement allowing take of the species that is incidental to another authorized activity, provided the action will not jeopardize the continued existence of the species. In cases where the federal agency determines its action may affect, but would be unlikely to adversely affect, a federally listed species, the agency may choose to informally consult with the USFWS and/or NMFS. This informal consultation typically involves incorporating measures intended to ensure effects would not be adverse. Concurrence from the USFWS and/or NMFS concludes the informal process. Without such concurrence, the federal agency may formally consult to ensure full compliance with the ESA.

3.1.4 MARINE MAMMAL PROTECTION ACT

The Marine Mammal Protection Act of 1972 (MMPA) prohibits, with certain exceptions, the take of marine mammals in United States waters and by United States citizens on the high seas and the importation of marine mammals and marine mammal products into the United States. Under the MMPA, “take” is defined as “to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal” (16 U.S.C. 1362) and further defined by regulation (50 CFR 216.3) as “to harass, hunt, capture, collect, or kill, or attempt to harass, hunt, capture, collect, or kill any marine mammal”. NMFS administers the MMPA. Under the 1994 Amendments to the MMPA, harassment is statutorily defined as any act of pursuit, torment, or annoyance which:

- Level A Harassment has the potential to injure a marine mammal or marine mammal stock in the wild; or,
- Level B Harassment has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering but which does not have the potential to injure a marine mammal or marine mammal stock in the wild.

3.1.5 MIGRATORY BIRD TREATY ACT

The Migratory Bird Treaty Act (MBTA) prohibits take of nearly all birds where members of the bird’s taxonomic family are considered to be migratory. This results in the inclusion of most species of birds afforded protection. Under the MBTA, take means only to kill, directly harm, or destroy individuals, eggs, or nests, or to otherwise cause failure of an ongoing nesting effort.

3.1.6 MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) of 1976 was established to promote domestic and commercial fishing under sound conservation and management principles. NMFS, as a branch of the National Oceanic and Atmospheric Administration (NOAA), implements the act via eight regional Fisheries Management Councils (FMCs). The FMCs in turn prepare and implement Fishery Management Plans (FMPs) in accordance with local conditions. The Pacific FMC is responsible for the Pacific region, in which the Project site is located. The FMPs also establish EFH for the species they manage and require consultation with NMFS for actions that may adversely affect EFH. Following receipt of an EFH, NMFS will provide EFH Conservation Recommendations to the lead agency detailing measures that

may be taken by the agency to conserve EFH. Within 30 days of receipt of EFH Conservation Recommendation, the project lead agency must respond in writing, including a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. These measures will be incorporated into the final project.

3.2 STATE REGULATIONS

3.2.1 CALIFORNIA COASTAL ACT

The California Coastal Act (CCA) is intended to provide protection of the unique nature and public interest values of the state's coastal fringe. Development activities, which are broadly defined by the CCA to include (among others) construction of buildings, divisions of land, and activities that change the intensity of use of land or public access to coastal waters, generally require a coastal development permit. The CCA is administered by the California Coastal Commission (CCC) or by local jurisdictions operating under adopted Local Coastal Programs that have been approved by the CCC.

3.2.2 CALIFORNIA ENDANGERED SPECIES ACT

The California Endangered Species Act (CESA) authorizes the California Fish and Game Commission to designate endangered, threatened, and rare species and to regulate the taking of these species (California Fish and Game Code [FGC] Sections 2050–2098). The CESA defines endangered species as those whose continued existence in California is jeopardized. State-listed threatened species are those not presently facing extinction, but that may become endangered in the foreseeable future. FGC Section 2080 prohibits the taking of state-listed plants and animals. Unlike the federal ESA, the CESA does not include harassment within its take definition and as such, has a statutorily higher threshold standard for take than does the federal ESA. Pursuant to Section 2081 of the code, the California Department of Fish and Wildlife (CDFW) may authorize individuals or public agencies to import, export, take, or possess state-listed endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized through permits or memoranda of understanding if the take is incidental to an otherwise lawful activity, impacts of the authorized take are minimized and fully mitigated, the permit is consistent with any regulations adopted pursuant to any recovery plan for the species, and the project operator ensures adequate funding to implement the measures required by the CDFW. When a species is both state and federally listed, an expedited request for consistency with the USFWS biological opinion may be issued through a request for a Section 2080.1 consistency determination if take authorization under the CESA is required.

3.2.3 MARINE LIFE PROTECTION ACT

Pursuant to this Act, the CDFW established and manages a network of Marine Protected Areas (MPAs) to, among other goals, protect marine life and habitats and preserve ecosystem integrity. For the purposes of MPA planning, California was divided into five distinct regions (four coastal and San Francisco Bay) each of which had its own MPA planning process. The coastal portion of California's MPA network is now in effect statewide; options for a planning process in San Francisco Bay have been developed for consideration at a future date. The MLPA establishes clear policy guidance and a scientifically sound planning process for the siting and design of MPAs such as: State Marine Reserves (SMRs), which typically preclude all extractive activities (such as fishing or kelp harvesting); State Marine Parks (SMPs), which do not allow any commercial extraction; and State Marine Conservation Areas (SMCAs), which preclude some combination of commercial and/or recreational extraction.

3.2.4 CALIFORNIA PORTER-COLOGNE ACT

This Act is the basic water quality control law for California and works in concert with the federal Act. The Act is implemented by the State Water Resources Control Board (SWRCB) and its nine regional boards which implement the permit provisions of Section 402 and certain planning provisions of Sections 205, 208, and 303 of the federal Act. This means that the state issues one discharge permit for purposes of federal and state law. Permits for discharge of pollutants are officially called National Pollutant Discharge Elimination System (NPDES) permits. Anyone who is discharging waste or proposing to discharge waste that could affect the quality of state waters must file a “report of waste discharge” with the governing RWQCB. Additional water quality permitting requirements under the Porter-Cologne Act may include an NPDES General Construction Activities Stormwater.

3.2.5 CALIFORNIA FISH AND GAME CODE

The FGC is implemented by the California Fish and Game Commission, as authorized by Article IV, Section 20, of the Constitution of the State of California. FGC Sections 3503, 3503.5, 3505, 3800, and 3801.6 protect all native birds, birds of prey, and nongame birds, including their eggs and nests, that are not already listed as fully protected and that occur naturally within the state. Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (e.g., hawks, owls, eagles, and falcons), including their nests or eggs. As defined in the Fish and Game Code, “take” means to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill (Fish and Game Code Section 86). The CDFW is the state agency that manages native fish, wildlife, plant species, and natural communities for their ecological value and their benefits to people. The CDFW oversees the management of marine species through several programs, some in coordination with NMFS and other agencies.

3.2.6 CALIFORNIA EELGRASS MITIGATION POLICY

It is NMFS’ policy to recommend no net loss of eelgrass habitat function in California, and as such eelgrass is protected by the state and federal government under the CEMP (NMFS 2014). Recognizing that some necessary projects may adversely affect this protected resource, NMFS has developed a mitigation policy to ensure that there is no net loss of eelgrass in California, and compensatory mitigation options include comprehensive management plans, in-kind mitigation, mitigation banks and in-lieu-fee programs, and out-of-kind mitigation. While in-kind mitigation is preferred, the most appropriate form of compensatory mitigation should be determined on a case-by-case basis.

3.2.7 CAULERPA CONTROL PROTOCOL

Caulerpa taxifolia is a green alga primarily found in shallow tropical and subtropical waters. There are no *Caulerpa* species native to California, and therefore, *Caulerpa* species pose a substantial threat to marine ecosystems in California, particularly to the extensive eelgrass beds and other benthic environments that make coastal waters such a rich and productive environment. The *Caulerpa* Control Protocol establishes provisions to detect existing infestations and avoid the spread of the invasive species for California nearshore coastal and enclosed bays, estuaries, and harbors from Morro Bay to the U.S.–Mexico border. The protocol outlines the certification, survey, and reporting guidelines when surveying for *Caulerpa* (NMFS 2021).

3.3 LOCAL REGULATIONS

3.3.1 ORANGE COUNTY CENTRAL AND COASTAL SUBREGION NATURAL COMMUNITY CONSERVATION PLAN (NCCP)/HABITAT CONSERVATION PLAN (HCP)

The Plan provides long-term protection for wildlife and their critical habitats, and regulatory assurances and economic benefits for participating landowners. The Central and Coastal Subregion is a 208,000-acre area that includes the central portion of the County of Orange, incorporating the area from the coastline inland to Riverside County. The subregion extends along the coast from the mouth of the Santa Ana River (Costa Mesa) to the mouth of San Juan Creek (Dana Point). The beach receiver sites are not located within the jurisdiction of an adopted Natural Community Conservation Plan or Habitat Conservation Plan.

3.3.2 COUNTY OF ORANGE GENERAL PLAN

The General Plan is a blueprint for growth and development. California State law (Government Code Section 65300) requires each city and county to adopt a comprehensive, long-term General Plan for its own physical development and for any land outside its boundaries related to its planning activities. All 34 cities in Orange County have general plans that address their individual jurisdictions. While the Orange County General Plan primarily focuses on the unincorporated area - territory that is not located within a city - the plan also addresses regional services and facilities provided by the County such as regional parks, roads, flood control facilities, etc.

3.3.3 LOCAL COASTAL PLANS

Several local policies protecting biological resources apply to the beach receiver sites. In partnership with coastal cities and counties, the CCC plans and regulates the use of land and water in the coastal zone through the Coastal Act. The Coastal Act requires that local governments develop Local Coastal Programs (LCP) to carry out policies of the California Coastal Act at the local level.

4.0 ENVIRONMENTAL SETTING

4.1 HABITATS IN THE PROJECT AREA

Understanding the existing physical and biological conditions at the Project Area beach receiver sites is critical to determining the potential impacts of the Proposed Project. No project-specific surveys were conducted for this report, and the description of the environmental setting is based on existing biological information. Based on the project description, the primary area of concern for marine biological resources from the Proposed Project extends from the back beach to the depth of closure at the receiver site (the depth in which there is no significant net sediment exchange between the nearshore and the offshore), which typically is at depths of -30 ft NAVD88 along the Orange County coastline (M&N 2025).

The Orange County coastline includes a variety of habitats including sandy beaches, soft-bottom subtidal, rocky intertidal and subtidal reefs, bays, estuaries, and harbors. In addition, vegetated habitats such as kelp beds and seagrasses (e.g., eelgrass and surfgrass beds) occur locally on rocky and embayment areas. Several of these habitats are considered sensitive or support sensitive resources. Seven state marine protected areas (MPAs) which provide additional regulatory protection of biological resources occur within the Project Area. State water quality protection areas, which are designated as Areas of Special Biological Significance (ASBS), also are associated with two state marine conservation areas (SMCAs) within the MPA system, those at Robert E. Badham and Irvine Coast locations (within the Crystal Cove SMCA), and Heisler Park (within the Laguna Beach SMCA). ASBS status limits water quality impacts by prohibiting point source and storm drain discharges. Point source waste and thermal discharges are prohibited or limited while nonpoint source pollution is controlled to the extent practicable. No other use is restricted.

Other sensitive resource areas include locations where endangered or threatened species may occur, such as designated critical habitat, protected avian species nesting sites, foraging areas, or over-wintering areas. In addition, major haul out areas, or roosting areas of fully protected avian species or important nursery or spawning areas of state-managed fishery species also are considered sensitive biological areas. Sensitive or high interest species in Orange County coastal areas where sand placement may occur include the following:

- Federal and state endangered California least tern (*Sterna antillarum browni*);
- Federal threatened western snowy plover (*Chardrius alexandrinus nivosus*) and critical habitat;
- Federal endangered Southern California Steelhead (*Oncorhynchus mykiss*) evolutionary significant unit and critical habitat);
- Federal endangered green sea turtle (*Chelonia mydas*) and proposed critical habitat;
- Fully protected marine mammals such as California gray whale (*Eschrichtius robustus*) and protected dolphins, porpoises, seals and sea lions;
- Fully protected California brown pelican (*Pelecanus occidentalis californicus*);
- California grunion (*Leuresthes tenuis*) spawning beaches; and
- Pismo clam (*Tivela stultorum*), if within persistent clam bed areas.

Table 4-1 summarizes the regional distribution of coastal habitats in the Project Area, and Figures 4-1 through 4-5 show locations of hard-bottom, canopy kelp, seagrasses, bays and estuaries (including harbors), man-made hard-bottom structures, selected managed species, and receiver site locations. Site specific resources will be addressed in the impact analysis section (Section 5). Sand or soft bottom

substrate are a dominant substrate type and not represented in the figures and generally it's assumed it is present in areas where hard bottom is not shown.

Note that some hard bottom and soft bottom areas may support vegetated features such as kelp, macroalgae, and eelgrass. Vegetation data are primarily from the OCRSMP (Everest 2013) and are distinguished according to dominant vegetation type (i.e., kelp, understory algae, eelgrass) with updated localized data such as eelgrass beds in Newport Bay, Bolsa Chica, Anaheim Bay, Huntington Harbour, and Dana Point Harbor; CDFW canopy kelp cover; surfgrass and substrate data in San Clemente (ACOE unpub. data), Chambers Group (2016), CMECS substrate data (<https://apps.wildlife.ca.gov/marine/>), and EcoAtlas habitat data (<https://www.ecoatlas.org/regions/ecoregion/south-coast>). Kelp canopy layer may overlap and vary by year depending on environmental conditions. The multiple years of kelp coverage from 1967 through 2016 are combined into a simple kelp feature in the figures. The kelp record provides a good indication of locations with hard-bottom vegetated HAPC, which may or may not have surface kelp canopies. Mapped seagrasses include surfgrass on nearshore hard-bottom substrate or eelgrass on soft-bottom embayment habitats. Note that spatial data was not available for all areas (e.g., spatial data for surfgrass was only available for San Clemente near Pier), and therefore figures may not depict the presence of surfgrass but references may note presence in an area.

Managed species depicted on the figures include California least tern, western snowy plover, and California grunion which are particularly relevant to beach nourishment. Least tern and/or snowy plover nesting sites and potential over-wintering areas for snowy plover and federally designated critical habitat for snowy plover are based on the OCRSMP (Everest 2013). Beach locations where grunion spawning records have been compiled are delineated along the shoreline. The managed species data should be viewed as potential to occur; actual occurrence will vary depending on environmental conditions and year.

A brief description of the major habitats in the Project Area is provided in the following sections.

4.1.1 SANDY BEACH

The intertidal zone, also known as the littoral zone, in marine aquatic environments is the area of the foreshore and seabed that is exposed to the air at low tide and submerged at high tide (i.e., the area between tide marks). At the receiver sites, the intertidal zone consists of sandy beach habitat. Sandy beaches generally represent unstable habitat with seasonal cycles of sand deposition (accretion) and erosion, which leads to a great deal of temporal and spatial variability in invertebrate populations. Most southern California beaches lose sand in the winter and gain sand in the summer. In addition, daily tidal fluctuations affect the distribution of marine organisms. Therefore, marine organisms common in sandy beach habitats are generally mobile and change position with changes in water level and sediment transport. Generally higher abundances and species diversity are found on long, gently sloping beaches, while lower abundances and diversity are present on steep, coarse-grained beaches. Common invertebrates observed in southern California sandy beaches include sand crabs (*Emerita analoga*), beach hoppers (*Megalorchestia* spp, *Orchestodea* spp.), amphipods (e.g., *Eohaustorius* spp.), isopods (e.g., *Excirologa* spp.), and other crustaceans; bean clam (*Donax gouldii*), Pismo clam (*Tivela stultorum*, and olive snail (*Olivella biplicata*); bloodworm (*Euzonus mucronata*) and other polychaete worms (*Hemipodus borealis*, *Lumbrineris* spp., *Nephtys californiensis*, *Scololepis* spp.); and nemertean ribbon worms (SANDAG 2000, Dugan et al 2015). Terrestrial insects are an important ecological component of the sandy beach and help break down washed ashore kelp and seagrass wrack. The wrack may harbor a variety of insects and invertebrates that are important prey items for gulls and shorebirds.

Sandy beach invertebrates are an important prey base for fish and birds. Nearshore fish forage on the invertebrates when high tides cover the beach. Various shorebirds probe the sand in search of worms, crustaceans, and small clams. Gulls are opportunistic feeders on invertebrates they pick from the swash zone or on wrack, as well as trash or debris left by humans. Beaches are important resting areas for shorebirds, gulls, and other seabirds such as terns and the California brown pelican. Terrestrial birds also may forage along the back beach shoreline. Over 70 species of birds use beaches within the region (SAIC 2011), although actual use at any beach varies according to site-specific conditions, human disturbance, and seasonal patterns of bird migration. California grunion also use sandy beaches as spawning habitat.

Table 4-1. Regional Distribution of Coastal Habitats in Project Area

Habitat	Relative Occurrence	Occurrence in Orange County
Sandy Beach	Majority of shoreline	Most shorelines
Sandy Subtidal	Majority of subtidal	Nearshore, embayments
Nearshore Rocky Reefs	Localized areas	Huntington Beach Bluffs, Newport Beach, Laguna Beach, Corona del Mar, Crystal Cove, Salt Creek, Dana Point, San Clemente
Kelp Forests	Localized hard-bottom areas	Newport Beach, Laguna Beach, Dana Point, San Clemente
Surfgrass Beds	Localized hard-bottom areas	Corona Del Mar State Beach, Crystal Cove, Laguna Beach, Dana Point, San Clemente
Eelgrass Beds	Localized in embayments	Anaheim Bay, Seal Beach National Wildlife Refuge, Huntington Harbour, Bolsa Chica Ecological Reserve, Huntington Beach Wetlands, Lower Newport Bay, Dana Point Harbor
Bays, Harbors, Wetlands	Six	Anaheim Bay, Huntington Harbour, Newport Bay, Dana Point Harbor, Bolsa Chica Ecological Reserve, Huntington Beach Wetlands, Los Cerritos Wetlands, Santa Ana River Salt Marsh

Source: Everest 2013.

4.1.2 SANDY SUBTIDAL

Soft-bottom nearshore communities have similar characteristics for a given water depth, sediment type, and wave energy. Thus, sandy nearshore communities at all receiver sites are expected to be similar. The subtidal zone is classified into general regions, including the shallow subtidal to a depth of about -30 ft MLLW (generally corresponds to littoral zone), an inner shelf zone from about -30 to -80 ft MLLW, middle shelf from about -80 to -300 ft MLLW, and outer shelf zone from about -300 to -600 ft MLLW. As noted previously, the study area for this Project focuses on the shallow subtidal region or to the depth of closure.

Bottom-dwelling invertebrate species in the shallow subtidal zone are well adapted to shifting sediments and turbidity, with suspension feeders being the dominant group. Many of the sandy beach invertebrates move between the intertidal and shallow subtidal depths and additional species live on and within

sediments within increasing distance offshore as wave energy diminishes toward the seaward limit of the littoral zone. Common species in the shallow subtidal zone of the Orange County SCOUP region include burrowing anemones, sea pansy, sea pen, purple globe crab (*Randallia ornata*), clams, snails, sand dollar, sea star, and tube worms (SAIC 2011). Fish commonly found in shallow subtidal habitat (less than 30 ft) off southern California beaches include California halibut (*Paralichthys californicus*), barred surfperch (*Amphistichus argenteus*), yellowfin croaker (*Umbrina roncador*), speckled sanddab (*Citharichthys stigmaeus*), California bat ray (*Myliobatus californica*), shovelnose guitarfish (*Rhinobatos productus*), northern anchovy (*Engraulis mordax*), jack mackerel (*Trachurus symmetricus*), round ray (*Urobatus halleri*), walleye surfperch (*Hyperprosopon argenteum*), leopard shark (*Triakis semifasciata*), spotfin croaker (*Roncador stearnsii*), and topsmelt (*Atherinops affinis*).

4.1.3 ROCKY REEFS

Hard-bottom habitats are productive ecosystems that support a variety of plants and animals. They include rocky intertidal shores and nearshore reefs, and support vegetated habitats such as surfgrass and kelp beds. Rocky habitats are localized in the Project Area and may vary depending on physical characteristics and degree of sand influence. Reef height and complexity are primary factors associated with habitat quality (AMEC 2005, SAIC 2011, SANDAG 2011). Low-lying reefs subject to sand scour support few biological resources while reefs that extend above the height of seasonal sand movement generally support diverse communities of invertebrates, fish, and vegetation.

Biological resources in the intertidal vary with exposure, relief height and complexity. The upper intertidal or splash zone is characterized by simple green algae (*Chaetomorpha* spp., *Enteromorpha* spp., *Ulva* spp.), barnacles (*Cthamalus* spp.), limpets (*Lottia* spp.), and periwinkles (*Littorina* spp.). Intertidal areas not influenced by sand burial and abrasion often support California mussel (*Mytilus californus*), gooseneck barnacle (*Pollicipes polymerus*), aggregating sea anemones (*Anthopleura elegantissima*), hermit crabs (*Pagurus* spp.), striped shore crab (*Pachygrapsus crassipes*), snails (e.g., *Lithopoma* spp., *Kelletia kelletia*, *Tegula* spp.), and chitons (*Mopalia mucosa*, *Nutallina* spp.) (Blanchette et al. 2015). Coralline algae, crusts, and red algal turf are common on low-relief substrate subject to sand influence.

Hard substrate in the low tidal zone and minus tide zone are characterized by a greater diversity of plants and animals including coralline algae, other red algae, brown algae, surfgrass, green sea anemones (*Anthopleura xanthogrammica*), purple sea urchins, California sea hares (*Aplysia californica*), snails, sponges, and starfish (*Asterina miniata*, *Pisaster* spp.). Woolly sculpin (*Clinocottus analis*) is one of the more commonly encountered fish in tidepools.

Subtidal reefs in the shallow nearshore also exhibit considerable variation in resource development associated with the seasonal onshore and offshore migration of sand. Similar to intertidal reefs, substrate factors such as relief height, texture, composition, and size largely determine resource development. Understory algae are common on nearshore reefs and feather boa kelp (*Egregia menziesii*) is conspicuous, growing up to 12 ft in length. The sea palm (*Eisenia arborea*) may co-occur with feather boa kelp at subtidal depths (AMEC 2005, SAIC 2006a, SAIC 2007). A variety of red algae (*Corallina* spp., *Gigartina* spp., *Gracilaria* spp., *Jania* spp., *Lithothrix* spp., *Rhododymenia* spp.) and brown algae (*Cystoseira osmundacea*, dictyotales, *Zonaria farlowi*) may co-occur with feather boa kelp and/or sea palms on nearshore reefs. Persistent reefs support hundreds of species of invertebrates (e.g., crabs, nudibranchs, sea urchins, scallops, sea stars, snails, sponges, tunicates, worms) and attract a variety of fish such as garibaldi (*Hypsypops rubicundus*), blacksmith (*Chromis punctipinnis*), and black perch (*Embiotoca jacksoni*).

Moving farther offshore to depths where seasonal sand movement is less, hard substrates do not need to have as high a relief to support perennial species. Giant kelp (*Macrocystis pyrifera*) attaches to hard substrate by means of a holdfast, and fronds may grow to heights that exceed the water depth, forming leafy canopies at the water surface. Kelp forests are among the most productive marine habitats along the coast of California providing habitat, feeding grounds, and nursery areas for many species of fishes, invertebrates, and marine mammals. The kelp community in the Project Area is dominated by giant kelp, which ranges from water depths of about -20 ft to -80 ft MLLW. Kelp beds in southern California commonly deteriorate to some degree during summer and fall when temperatures are higher and nutrient concentrations are lower. Giant kelp is adversely affected by sedimentation and turbidity (Foster and Schiel 1985). Large amounts of shifting sediment can bury small plants and prevent the settling of microscopic spores, both of which can affect kelp beds. El Niño conditions which result in high waves, higher-than-average temperatures, and low nutrients, have been linked to periodic and widespread reductions in kelp canopy (Foster and Schiel 1985).

Invertebrates found in kelp beds include lobster (*Panulirus interruptus*), sea stars, sea urchins, and mollusks. Surfperch, rockfish (*Sebastes* spp.), cabezon (*Scorpaenichthys marmoratus*), kelp bass (*Paralabrax clathratus*), and wrasses (senorita, rock wrasse, and sheephead) are also commonly observed in southern California kelp beds.

Reef quality or the ability to support sediment-influenced indicator species is directly correlated with reef elevation (i.e., height of the reef), as higher-relief reefs are more resistant to sedimentation and scour, and therefore, allows perennial species to persist (AMEC 2005). Reef heights in relatively higher quality areas generally include a greater percentage of heights >1 ft (0.3 m) compared to relatively lower quality areas. The study of nearshore reefs in San Diego County noted other relationships between indicator species occurrence and reef heights and suggested that it appeared to be influenced by depth distribution (SAIC 2007). Several examples included:

- Surfgrass, which primarily occurred at water depths ≤ 15 ft (5 m), was uncommon on reef heights < 1 ft (0.3 m) and had denser cover on substrate heights ≥ 2 ft (0.6 m) than on 1 ft (0.3 m) heights.
- Giant kelp primarily occurred at water depths > 15 ft (5 m) on reef heights ≥ 1 ft (0.3 m). Giant kelp had sparse occurrence on nearshore reefs. Primary kelp canopies occurred further offshore beyond the depth of closure.
- Sea palm and feather boa understory algae occurred mainly at water depths < 26 ft (8 m), with a similar or greater number of records between 15 and 26 ft (5 and 8 m). Both species had greater cover on reef heights > 1 ft (0.3 m).
- Sea fan occurrence increased with depth, with most records at depths > 26 ft (8 m). Although sea fans mainly occurred on substrate ≥ 1 ft (0.3 m) high, there were more records on reefs < 1 ft (0.3 m) in height than observed for other indicator species, most likely related to less sand influence with increasing depth.
- Hard substrate with opportunistic turf algae, sparse occurrence of opportunistic feather boa kelp, and/or lacking vegetation has been used to distinguish substantially sand influenced (scoured) reef.

4.1.4 SURFGRASS BEDS

The most common type of seagrass along the open coast is surfgrass (*Phyllospadix scouleri*, *P. torreyi*), which is a flowering plant that forms beds on rocky substrate from the minus intertidal level to

approximately -20 ft MLLW. Surfgrass provides an important habitat for a variety of algae, invertebrates, lobsters, and fish, and is a nursery habitat for California spiny lobster. Surfgrass is adapted to withstand shifting sand movement with long shoots which can extend above a variety of sand depths and are protected from sand abrasion by fibrous sheaths. Dense rhizomatous roots bind with sand to form an effective anchor, and growth and colonization are by vegetative propagation of rhizomes and/or seasonal seed production. Surfgrass may recover relatively quickly from disturbance via regrowth if the rhizome mat remains intact, but recovery can take several years if the rhizome mat is removed. Although it is adapted to sand accretion, the amount of sand affects its health and growth. Craig et al (2008) suggested that short-term burial results in shoot mortality, decreased shoot counts, and reduced growth of *P. scouleri*.

4.1.5 EELGRASS BEDS

Eelgrass (*Zostera marina*) is a rooted aquatic plant that inhabits shallow soft bottom habitats in quiet waters of bays and estuaries, as well as sheltered coastal areas. It can form dense beds that provide substrate, food, and shelter for a variety of marine organisms. Eelgrass is considered a Submerged Aquatic Vegetation (SAV), and a “special aquatic site” under the CWA. Pursuant to the MSA, eelgrass is designated as a HAPC within EFH for various federally managed fish species within the Pacific Coast Groundfish FMP (PFMC 2020). Eelgrass beds function as an important habitat for a variety of invertebrate, fish, and avian species. For many species, eelgrass beds are an essential biological habitat component for at least a portion of their life cycle, providing resting and feeding sites along the Pacific Flyway for avian species, and nursery sites for numerous species of fish.

4.1.6 ESTUARIES, HARBORS, AND WETLANDS

Estuaries are protected nearshore areas such as bays, inlets, and river mouths, influenced by the ocean and freshwater. Because of tidal cycles and freshwater runoff, salinity varies within estuaries and results in great diversity, offering freshwater, brackish and marine habitats within close proximity (PMFC 2020). Estuaries in the Project Area include Upper Newport Bay, Bolsa Chica Ecological Reserve, and Aliso Creek, and there are several bays and harbors that have potential receiver sites (i.e., Newport Bay, Huntington Harbour, Dana Point Harbor). The receiver sites are primarily small pocket beaches surrounded by developed areas (e.g., homes, boat slips). Other than the beach, the majority of the receiver site would be considered unvegetated soft bottom habitat consisting of sand, gravel, mud and silt. Eelgrass beds may be present adjacent to some receiver sites. Shallow soft bottom areas in southern California bays contain clumps of red algae (*Gracilaria* spp., *Ceramium* spp.), loose clumps of green algae (*Ulva* spp.), and commonly a film of benthic diatoms forming mats over portions of the bottom. Fish species typically observed include round stingrays (*Urobatis halleri*), barred sand bass (*Paralabrax nebulifer*), spotted sand bass (*Paralabrax maculatofasciatus*), specklefin midshipman (*Porichthys myriaster*), black croaker (*Cheilotrema saturnum*), and Gobies (Family Gobiidae) (U.S. Navy 2014). Burrowing invertebrates include bivalves (*Chione* spp., *Macoma nasuta*), the amphipod (*Grandidierella japonica*), bay ghost shrimp (*Neotrypaea* spp.), burrowing anemones (*Harenactis attenuata*), and tube-dwelling anemones (*Pachycerianthus* spp.). Other invertebrates commonly observed within the shallow waters of southern California bays include the opisthobranch (*Navanax inermis*) and slender sea pen (*Stylatula elongata*), as well as calcareous bryozoans and the invasive soft bryozoan *Amathia verticillatum*. Any debris found on the bottom may support species more typical of hard substrates, including sponges (Phylum Porifera), scale worm (Family Polynoidae), golden gorgonian (*Muricea californica*), invasive non-native tunicates (e.g., *Styela plicata* and *Botrylloides* spp.), and spiny lobster (U.S. Navy and Port of San Diego 2013). The shorelines within southern California bays are usually armored with riprap revetment that supports

barnacles, snails, and arthropods such as the lined shore crab (*Pachygrapsus crassipes*), while shallow subtidal revetment may support invertebrates such native oyster (*Ostrea lurida*) and non-native Pacific oyster (*Crassostrea gigas*). All of the embayments in the Project Area also support eelgrass beds.

Six wetlands are within the Project Area and include Los Cerritos Wetland, Seal Beach National Wildlife Refuge, Bolsa Chica Ecological Reserve, Huntington Beach Wetlands, Santa Ana River Marsh/Newport Banning Ranch, and Upper Newport Ecological Reserve (Everest 2013). They support similar biological resources such as bays and harbors and several could be affected by Project activities including Bolsa Chica Ecological Reserve and Huntington Beach Wetlands that experience periods of accretion that can lead to mouth closure, disrupting the tidal flow and affecting wildlife and habitats.

4.1.7 UPLAND HABITAT

Most receiver sites are located in developed urban areas, and therefore no native upland terrestrial biological resources would be affected by the Project since construction and staging would occur on existing developed, paved, or disturbed areas. No sensitive terrestrial species are expected to occur and therefore would not be affected by the Project and will not be discussed further. Upland habitat at the Orange County SCOUP stockpile sites is addressed under a separate report.

4.1.8 WILDLIFE CORRIDORS

The Project Area includes a relatively narrow habitat area extending from the back beach to the depth of closure, and therefore does not provide any terrestrial movement corridors, and no marine mammal, reptile, or fish migratory corridors occur within the Project Area. However, some marine fish species such as anchovy, sardine, and topsmelt move into and out of bays and harbors for spawning, nursery, and foraging. Several whale species migrate along the coast of California including the California gray whale.

4.2 MARINE PROTECTED AREAS

Seven State Marine Protected Areas (MPAs) occur within Orange County (Figure 4-6). MPAs are management designations that provide additional regulatory protection of biological resources. Of these MPAs, three different classifications exist with varying levels of protection. These include State Marine Reserve (SMR), State Marine Conservation Area (SMCA), and No-Take State Marine Conservation Area (SMCA No Take). Differences between the different MPA classifications includes:

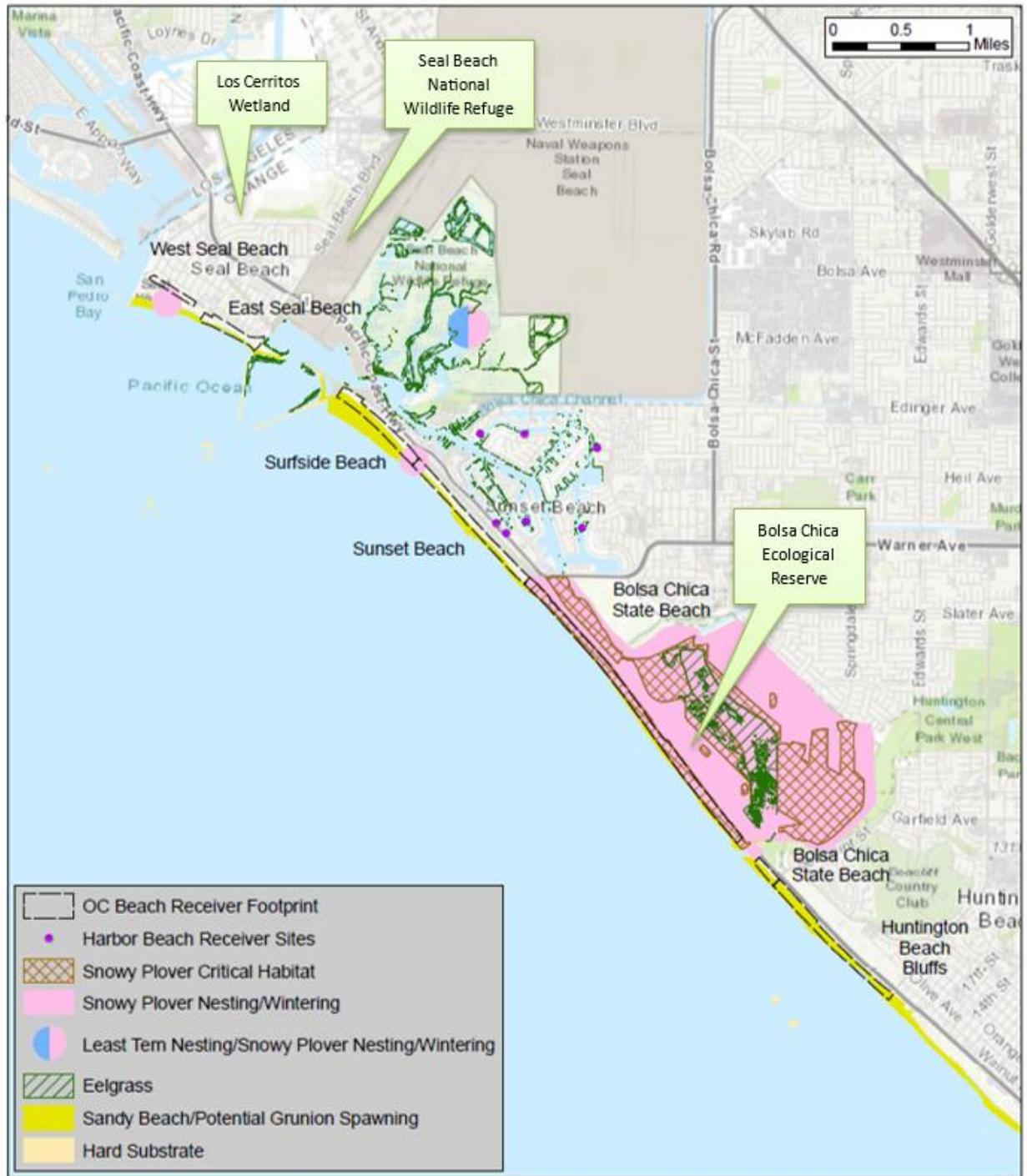


Figure 4-1. Sensitive Biological Resources West Seal Beach to Huntington Beach Bluffs



Figure 4-2. Sensitive Biological Resources Bolsa Chica to Balboa Beach

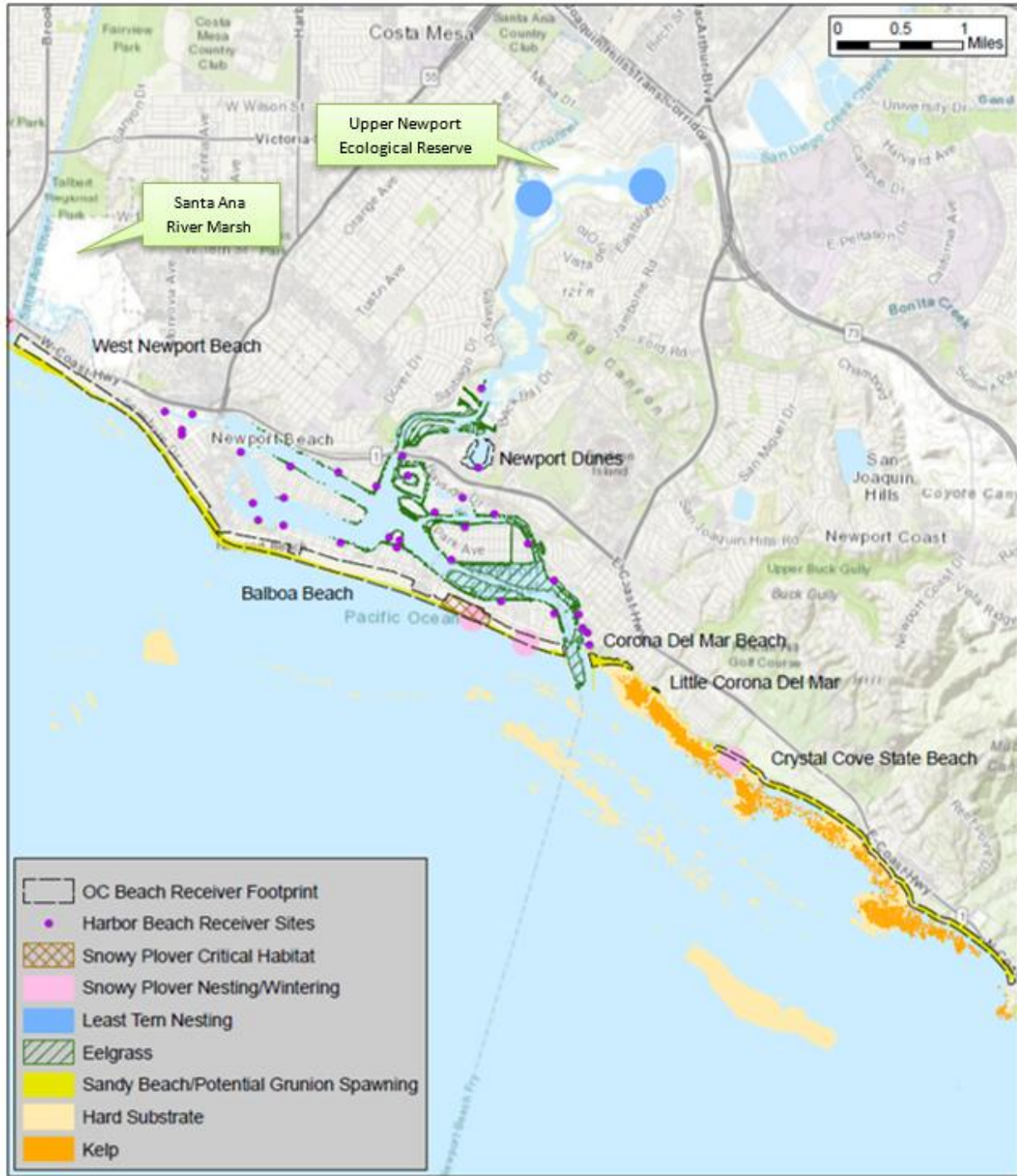


Figure 4-3. Sensitive Biological Resources West Newport Beach to Crystal Cove State Beach

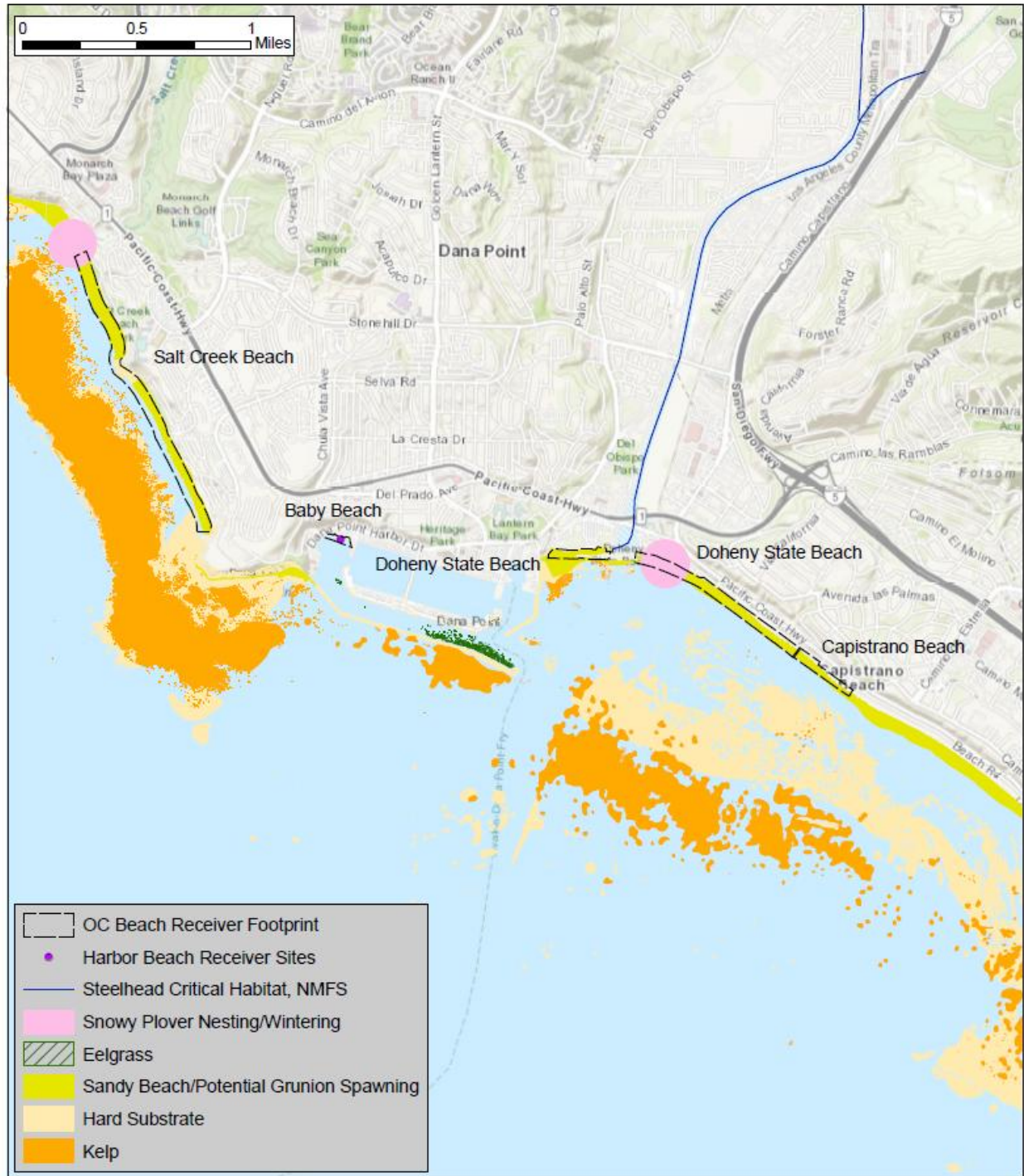


Figure 4-4. Sensitive Biological Resources Salt Creek to Capistrano Beach

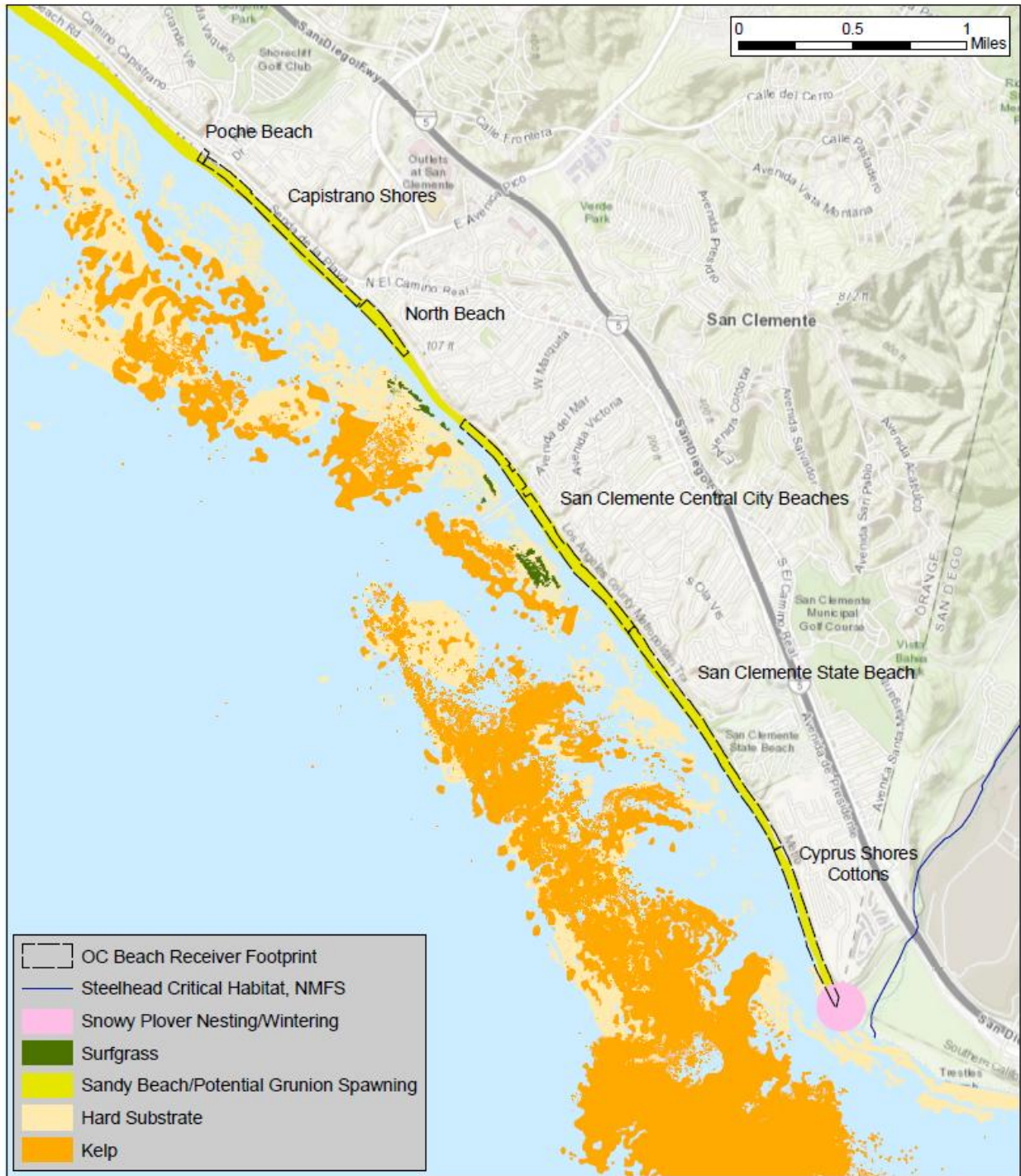


Figure 4-5. Sensitive Biological Resources Poche Beach to San Clemente



Figure 4-6. Marine Protected Areas and Green Sea Turtle Critical Habitat

- State Marine Reserve (SMR) - An MPA designation that prohibits damage or take of all marine resources (living, geologic, or cultural) including recreational and commercial take.
- State Marine Conservation Area (SMCA) - An MPA designation that may allow some recreational and/or commercial take of marine resources (restrictions vary).
- State Marine Conservation Area (No-Take) - An MPA designation that generally prohibits the take of living, geological, and cultural marine resources, but allows potentially affected and ongoing permitted activities such as dredging and maintenance to continue.

4.3 ESSENTIAL FISH HABITAT

The MSA requires federal action agencies to consult with NOAA's NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH. The EFH Guidelines (50 CFR 600.05 - 600.930) outline the process for federal agencies, NMFS and the Fishery Management Councils to satisfy the EFH consultation requirement under Section 305(b)(2)-(4) of the Magnuson-Stevens Act. As part of the EFH Consultation process, the guidelines require Federal action agencies to prepare a written EFH Assessment describing the effects of that action on EFH (50 CFR 600.920(e)(1)). The EFH Assessment is a necessary component for efficient and effective consultations between a federal action agency and NMFS.

4.3.1 DEFINITIONS

EFH consist of those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity (16 U.S.C. 1802(10)). The following definitions apply to the sections of this document that address potential project impacts and protective measures:

- Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate (50 CFR 600.10).
- Substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities (50 CFR 600.10).
- Necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem (50 CFR 600.10).
- Healthy ecosystem means an ecosystem where ecological productive capacity is maintained, diversity of the flora and fauna is preserved, and the ecosystem retains the ability to regulate itself. Such an ecosystem should be similar to comparable, undisturbed ecosystems with regard to standing crop, productivity, nutrient dynamics, trophic structure, species richness, stability, resilience, contamination levels, and the frequency of diseased organisms (50 CFR 600.810(a)).
- Adverse effect means any impact that reduces quality and/or quantity of EFH. Adverse effects may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality and/or quantity of EFH. Adverse effects to EFH may result from actions occurring within EFH or outside of EFH and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810(a)).

4.3.2 HABITAT AREAS OF PARTICULAR CONCERN

EFH guidelines published in Federal regulations identify HAPC as types or areas of habitat within EFH that are identified based on one or more of the following considerations:

- The importance of the ecological function provided by the habitat.
- The extent to which the habitat is sensitive to human-induced environmental degradation.
- Whether, and to what extent, development activities are or will be stressing the habitat type.
- The rarity of the habitat type (50 CFR 600.815(a)(8)).

HAPCs present within the Project Area include estuaries, seagrass, rocky reef, and canopy kelp habitats (PMFC 2020).

The ichthyofauna along sandy beaches has been previously studied (SANDAG 2000, SWRCB 1980). Of the fish species noted in Section 4.1 that are known to inhabit sandy beach and nearshore rocky reef habitats, eight are managed by the NMFS under two Fishery Management Plans (FMPs) – the Pacific Coast Groundfish and Coastal Pelagics Management FMPs (PFMC 2019; PFMC 2020; Table 4-2). In addition, three species (although one is concurrently managed by NMFS) are managed by the CDFW under the California Nearshore FMP (CDFW 2002) and the California Spiny Lobster FMP (CDFW 2016).

Table 4-2. Managed Species Likely to Occur in the Vicinity of the Project Area

Fishery Management Plan	Common Name	Scientific Name
Pacific Coast Groundfish (PFMC 2020)	California Scorpionfish ¹	<i>Scorpaena gutatta</i>
Pacific Coast Groundfish (PFMC 2020)	English Sole	<i>Parophrys vetulus</i>
Pacific Coast Groundfish (PFMC 2020)	Leopard Shark	<i>Triakis semifasciata</i>
Coastal Pelagic Species (PFMC 2019)	Pacific Sardine	<i>Sardinops sagax</i>
Coastal Pelagic Species (PFMC 2019)	Northern Anchovy	<i>Engraulis mordax</i>
Coastal Pelagic Species (PFMC 2019)	Pacific (Chub) Mackerel	<i>Scomber japonicus</i>
Coastal Pelagic Species (PFMC 2019)	Jack Mackerel	<i>Trachurus symmetricus</i>
Coastal Pelagic Species (PFMC 2019)	Market Squid	<i>Doryteuthis opalescens</i>
California Nearshore (CDFW 2002)	California Sheephead	<i>Semicossyphus pulcher</i>
California Spiny Lobster (CDFW 2016)	California Spiny Lobster	<i>Panulirus interruptus</i>

¹species also in California Nearshore FMP

4.3.3 BIOLOGICAL DESCRIPTION OF MANAGED SPECIES

California Scorpionfish

The California scorpionfish ranges from Santa Cruz, California south to Uncle Sam Bank, Baja California. It is a benthic species found in both sandy and rocky habitats. Individuals are predominantly solitary but are known to aggregate near prominent features both natural and man-made. Young fish live in shallow habitats typically hidden within dense algae and bottom-encrusting organisms. Spawning occurs between May and September and peaks in July. Eggs are laid in a gelatinous mass that floats near the surface. The primary food items include juvenile crabs, small fishes (e.g. northern anchovy), octopus, isopods, and shrimps (PFMC 2020).

English Sole

English sole are found from the Bering Sea and Aleutian Islands, to San Cristobal Bay, Baja California Sur. They are usually caught in relatively shallow water, less than 300 ft deep, and on the outer continental shelf community in southern California. Eggs and larvae are pelagic; juveniles and adults are demersal. Small juveniles settle in the estuarine and shallow nearshore areas all along the coast, but are less common in southerly areas, particularly south of Point Conception. Juveniles and adults are carnivorous, apparently feeding primarily during daylight hours. Juveniles feed on harpacticoid copepods, gammarid amphipods, cumaceans, mysids, polychaetes, small bivalves, clam siphons, and other benthic invertebrates, while adult English sole feed on a variety of benthic organisms, but primarily polychaetes, amphipods, molluscs, cumaceans, ophiuroids, and crustaceans (PFMC 2020).

Leopard Shark

The leopard shark is most commonly found in sandy or muddy bays and estuaries either at or near the bottom. The shark is most commonly encountered in 20 ft (6.1 meters [m]) of water or less but has been sighted up to 300 ft (91.4 m) deep. Leopard sharks feed primarily on benthic invertebrates and small fish. Their diet includes invertebrates such as crabs, shrimp, octopi, fat innkeeper worms (*Urechis caupo*), clam siphons, and fish such as midshipmen, sanddabs, shiner perch, bat rays, smoothhounds, and a variety of fish eggs. Female leopard sharks are ovoviviparous and can produce litters of 4 to 33 pups. The gestation period of the shark is between ten and twelve months, and birth usually occurs between April and May. During the summer months - June, July and August – leopard sharks gather together in the shallow water off the coast of San Diego.

Pacific Sardine

Pacific sardine is a pelagic species. Individuals can be found in estuaries but are most common in open coastal habitats and offshore. The Pacific sardine is wide ranging with sardines in the Alguhas, Benguela, California, Kuroshio, and Peru currents, and off New Zealand and Australia being considered the same species. Changes in distribution are common and linked to environmental conditions. In California, sardines are highly mobile and move seasonally. Older adults move from southern California and northern Baja spawning grounds to feeding grounds off the Pacific Northwest and Canada. Younger individuals (two to four years old) migrate to feeding grounds in central and northern California. Juveniles occur in nearshore habitats off northern Baja and southern California. Although numbers vary greatly, at times sardines are the most abundant fish species in the California current. In southern populations spawning occurs year-round with a peak from April to August between Point Conception and Magdalena Bay. Eggs and larva are found everywhere adults are found. Sardines are planktivores consuming both phytoplankton and zooplankton. They are themselves prey for a variety of predators. Eggs and larvae are

consumed by numerous planktivores with juvenile and adults being consumed by a variety of fish, birds, and mammals (NMFS 2019).

Northern Anchovy

Northern anchovy historically ranged from the Queen Charlotte Islands, British Columbia south to Cape San Lucas, Baja California. More recently, populations have moved into the Gulf of California, Mexico. Larvae and juveniles are often abundant in nearshore areas and estuaries with adults being more oceanic. However, adults can be abundant in shallow nearshore areas and estuaries and eggs and larvae have been found offshore. Northern anchovy are non-migratory but do make extensive inshore-offshore and along-shore movements. In some populations, juveniles and adults are observed moving into estuaries during spring and summer and then back out during the fall. Spawning occurs throughout the year dependent upon the population. In southern California, spawning occurs between January and May. Larvae consume copepod eggs and nauplii, naked dinoflagellates, rotifers, ciliates, and foraminiferans. Adults and juveniles typically consume phytoplankton, planktonic crustaceans, and fish larvae. Northern anchovy are one of the most abundant fish in the California current and are important prey for a variety of fish, birds, and marine mammals. Finally, they are used as indicator of environmental stress, being affected by low dissolved oxygen and water-soluble fractions of crude oil (Emmett et al. 1991).

Pacific Mackerel

Pacific mackerel is a pelagic species. In the northeastern Pacific, Pacific mackerel range from southeastern Alaska to Banderas Bay, Mexico. As a group they are the same species as mackerel of a variety of names occurring elsewhere in the Pacific, Atlantic, and Indian oceans. Pacific mackerel usually occur within 20 miles of shore. Local populations spawn from Eureka, California south to Cabo San Lucas, Baja California between 3 and 320 km from shore with peak spawning occurring between late April and July. However, fecundity is more closely tied to sufficient food and environmental conditions than to season. Pacific mackerel larvae eat zooplankton including copepods and fish larvae. Juveniles and adults consume small fishes, fish larvae, squid and pelagic crustaceans. Pacific mackerel larvae are predated by numerous invertebrates and vertebrate planktivores. Juveniles and adults are important prey for many large fishes, marine mammals, and birds. Due to their larger size, they are likely less important as forage than Pacific sardine or northern anchovy which are available to a wider variety of predators and are more abundant (NMFS 2019).

Jack Mackerel

Jack mackerel is a schooling fish that ranges widely throughout the northeastern Pacific. Individuals are found along the mainland coasts to an offshore limit approximated by a line running from the eastern Aleutian Islands, Alaska to Cabo San Lucas, Baja California. Typically, small jack mackerel (< 6 years of age) are most abundant near the mainland coast and islands in the Southern California Bight. Older individuals fill out the geographic range and are generally found offshore in deep water and along the coastline north of Point Conception, California. Jack mackerel spawn between February and October in California, with peak spawning activity between March and July. Larvae eat primarily copepods with the small jack mackerel found off southern California consuming large zooplankton, juvenile squid and anchovy. Jack mackerel are prey items for large predators such as tuna and billfish. They are likely only of minor significance as prey for marine birds because of the large size of adults and their deep schooling (NMFS 2019).

Market Squid

Market squid, range from the southern tip of Baja California to southeastern Alaska (CDFG 2005). Adults move off the continental shelf by day and can be found to depths of 1500 ft and return to the surface at night to hunt. They are cannibalistic predators that feed on smaller prey species such as fish, crabs, shrimp, molluscs, and other juvenile squids. Spawning market squid tend to congregate in dense schools, usually over sandy habitats where they deposit extensive egg masses. In central California spawning activity starts around April and ends in October, while in southern California spawning events begin around October and end in April or May. Market squid have been reported to die after completing their first and only spawning period. Market squid are an integral part of the food web to many marine vertebrates. Fish, seabirds, and marine mammals all utilize squid as a prey item.

California Sheephead

California sheephead range from Monterey Bay south to the Gulf of California, although they are not common north of Point Conception. Sheephead are found from intertidal areas to water depths of 280 ft. They are considered a resident and solitary species, and adult males have a prominent, fleshy bump on their foreheads and have a black head and tail. Male sheephead have been aged at around 50 years old and can achieve a length of 3 ft and a weight exceeding 36 pounds (CDFW 2002). All sheephead are protogynous hermaphrodites, beginning life as females, but older females developing into males. Sheephead have a broad diet consisting of crabs, barnacles, mussels, and sea urchins, and inhabit nearshore rocky reefs, kelp beds, and surfgrass beds.

California Spiny Lobster

The California spiny lobster is endemic to the North American west coast from Monterey, California southward to at least as far as Magdalena Bay, Baja California. Sub-adult and adult lobster are commonly found on the seafloor at depths ranging from intertidal to 210 ft while the planktonic larvae have been found offshore as far as 329 miles and at depths to 449 ft (CDFW 2016). Rocky structures and reefs are important habitat for California spiny lobster, and high-quality rocky habitat is often characterized by the presence of brown algae such as giant kelp (*Macrocystis pyrifera*), feather boa kelp (*Egregia menziesii*), and stalked kelp (*Pterygophora californica*), as well as surfgrass (*Phyllospadix* spp.). Females with eggs on their tails are referred to as “berried” and are commonly found in California from late April-August and are most abundant June-July. After an incubation period of approximately 8 to 9 weeks, developing embryos hatch from the eggs on the female’s tail and enter the water column as free swimming (pelagic) larvae. Larvae spend 7 to 8 months drifting with ocean currents and feeding on plankton then transform into a stage that closely resembles adults and settle on nearshore reefs then molt into juvenile lobsters. Lobsters typically forage at night, when they exit the relative safety of their shelters and actively search for food, and while they are often described as scavengers, they also function as predators and grazers.

4.4 SPECIAL STATUS SPECIES

Federally listed and state-listed species afforded protection or consideration under the FESA, CESA, MMPA, MBTA, or other federal or state regulations with the potential to occur in the Project Area are briefly described in the following section and listed in Table 4-3.

4.4.1 REPTILES

Several turtle species are found in the eastern Pacific Ocean, including leatherback (*Dermochelys coriacea*), green (*Chelonia mydas*), loggerhead (*Caretta caretta*), and olive ridley (*Lepidochelys*

olivacea) sea turtles (NMFS 2012b). The green sea turtle is the species most likely to occur in the Project Area, and therefore is the only one discussed. Green sea turtles, federally-listed as threatened, are found in all temperate and tropical waters throughout the world. They primarily remain near the coastline and around islands and live in bays and protected shores, especially in areas with seagrass beds (NMFS and USFWS 1998). In the eastern Pacific, green turtles have been sighted from Baja California to southern Alaska, but most commonly occur from San Diego south (NMFS 2012b). Opportunistic green turtle sightings have occurred along the southern California coast including Santa Barbara, Ventura, Los Angeles, Orange, and San Diego counties (Hanna et al. 2021). The nearest green sea turtle sightings to the Project Area were reported in the San Gabriel River associated with the warm-water discharge of an electric generating station and in Alamitos Bay (Massey et al. 2023). On July 19, 2023, NMFS published a proposed rule to designate critical habitat for six distinct population segments (DPSs) of the green sea turtle (Federal Register 2023). For the East Pacific DPS of the green sea turtle, the proposed rule includes waters between the mean high water (MHW) line and 20-m depth from Point Dume to the Mexican Border and includes the Project Area (Figure 4-6).

Table 4-3. Special Status Species with Potential to Occur within the Project Site

Common Name	Scientific Name	Status	Occurrence in Project Site
Reptiles - Green Sea Turtle	<i>Chelonia mydas</i>	FT	Resident population occur in San Gabriel River and Seal Beach National Wildlife Refuge. Low potential in Project Area.
Birds - California Least Tern	<i>Sternula antillarum browni</i>	FE, SE	Least terns are a migratory species found in the Project Area from approximately April 1 through September 1. Nests and forage in Project Area.
Birds - Western Snowy Plover	<i>Charadrius alexandrinus nivosus</i>	FT	Present year around. Nests and forage in Project Area.
Birds - Brown Pelican	<i>Pelecanus occidentalis</i>	Delisted; MBTA	Present year around. Nest at Channel Islands.
Mammals - Pacific Harbor Seal	<i>Phoca vitulina richardsi</i>	MMPA	Occur in harbors or bays hauled out on buoys, moorings, docks, or breakwaters. Low potential on sandy beaches in region. Low potential in Project Area.
Mammals - California Sea Lion	<i>Zalophus californianus</i>	MMPA	Occur in harbors or bays hauled out on buoys, moorings, docks, or breakwaters. Low potential on sandy beaches in region. Low potential in Project Area.
Mammals - Common and Bottlenose Dolphins	<i>Delphinus delphis; Tursiops truncatus</i>	MMPA	Travel and feed in nearshore and offshore waters. Low potential in Project Area.
Mammals - California Gray Whale	<i>Eschrichtius robustus</i>	MMPA	Very Low Potential – Regular migrant in offshore waters, but uncommon in bay and nearshore waters. Low potential in Project Area.

Notes: FE refers to Federally Endangered; SE refers to State Endangered; FT refers to Federally Threatened; MMPA refers to species protected by the Marine Mammal Protection Act; MBTA refers Migratory Bird Treaty Act

4.4.2 CALIFORNIA LEAST TERN

The California least tern is a federally listed and state-listed endangered species. Least terns are migratory and are only present in California during the breeding season. Their nesting season extends from April 1 through September 15. They generally feed in shallow estuaries or lagoons on small surface schooling fishes such as topsmelt, northern anchovy, jacksmelt and mosquitofish, and usually forage within one to two miles of breeding colonies (Keane and Smith 2016) although non-breeders may forage at greater distances. In the Project Area, nesting sites include Seal Beach Naval Weapons Station, Bolsa Chica Ecological Reserve, Huntington Beach, and Upper Newport Bay.

4.4.3 WESTERN SNOWY PLOVER

Snowy plover is a federal threatened species and California Species of Special Concern. Critical Habitat has been designated at several locations in Orange County and includes Bolsa Chica Ecological Reserve, Bolsa Chica State Beach, Santa Ana River Mouth, and Balboa Beach (Federal Register 2012.). The USFWS also has identified locations where habitat may be suitable to support wintering concentrations (wintering areas), although information on actual use is limited (Everest 2013). Ryan et al. (2023) found that from 2012 to 2021 plovers were detected on 18 of 27 beach segments in Orange County. They observed 97% at seven main roosting sites at Surfside, Bolsa Chica State Beach, Huntington State Beach, Balboa Beach, Crystal Cove State Park, Salt Creek, and San Onofre State Beach. Plovers also used small roosts and foraged at Seal Beach, Sunset Beach, Huntington City Beach, Newport Beach, Doheny State Beach, and San Clemente City Beach. The breeding season for western snowy plovers extends from March 1 through September 30 (City of Newport Beach 2022, Knapp and Woodfield 2022), and they feed on sand crabs, sand hoppers, and a variety of insects associated with washed-ashore kelp (wrack). Snowy plovers have cryptic coloration and shelter in depressions, which increases their vulnerability to impacts by vehicles and human disturbance.

4.4.4 BLACK ABALONE

Black abalone (*Haliotis cracherodii*) are a marine snail that range from about Point Arena, California to Bahia Tortugas and Isla Guadalupe, Mexico. They once were very abundant along the California coast but are now endangered (Federal Register 2011). They live on rocky substrate on intertidal and shallow subtidal reefs (to about 18 ft deep), and typically occur in habitats with complex surfaces and deep crevices that provide shelter for juveniles and adults. Black abalone have the potential occur on intertidal and nearshore rocky reefs between Corona Del Mar State Beach and Dana Point; however, low evidence of recruitment or adult survivorship has been reported in this area by the NMFS (NMFS 2020). No designated critical habitat occurs within the Project Area. There is a very low likelihood that black abalone are present within the Project Area and therefore will not be discussed further.

4.4.5 STEELHEAD TROUT

Critical habitat for endangered Southern California Steelhead Evolutionary Significant Unit is designated for the San Juan Creek and the Trabuco Creek, which is an upstream tributary (NMFS 2012a). The mouth of San Juan Creek is at Doheny State Beach which is a potential receiver site. Lower San Juan Creek does not support runs of steelhead under current conditions due to significant barriers to upstream migration, although fish occasionally are observed. A steelhead recovery plan for San Juan and Trabuco Creeks was prepared and identifies recovery actions, based upon the best scientific and commercial data available, necessary for the protection and recovery of listed species (NMFS 2012a). There is a very low likelihood that steelhead are present within the Project Area and therefore will not be discussed further.

4.4.6 CALIFORNIA BROWN PELICAN

Brown pelicans (federally and state delisted) are protected under the MBTA. They feed by plunging into the water, stunning small fish with the impact of their large bodies and scooping them up in their expandable throat pouches. When not foraging, pelicans roost around fishing docks, jetties, and beaches or cruise the shoreline. They may rest on a variety of structures (e.g., jetties, floats, docks) and rocks along the mainland, and major roost sites have been reported at the entrance jetties to Anaheim Bay, Bolsa Chica Ecological Reserve, and the jetties of Dana Point Harbor (Everest 2013). Minor roost sites have been reported at the entrance jetties to Newport Bay, Arch Rock, Crystal Cove (Pelican Point), Laguna Beach (Emerald Bay), Dana Point (San Juan rocks), and Doheny State Beach (Everest 2013).

4.4.7 MARINE MAMMALS

Marine mammals with the potential to occur in the nearshore Project Area include harbor seals, sea lions, dolphins, and gray whales. There are no harbor seal (*Phoca vitulina*) or California sea lion (*Zalophus californicus*) rookeries in Orange County (Everest 2013); however, they commonly occur in harbors or bays hauled out on buoys, moorings, docks, or breakwaters. They are rarely observed on beaches in the region. Common dolphins (*Delphinus delphis*) and bottlenose dolphins (*Tursiops truncatus*) are common in the surf zone and in offshore waters. California gray whales (*Eschrichtius robustus*) migrate through the Project Area with the southbound migration beginning in December and lasting through February, with the northbound migration from February through May.

4.5 OTHER SPECIES OF INTEREST

Other species of interest with the potential to occur in the Project Area are discussed in the following section.

4.5.1 CALIFORNIA GRUNION

The California grunion (*Leuresthes tenuis*) is a fish that feeds on plankton and comes to shore to spawn on sandy beaches. Spawning generally extends from March through August, with peak spawning occurring April through June. Grunion spawn at night on any or all of the 3 to 4 nights after the highest tide associated with each full or new moon and then only for a 1- to 3-hour period. Eggs incubate in the sand for approximately 10 days until the next tide series is high enough to reach them, when exposure to wave action triggers their hatching and the baby grunion are washed back into the sea. Grunion are managed as a game species by the CDFW, who post predicted spawning runs on the internet (<https://wildlife.ca.gov/Fishing/Ocean/Grunion>).

4.5.2 PISMO CLAMS

Pismo clams (*Tivela stultorum*) are large clams that live in sandy areas from the intertidal zone to depths of 80 ft and may concentrate in certain areas. They are capable of rapid movement in the sediment due to their well-developed foot and normally bury to a depth of 2 to 6 inches. Pismo clam beds historically occurred between Seal Beach and Newport Beach but were severely impacted in southern California by the 1982-1983 El Niño (Everest 2013). In 1989, 10,000 clams were transplanted to Huntington State Beach from Pismo Beach in central California; however, few clams were found in follow-up surveys (CDFG 2001). No pismo clams were collected from the two Orange County beaches (Crystal Cove and San Clemente) during the 2013 Baseline Sandy Beach Surveys (Dugan et al. 2015); however, Bignami (2022) detected Pismo clams at Bolsa Chica State Beach in the summer of 2022 (12.6 ± 1.0 clams/m²), although most

Orange County sites had few or no detectable clams regardless of season with densities approximately one order of magnitude lower than those detected in San Diego County. Pismo clams are managed as a game species by the CDFW and south of Monterey County may be taken at any time of the year except in state marine reserves or other marine protected areas which prohibit the take of clams.

4.5.3 CAULERPA

The genus *Caulerpa* comprises a group of green algae with a wide global distribution. *Caulerpa* possess unique characteristics that enable them to withstand a broad range of environmental conditions and give them great invasive potential. There are no *Caulerpa* species native to California and therefore they pose a substantial threat to marine ecosystems in California. In March 2021, *C. prolifera* was discovered in Newport Bay. In response, the Southern California Caulerpa Action Team (SCCAT) implemented eradication efforts and those efforts are ongoing. It should be noted that the City of Newport Beach has conducted habitat monitoring in the bay since 2003 and the most recent monitoring effort in 2022 found that no *Caulerpa* was observed at any time within the surveyed areas. However, per the *Caulerpa* Control Protocol developed by SCCAT, the bay is still considered an “infected system” until eradication and subsequent verification is achieved.

5.0 ENVIRONMENTAL CONSEQUENCES

The impact analysis focuses on stressors associated with Proposed Project elements and their potential impact to marine biological resources including sandy beach and nearshore subtidal habitat (e.g., sandy subtidal habitat, open water, and rocky subtidal habitat), and sensitive resources within and in the vicinity of the Project Area. Impacts to marine habitats and wildlife can be measured as direct and/or indirect. Direct impacts are those that have a direct impact on habitats or wildlife and occur contemporaneously with the action. Direct impacts of construction to wildlife include immediate physical and physiological impacts such as abrupt changes in behavior, flight response, diving, evading, flushing, cessation of feeding, and physical impairment or mortality. Direct impacts to habitats can include damage from construction activities, as well as permanent habitat loss due to project construction. In contrast, indirect impacts are effects that are caused by or will result from the proposed action at a later time but are still reasonably certain to occur.

Impacts to marine biota and habitats would be considered significant if the Project would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, regulations; or by CDFW, USFWS, NMFS, or other regulatory agencies.
- Have a substantial adverse effect such as loss or alteration of sensitive habitats identified in local or regional plans, policies, regulations; by CDFW, USFWS, NMFS or other regulatory agencies, such as critical habitat; or federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. Sensitive habitats are defined to include high-relief reefs and vegetated low-relief reefs with one or more of the following indicator species: feather boa kelp (*Egregia menziesii*), giant kelp (*Macrocystis pyrifera*), surfgrass (*Phyllospadix* spp.), large sea fans (*Muricea* spp.), or sea palms (*Eisensia arborea*).
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites that may diminish the chances for long-term survival of species.

The determination of significant effect is based on professional judgment and takes into account available data, literature information about the responses of biota and habitats to disturbances, and the magnitude and duration of the impact and the commercial, recreational, scientific, or regulatory status of the affected resource. The analysis also takes into account the Project-specific monitoring framework that establishes monitoring criteria “triggers” for varying categories of projects (see Section 2.4).

A general discussion of potential direct and indirect impacts is summarized below. These generalized impact assessments can be applied to all receiver sites; however, some receiver sites may support additional resources that would be noted in site-specific assessments.

5.1 DIRECT IMPACTS OF SAND PLACEMENT

As noted in Section 2.2, there are several potential sand placement locations within the beach profile and depending on the placement location, the direct impact to marine habitat would differ. Beach Berm and Below Mean High Tide Line placement could affect both upper and lower beach areas, while Back Beach placement would generally affect the upper, dry portion of the beach (Table 5-1). The proposed placement locations for each receiver site are listed in Table 5-2.

5.1.1 PLACEMENT SITE IMPACTS

Sandy beach is the predominant habitat along the shoreline of the proposed receiver sites, with no rocky reef or hard bottom habitat in the direct Project footprint. The sandy beach ecosystem is a dynamic system and biota are generally tolerant to a high degree of physical change. The primary direct impact associated with beach nourishment is burial of beach invertebrate animals (e.g., clams, sand crabs, worms) living on or in the substrate at the receiver site. Other direct impacts may result from equipment damage associated with the operation of vehicles to move and spread sand at the receiver sites, and movement of vehicles and equipment during access to and from the receiver site. The loss of benthic organisms within the receiver site footprint is an expected and unavoidable impact of beach replenishment projects. Most invertebrates within the receiver site footprint are not expected to survive, but studies have shown that some mobile animals are able to escape or burrow out from the outer or leading edges of the beach fills where overburden depths are generally 2 ft or less (SAIC 2011).

Most studies have reported rapid recovery within 1 year or less for sandy beach intertidal animals after beach nourishment (SAIC 2012, Rosov et al. 2016). This begins almost immediately after cessation of construction, and recovery occurs via two mechanisms, one is by animals that migrate to the affected area from surrounding habitat and the second is by recruitment from the plankton. Substantial recovery of invertebrate abundance, species number, and biomass occurred within 4 months after placement of 1 mcy of sand at Imperial Beach (Parr et al. 1978). Wooldridge et al. (2016) monitored the intertidal invertebrate community following Regional Beach Sand Project (RBSP) II at eight beaches across San Diego County and found that nearly all taxa had major declines in abundance immediately following replenishment, while talitrid amphipods and bean clams, *Donax gouldii* recovered within one year. Habitat functions were studied for 3 years following RBSP I at several beaches in Encinitas, California, and were found to be enhanced by having increased invertebrate prey variety earlier in the season, greater sand depths and grunion habitat suitability, and increased bird use of wider beach habitat across tide conditions (SAIC 2006). Habitat enhancement also was observed on an adjacent beach downcoast of the receiver site.

Sandy beach invertebrate abundance is generally higher in the spring-summer coincident with recruitment and movement patterns of dominant species between the shallow subtidal and beach habitat. Therefore, the timing of projects may influence recovery times (SAIC 2007, Rosov et al. 2016). Invertebrate recovery (e.g., species, abundance, biomass) on the order of weeks have been reported with projects completed in winter-early spring prior to the spring-early summer recruitment period. While recovery may take several months if construction is completed in summer-fall because recruitment naturally occurs in spring-summer. Regardless, colonization will begin almost immediately, and the development of the invertebrate prey base will proceed naturally via the two mechanisms mentioned above. While rapid recovery is expected for most invertebrates comprising the prey base at sandy beaches, recovery rates may be slower for certain long-lived species, if present. For example, rapid recovery rates would not be expected to apply to slow growing and long-lived species such as Pismo clams.

Table 5-1. Direct Impact Footprint Based on Dune or Back Beach

Placement Location	Description	Dune or Back Beach (Dry Zone)
Beach Berm	The berm will be a level surface extending a certain distance from the back of the beach toward the ocean, then sloping gradually into the water.	Yes
Back Beach Storm Dike	Fill material is placed in a dike-type (linear mound) structure above the dry beach berm.	Yes
Below Mean High Tide Line	Sand would be delivered to the beach and pushed by bulldozers to the water's edge. At low tide, the material is pushed as far seaward as possible so that it can be reworked by waves during the following rising tide.	Yes
Back Beach Dunes	Dunes created by placing and grading imported sediment onto the back beach to form mounds	Yes
Back Beach Bluff/Cliff Stabilization	Sediment placed along the back beach at the base of the bluff or as sand cover on bluff toe rock or seawall protection.	Yes

Table 5-2. Direct Impact Footprint Based on Sandy Beach

Placement Location	Description	Sandy Beach (Intertidal/Wet Zone)
Beach Berm	The berm will be a level surface extending a certain distance from the back of the beach toward the ocean, then sloping gradually into the water.	Yes
Back Beach Storm Dike	Fill material is placed in a dike-type (linear mound) structure above the dry beach berm.	No
Below Mean High Tide Line	Sand would be delivered to the beach and pushed by bulldozers to the water's edge. At low tide, the material is pushed as far seaward as possible so that it can be reworked by waves during the following rising tide.	Yes
Back Beach Dunes	Dunes created by placing and grading imported sediment onto the back beach to form mounds	No
Back Beach Bluff/Cliff Stabilization	Sediment placed along the back beach at the base of the bluff or as sand cover on bluff toe rock or seawall protection.	No

In summary, marine invertebrates in the fill footprint would be killed from burial and construction activities, but the reduction in invertebrates would be localized and temporary, and recovery would occur

immediately following construction, the speed of which dependent on project timing. Therefore, impacts would be expected to be less than significant.

There is also the potential to directly impact California grunion individuals or eggs by equipment damage or sand burial, if sand placement or site mobilization activities took place within 10 to 14 days of a spawning run. The area just below the high tide line is most vulnerable during the grunion season if the habitat is suitable for spawning. As noted in Section 2.4.2, grunion monitoring would be required for any beach nourishment project occurring within the spawning season (March through end of August) on any sandy beach where spawning could potentially occur and where project placement would potentially affect spawning habitat. Impacts to grunion have the potential to be adverse but would not be expected to be significant because habitat suitability assessments and monitoring during construction would be used to avoid or minimize impacts to grunion.

Table 5-3. Proposed Placement Locations for Receiver Sites

Receiver Site	Beach Berm	Back Beach Storm Dike	Below Mean High Tide Line	Back Beach Dunes	Backbeach Bluff/Cliff Stabilization
West Beach, Seal Beach	No	No	No	Yes	No
East Beach, Seal Beach	Yes	Yes	Yes	No	No
Surfside Beach	Yes	Yes	Yes	Yes	No
Sunset Beach	Yes	Yes	Yes	Yes	No
Huntington Harbour Beaches	Yes	No	No	No	No
Bolsa Chica State Beach	Yes	No	No	Yes	No
Huntington Beach Bluffs	Yes	No	No	Yes	Yes
Huntington Beach State Beach	No	No	Yes	Yes	No
West Newport Beach	Yes	No	Yes	Yes	No
Balboa Beach	Yes	Yes	Yes	Yes	No
Newport Harbor Beaches	Yes	No	No	No	No
Newport Dunes	Yes	Yes	No	No	No
Corona Del Mar State Beach	Yes	No	No	Yes	No
Little Corona del Mar	Yes	No	No	Yes	No
Crystal Cove State Park	Yes	No	No	No	Yes
Salt Creek Beach	Yes	No	No	Yes	No
Baby Beach	Yes	No	No	No	No
Doheny State Beach	Yes	Yes	No	Yes	No
Capistrano Beach County Park	Yes	Yes	No	Yes	No
Poche Beach	Yes	Yes	No	No	No
Capistrano Shores	Yes	Yes	No	No	No
San Clemente North Beach	Yes	Yes	Yes	No	No
San Clemente City Beaches	Yes	Yes	Yes	Yes	No
San Clemente State Beach	Yes	Yes	Yes	Yes	No
Cyprus Shore/Cottons Beach	Yes	Yes	Yes	No	No

Beach nourishment projects could directly impact least tern and western snowy plover nesting if projects are implemented during the nesting season and if birds are nesting at the potential receiver site. The SCOUN receiver sites with potential sensitive bird nesting and over-wintering habitat are noted in Table 5-3, and as noted in Section 2.4.1, sensitive bird species monitoring would be required for any beach nourishment project occurring during the nesting season and at over-wintering areas for snowy plovers to avoid or minimize impacts to sensitive bird species. Therefore, impacts to least terns and snowy plovers nesting are expected to be less than significant.

5.1.2 OTHER CONSTRUCTION-RELATED IMPACTS

All potential beach sediment would require agency approval prior to placement to ensure that there are no contaminants of concern and that it is physically compatible with the potential receiver site. Detailed criteria for potential source material are provided in M&N 2025, and therefore chemical and physical impacts from source material would be less than significant. In addition, operation of equipment on the beach has the potential for introducing contaminants to the marine environment from minor spills and leaks. The probability of accidental discharges is considered low. The construction contractor would be required to develop and implement a Spill Prevention Control and Counter-Measures Plan prior to initiating construction to avoid/minimize potential spills. The contractor would utilize Best Management Practices (BMPs) to avoid potential spills, and if a spill occurred, the contractor would implement measures to control and clean up any spill to minimize degradation of water quality and habitat. For these reasons, impacts to biological resources from accidental discharges would be expected to be less than significant, if they were to occur at all.

It should be noted that monitoring following a beach nourishment project in San Diego resulted in enhanced sandy beach habitat functions (SAIC 2006). The primary benefit was to increase the persistence of sandy beach habitat across seasons such that habitat was suitable early in the season to support the onset of the grunion spawning season and invertebrate recruitment period. It resulted in increased invertebrate diversity earlier in the season, increased bird use across tide conditions, and enhanced habitat for grunion spawning.

5.2 INDIRECT IMPACTS OF SAND PLACEMENT

Indirect impacts from beach nourishment include:

- Turbidity
- Forage Reduction or Alteration
- Disturbance, Displacement, or Interference
- Sedimentation and Burial of Sensitive Nearshore Habitat

Each of indirect impacts are discussed below for habitats and general wildlife. Potential indirect impacts to sensitive species are summarized at the end of this section.

5.2.1 TURBIDITY

Turbidity would only occur at receiver sites where material is placed in or near the waterline (i.e., Beach Berm and Below Mean High Tide Line placement locations). Turbidity within the nearshore environment is naturally variable and has the potential to indirectly impact plankton, fish, marine mammals, birds, vegetated reefs, and benthic invertebrates. Turbidity has the potential to cause physiological stress, reduced feeding, or displacement of marine invertebrates or fish in reef areas as well as soft-bottom

habitats, with effects dependent on the concentration and duration of turbidity. While marine invertebrates and demersal fish are generally tolerant of pulses of high turbidity such as naturally occurs during high wave or storm conditions, adverse effects may result from exposure to very high concentrations or moderate to high concentrations for prolonged periods. Similarly, nearshore vegetated reefs have the potential to be impacted by reduced light transmittance or increased particulate concentrations associated with turbidity plumes if persistent for extended period of time.

Birds that forage on fish may be affected by turbidity generated during sand placement. No adverse effects on bird foraging from turbidity were observed with implementation of the RBSP I (AMEC 2002). Foraging by seabirds and waterbirds on fish prey was patchy and appeared to be prey dependent. There were no obvious patterns as to the effects of dredging or discharge turbidity on foraging locations or prey availability. Similar findings were reported during monitoring of least tern foraging behavior during beach nourishment at Surfside-Sunset, California (SAIC 2011). Keane and Smith (2016) suggested that turbidity from dredging activities may not substantially alter California least tern foraging activity and seasonal restrictions on dredging near active nesting sites provide no protections to this species and are not warranted.

Data from beach nourishment projects indicated that turbidity measurements were within ranges measured during storm or high wave conditions, and that total suspended solids (TSS) concentrations declined with increasing distance outside the breaker zone and up and downcoast and dissipated rapidly after construction ceased (SAIC 2012).

In summary, turbidity impacts would be minimized by limiting the fines content of the source material, be localized and temporary, and are not expected to result in significant effects on marine biological resources offshore of the receiver site and within the distance of the expected turbidity plumes. In addition, turbidity monitoring would be conducted to minimize impact for projects that place sand in the intertidal zone (see Section 2.4.5).

5.2.2 FORAGE REDUCTION, ALTERATION, OR MODIFICATION

There is potential for indirect effects to shorebird foraging from burial of invertebrates within the footprint of the receiver site, and reduced shorebird foraging at nourished beaches may be expected during the invertebrate recovery period. However, each receiver site has unaffected shoreline nearby and recolonization of the receiver site by invertebrates would be rapid (e.g., weeks to months). No adverse effects to forage base or shorebird foraging (including snowy plovers) were detected during a study of nourished and unnourished beach sites two to four years following RBSP I suggesting that any reduced shorebird foraging habitat is temporary (SAIC 2006). The study also concluded that beach nourishment beneficially enhanced sandy beach habitat functions.

This impact has the potential to be adverse but would not be significant because disturbance effects would be temporary and limited to the area of construction; unaffected shoreline occurs adjacent to each receiver site that provides additional foraging opportunities, and the forage base at the receiver site will rapidly recover. In addition, sensitive bird species monitoring would be conducted for any beach nourishment project occurring within the nesting season of California least tern and/or western snowy plover and at over-wintering areas for snowy plovers (see Section 2.4.1).

Marine mammals could also be affected by turbidity when material is placed in or close to the waterline, potentially affecting foraging success. Since turbidity impacts are localized, generally remain within in the

surf zone and are temporary, the area can easily be avoided by marine mammals, and thus impacts would be less than significant.

5.2.3 DISTURBANCE

Construction activities have the potential to disturb shorebirds, gulls, and other coastal birds that may forage or rest on beaches at or near receiver sites. Disturbance impacts are of concern for endangered or threatened species. Birds are generally tolerant of disturbance within certain distances, but generally move away when threat is perceived. Shorebirds may be observed foraging in the swash zone below people sitting on the beach but walk away or flush and settle further down the beach in response to perceived threats moving toward them (e.g., people walking, jogging, and/or exercising dogs, vehicles) (SAIC 2011). These reactions may result in less foraging time by the disturbed birds although studies vary as some note temporary disruption of foraging and roosting of snowy plovers in the path of heavy equipment, while others observed undisturbed snowy plover foraging in the vicinity of a beach discharge (SAIC 2012). Construction during RBSP I appeared to have minor influence on shorebirds (sandpipers, godwits, curlews) at receiver sites (AMEC 2002).

Any disturbance effects would be temporary in duration and limited to the period of construction, and unaffected shoreline occurs adjacent to each receiver site that would provide additional foraging opportunities. Therefore, impacts would be less than significant.

5.2.4 SEDIMENTATION AND BURIAL OF SENSITIVE NEARSHORE HABITAT

Fill material placed in or close to the waterline on individual receiver sites would eventually be washed by waves and redistributed offshore and alongshore through natural processes. Impacts associated with sediment transport away from the receiver site generally focuses on indirect burial of sensitive hard bottom, vegetated habitats, or shoaling of inlets and/or navigational channels of down current embayments. As defined in Section 4.2.1, sensitive hard bottom indicator species consist of surfgrass, feather boa kelp, sea fans, sea palms, and giant kelp, which could be affected if sand transport results in sedimentation at sufficient depth and duration to bury or degrade the hard-bottom habitat. For harbors and embayments, sensitive habitat consists of eelgrass habitat.

Assessment of environmental risk to sensitive habitats from sand movement requires consideration of several factors including volume of placed sand, proximity to sensitive habitats, alongshore sediment transport condition at the time of placement, physical characteristics of the habitat, and existing resource development. For this Project, the receiver site footprint figures depict the maximum potential placement envelope for the specific receiver site over multiple events (multiple years); the actual fill footprint per opportunistic nourishment event would be much smaller as shown by the representative/typical sand fill polygon but can occur anywhere within the bigger maximum extent envelope. To determine maximum beach fill quantities, a target beach width was determined based on a natural shoreline condition at the subject receiver site. The fill volume was calculated by a rule of thumb factor of 1.5 cy of sand per 1 foot of beach width for every 1 linear foot of a beach shoreline length for a beach berm fill in southern California. For some beaches, such as West Seal Beach, fill estimates were based on estimates for dune creation/enhancement. To ensure these estimates were reasonable and environmentally suitable, a review of historic and/or upcoming nourishment projects and environmental conditions were examined for each receiver site (M&N 2025).

Based on this approach, no impacts to sensitive habitat are predicted and therefore impacts are expected to be less than significant; however, based on the potential fill volume and if a project occurs in an area

known to have eelgrass, seagrass, surfgrass, kelp or hard substrate within the vicinity, monitoring of nearshore habitat may be triggered (see Section 2.4.3).

Similarly, no impacts to tidal inlets are predicted and therefore impacts are expected to be less than significant; however, based on the potential fill volume and if a project occurs at Bolsa Chica State Beach, Huntington Cliffs, Huntington State Beach, and West Newport Beach, then tidal inlet monitoring would be triggered (see Section 2.4.4).

5.3 IMPACTS TO MARINE PROTECTED AREAS

Four receiver sites (Newport Dunes, Little Corona Del Mar, Crystal Cove State Beach, and Salt Creek Beach) are located within an SMCA MPA (Figure 4-6). Since measures to protect biological resources are in place for any beach nourishment project, impacts to MPAs would be less than significant.

5.4 IMPACTS TO EFH AND MANAGED SPECIES

The following text discusses the implications of potential construction activities and direct and indirect impacts to EFH and managed species within and adjacent to the Project Area.

Sand placement below mean high tide line would result in impacts to marine life within the sandy beach placement area. The loss of benthic organisms within the placement area is an expected and unavoidable impact during beach replenishment projects. Due to the relatively small project footprint, and widespread occurrence and rapid recovery rates of these types of organisms, direct impacts to marine life within the beach fill footprint are expected to be less than significant. It is anticipated that the newly constructed beach will be rapidly colonized, mirroring the invertebrate communities on the existing beach within a relatively short time period (SAIC 2006b, Rosov et al 2016).

Given the dynamic nature of the surfzone habitat it is anticipated that after several tidal cycles, the material would disperse into the shallow subtidal zone. Similar to the intertidal zone, impacts to the shallow sandy subtidal zone would be the loss of benthic organisms within the placement area; however, organisms are expected to rapidly recolonize the area (Parr et al. 1978). Based on the analysis to determine maximum beach fill quantities (M&N 2025), impacts to adjacent reefs is not expected given the proposed fill volumes; however, the proposed Project may temporarily increase turbidity around adjacent reefs if present, which may temporarily affect shallow nearshore plants and algae. Turbidity and sedimentation from the project are anticipated to result in short-term and less than significant impacts to sandy subtidal habitat, sensitive hard-bottom habitat, kelp, and surfgrass (i.e., HAPC's).

5.4.1 IMPACTS TO MANAGED SPECIES

Potential impacts to managed species are expected to be minimal and temporary. Loss of potential prey items in the intertidal area is believed to be minor, as few prey items affecting identified FMP species are present (SAIC 2006b). Project activities that could indirectly affect the identified FMP species are the shaping of the existing beach and fill material. These activities may result in localized increases in turbidity during the flood tide as ocean water reaches the construction area. Increases in turbidity could temporarily decrease the foraging efficiency of fishes, however, given the dynamic nature of the habitat and the grain size of the material being excavated (i.e., sand), the effects are likely to be similar to the generally high ambient turbidity. Turbidity monitoring during nourishment activities would be conducted to confirm violations of water quality standards do not occur (M&N 2025). Rocky reef burial,

sedimentation on hard-bottom habitat, or impacts to kelp and surfgrass are not expected, and therefore impacts to rocky reef associated species or lobsters are unlikely.

Impacts from the project would be minor for the pelagic fish species. The coastal pelagics by nature have low site fidelity. Given the small area affected, interruptions causing pelagics to move into other areas would not cause biologically significant increases in competition due to habitat loss. The proposed project would not impede the spawning success of the coastal pelagics, nor cause disturbances that increase predation. The groundfish species are comparatively uncommon in the project area. As a result of the rarity of these species within the nearshore area, project impacts are not probable.

Although grunion are not a NMFS-managed fish species, they are managed as a game species by the CDFW and are considered a species of interest. Because the project area is a sandy beach, it provides suitable grunion spawning habitat. Efforts are recommended to minimize impacts to this fish species, and the proposed monitoring program will ensure that grunion spawning will not be affected by beach fill operations (M&N 2025).

5.4.2 EFH CONCLUSIONS AND DETERMINATION OF EFFECT

An adverse effect to EFH is any impact that reduces quality and/or quantity of EFH, and may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality and/or quantity of EFH. As such and given the relatively low threshold for adverse impact determination, the project is expected to have an adverse effect. However, due to the temporary and low impact nature of the project, habitat type in the project footprint (littoral sands and sandy beach), and with implementation of turbidity and grunion monitoring, it is concluded that the Project would have a minimal and less than significant adverse impact to EFH or HAPC for species managed under the Pacific Coast Groundfish, Coastal Pelagic Species, California Nearshore, or California Spiny Lobster FMPs.

5.5 IMPACTS ASSOCIATED WITH CAULERPA

As a requirement of the *Caulerpa* Control Protocol for any bottom disturbing activity, a pre-construction survey must be conducted (NMFS 2021). In the event *Caulerpa* is detected, all bottom disturbing activity shall cease until such time as the infestation has been isolated and treated, or the risk of spread from the disturbing activity is eliminated in accordance with the *Caulerpa* Control Protocol. Implementation of *Caulerpa* surveys is noted in the SCOUP Implementation Guidelines - Criteria for Beach Fill Sand Sources and would reduce potential impacts from *Caulerpa* (M&N 2025).

5.6 IMPACTS TO WILDLIFE CORRIDORS

The Project Area includes a relatively narrow habitat area extending from the back beach to the depth of closure, and therefore does not provide any terrestrial movement corridors, and no marine mammal, reptile, or fish migratory corridors occur within the Project Area. Some marine fish species such as anchovy, sardine, and topsmelt may move into and out of bays and harbors for spawning, nursery, and foraging, and several whale species migrate along the coast of California including the California gray whale, but beach nourishment would not block any corridors. Therefore, no impacts to wildlife migration or corridors are anticipated.

5.7 IMPACTS TO WETLANDS

There are no wetlands or riparian habitat at any of the proposed receiver site footprints, and therefore the Project would not have a direct impact on wetland or riparian habitat. However, as discussed in Section 5.2.4 (Sedimentation and Burial of Sensitive Habitat), indirect sedimentation impacts could result in tidal inlet closure which could affect wetlands. No impacts to tidal inlets are predicted and therefore impacts are expected to be less than significant based on tidal inlet monitoring trigger criteria for sand placement at Bolsa Chica State Beach, Huntington Cliffs, Huntington State Beach, and West Newport Beach (see Section 2.4.4).

5.8 IMPACTS TO SENSITIVE SPECIES

5.8.1 WESTERN SNOWY PLOVERS

Western snowy plovers may be affected by equipment associated with beach nourishment activities if located near foraging areas and/or breeding sites. Monitoring results have documented avoidance of the construction area and moving away from vehicles, but no apparent effect on foraging on neighboring beach areas (SAIC 2012). Burial of macrophyte wrack from sand placement has the potential to reduce available forage for threatened western snowy plovers. Dugan et al. (2003) found that the mean abundance of western snowy plovers on various sandy beaches in southern California was positively correlated with the amount of macrophyte wrack on the beach. It is expected that snowy plovers would be able to use and forage in other areas if construction activities occurred when they were present and if the disturbance caused them to avoid the Project Area. For receiver sites located in Snowy Plover Critical Habitat (Bolsa Chica State Beach, Huntington Beach State Beach, Balboa Beach), as noted in Section 5.1, rapid recovery is expected for most invertebrates comprising the prey base at sandy beaches, and therefore, no long-term, permanent impact or loss of critical habitat is expected. However, SCOUP implementation guidelines include sensitive bird species monitoring at nesting and over-wintering areas for any beach nourishment project. Therefore, impacts to snowy plovers would be less than significant.

5.8.2 CALIFORNIA BROWN PELICAN

California brown pelican may be impacted by equipment associated with dredging and/or beach nourishment, if located near roosting sites. Temporary displacement (shifts in position, short-term fly off and return) of pelicans at a breakwater roost area was documented during dredging operations at Marina del Rey, California (SAIC 2011). As discussed in Section 5.1, no adverse effects on bird foraging from turbidity were observed with implementation of the RBSP I (AMEC 2002), and it is expected that pelicans would be able to use other areas if construction activities occurred when they were present and if the disturbance caused them to avoid the Project Area. Therefore, impacts to brown pelicans would be less than significant.

5.8.3 CALIFORNIA LEAST TERN

California least tern may be affected by equipment associated with sediment management activities, if located near breeding sites although it is expected that least terns would be able to use other areas if construction activities occurred when they were present and if the disturbance caused them to avoid the Project Area. As discussed in Section 5.1, no adverse effects on bird foraging from turbidity were observed with implementation of the RBSP I (AMEC 2002), and similar findings were reported during monitoring of least tern foraging behavior during beach nourishment at Surfside-Sunset, California (SAIC 2011). Keane and Smith (2016) suggested that turbidity from dredging activities may not substantially alter California

least tern foraging activity and seasonal restrictions on dredging near active nesting sites provide no protections to this species and are not warranted. Receiver sites that support least tern nesting are avoided and/or seasonal work restrictions may be required. The SCOUN implementation guidelines also include sensitive bird species monitoring for any beach nourishment project occurring during the nesting season of California least tern. Therefore, impacts to least terns would be less than significant.

5.8.4 SHOREBIRDS

Equipment use associated with beach nourishment may similarly indirectly disturb other shorebirds, as reported above for snowy plover. Construction during RBSP I appeared to have minor influence on shorebirds (sandpipers, godwits, curlews) at receiver sites (AMEC 2002). It is expected that special status birds would be able to use other areas if construction activities occurred when they were present and if the disturbance caused them to avoid the Project Area, and impacts to shorebirds would therefore be less than significant.

5.8.5 MARINE MAMMALS

Marine mammals could be affected by turbidity when sand is placed in or close to the waterline, potentially affecting foraging success. Since turbidity impacts are very localized, generally remain within the surf zone and are temporary, turbidity plumes can easily be avoided by marine mammals. It is expected that marine mammals would be able to use other areas if construction activities occurred when they were present and if the disturbance caused them to avoid the Project Area. Therefore, impacts to marine mammals would be less than significant.

5.8.6 SEA TURTLES

Sea turtles could be affected by turbidity when sand is placed in or close to the waterline, potentially affecting foraging success. Since turbidity impacts are very localized, generally remain within the surf zone and are temporary, turbidity plumes can easily be avoided by sea turtles. It is expected that sea turtles would be able to use other areas if construction activities occurred when they were present and if the disturbance caused them to avoid the Project Area. Impacts to proposed green sea turtle critical habitat would also consist of localized and temporary turbidity plumes during construction which would not result in long-term, permanent impacts or loss. No burial or loss of eelgrass or surfgrass habitat would occur. Therefore, impacts to sea turtles would be less than significant.

5.9 IMPACTS AT BEACH RECEIVER SITE

Project-related activities and therefore potential impacts would generally be similar for each receiver site; however, there may be differences based on the proximity to sensitive resources. In addition, there is a range of possible fill volumes that also need to be considered. The following section assesses impacts for each receiver site based on the proximity of sensitive resources and fill volumes. Table 5-3 summarizes the sensitive biological resources in the vicinity of each receiver site. As noted in Section 2.4, the SCOUN implementation guidelines also include a monitoring framework applicable to any combination of sediment source, receiver site, and placement volume, by establishing different monitoring criteria “triggers” for varying categories of projects (M&N 2025). The monitoring criteria triggers for each receiver site are summarized in Table 2-2 and Table 2-3. Monitoring requirements will be assessed prior to project implementation to determine if site-specific modifications or adjustments are necessary.

5.9.1 WEST BEACH, SEAL BEACH

The proposed potential placement design at this site is creation/enhancement of back beach dunes. The habitat within the receiver site boundary is sandy beach with non-native ice plant (*Carpobrotus edulis*) in the back beach dune. No sensitive hard bottom or vegetated in-water marine habitat is present within the site boundaries (Table 5-3; Figure 5-1). Invertebrates living within the sandy habitat would be killed from burial and construction activities, but the reduction in invertebrates would be localized and temporary (see Section 5.1). However, construction would also create new dune habitat. Since sand placement would be above the water line, impacts from and associated with turbidity or to grunion would not occur. Snowy plovers do not nest at the receiver site but may forage in the area. SCOUP implementation guidelines include sensitive bird species monitoring at nesting and over-wintering areas for any beach nourishment project. Table 2-2 and Table 2-3 summarize the proposed monitoring guidelines for receiver sites. Direct and indirect impacts at West Beach, Seal Beach from the Proposed Project would be less than significant for the reasons noted in Sections 5.1 and 5.2, respectively.

5.9.2 EAST BEACH, SEAL BEACH

The proposed potential placement locations at this site are beach berm, beach dike, and possibly below MHTL (Table 5-2). The habitats within the receiver site boundary are sandy beach and sandy subtidal, and no sensitive hard bottom or vegetated in-water marine habitat is present within the site boundaries (Table 5-3; Figure 5-1). Invertebrates living within the soft bottom habitat would be killed from burial and construction activities, but the reduction in invertebrates would be localized and temporary (see Section 5.1). Since sand placement could be at the water line, impacts from and associated with turbidity and to grunion could occur (see Section 5.2). Least tern nesting sites are located approximately 1.5 miles away at Seal Beach Naval Weapons Station, and while snowy plovers and least terns do not nest at the receiver site, they may forage in the area. SCOUP implementation guidelines include sensitive bird species monitoring at nesting or over-wintering areas for any beach nourishment project (see Section 2.4.1). In addition, seasonal grunion monitoring (see Section 2.4.2) and turbidity monitoring (see Section 2.4.5) may also be conducted. Table 2-2 and Table 2-3 summarize the proposed monitoring guidelines for receiver sites. Direct and indirect impacts at East Beach, Seal Beach from the Proposed Project would be less than significant for the reasons noted in Sections 5.1 and 5.2, respectively.

5.9.3 SURFSIDE BEACH

The proposed potential placement locations at this site are beach berm, beach dike, back beach dunes, and below MHTL (Table 5-2). The habitats within the receiver site boundary are sandy beach and sandy subtidal, and no sensitive hard bottom or vegetated in-water marine habitat is present within the site boundaries (Table 5-3; Figure 5-2). Invertebrates living within the soft bottom habitat would be killed from burial and construction activities, but the reduction in invertebrates would be localized and temporary (see Section 5.1). Since sand placement could be at the water line, impacts from and associated with turbidity and to grunion could occur (see Section 5.2). Least tern nesting sites are located approximately 1 mile away at Seal Beach Naval Weapons Station, and while snowy plovers do not nest at the receiver site, they may forage in the area. SCOUP implementation guidelines include sensitive bird species monitoring at nesting or over-wintering areas for any beach nourishment project (see Section 2.4.1). In addition, seasonal grunion monitoring (see Section 2.4.2) and turbidity monitoring (see Section 2.4.5) may also be conducted. Table 2-2 and Table 2-3 summarize the proposed monitoring guidelines for receiver sites. Direct and indirect impacts at Surfside Beach from the Proposed Project would be less than significant for the reasons noted in Sections 5.1 and 5.2, respectively.

5.9.4 SUNSET BEACH

The proposed potential placement locations at this site are beach berm, beach dike, back beach dunes, and below MHTL (Table 5-2). The habitats within the receiver site boundary are sandy beach and sandy subtidal, and no sensitive hard bottom or vegetated in-water marine habitat is present within the site boundaries (Table 5-3; Figure 5-2). Invertebrates living within the soft bottom habitat would be killed from burial and construction activities, but the reduction in invertebrates would be localized and temporary (see Section 5.1). Since sand placement could be at the water line, impacts from and associated with turbidity and to grunion could occur (see Section 5.2). Least tern nesting sites are located approximately 1.5 miles away at Seal Beach Naval Weapons Station, and while snowy plovers do not nest at the receiver site, they may forage in the area. SCOUP implementation guidelines include sensitive bird species monitoring at nesting or over-wintering areas for any beach nourishment project (see Section 2.4.1). In addition, seasonal grunion monitoring (see Section 2.4.2) and turbidity monitoring (see Section 2.4.5) may also be conducted. Table 2-2 and Table 2-3 summarizes the proposed monitoring guidelines for receiver sites. Direct and indirect impacts at Sunset Beach from the Proposed Project would be less than significant for the reasons noted in Sections 5.1 and 5.2, respectively.

5.9.5 HUNTINGTON HARBOUR BEACHES

The harbor contains a small number of pocket beaches (Figure 5-2), and the proposed potential placement location at the various harbor sites is a beach berm (Table 5-2), with the maximum fill volume ranging from 1,000 to 5,000 cy (M&N 2025). The habitats within the receiver site boundaries are sandy beaches and mud/sand subtidal habitats (Table 5-3). Invertebrates living within the soft bottom habitat would be killed from burial and construction activities, but the reduction in invertebrates would be localized and temporary (see Section 5.1). While least tern nesting sites are located approximately 1.5 miles away at Seal Beach Naval Weapons Station, the harbor sites provide limited foraging area. Eelgrass beds may be present, but SCOUP implementation guidelines includes eelgrass monitoring protocols per the CEMP (NMFS 2014). In addition, turbidity monitoring (see Section 2.4.5) may also be conducted. Table 2-2 and Table 2-3 summarizes the proposed monitoring guidelines for receiver sites. Direct and indirect impacts at Huntington Harbour Beaches from the Proposed Project would be less than significant for the reasons noted in Sections 5.1 and 5.2, respectively.

5.9.6 BOLSA CHICA STATE BEACH

The proposed potential placement locations at this site are beach berm, beach dike, and back beach dunes (Table 5-2). The habitats within the receiver site boundary are sandy beach and sandy subtidal, and no sensitive hard bottom or vegetated in-water marine habitat is present within the site boundaries (Table 5-3; Figure 5-3). Invertebrates living within the soft bottom habitat would be killed from burial and construction activities, but the reduction in invertebrates would be localized and temporary (see Section 5.1). Since sand placement could be at the water line, impacts from and associated with turbidity, to grunion, and to tidal inlets could occur (see Section 5.2). Least tern nesting sites are located less than 1 mile away at the Bolsa Chica Ecological Reserve, and snowy plovers may nest at the receiver site (designated critical habitat), as well as forage in the area. SCOUP implementation guidelines include sensitive bird species monitoring at nesting or over-wintering areas for any beach nourishment project (see Section 2.4.1). In addition, seasonal grunion monitoring (see Section 2.4.2), tidal inlet monitoring (see Section 2.4.4), turbidity monitoring (see Section 2.4.5) may also be conducted. Table 2-2 and Table 2-3 summarizes the proposed monitoring guidelines for receiver sites. Direct and indirect impacts at Bolsa Chica State Beach from the Proposed Project would be less than significant for the reasons noted in Sections 5.1 and 5.2, respectively.

5.9.7 HUNTINGTON BEACH BLUFFS

The proposed potential placement locations at this site are beach berm, back beach bluff/cliff stabilization, and back beach dunes (Table 5-2). The habitats within the receiver site boundary are sandy beach and sandy subtidal, and no sensitive hard bottom or vegetated in-water marine habitat is present within the site boundaries; rocky reefs may be present approximately 0.5 miles offshore of the proposed receiver site (Table 5-3; Figure 5-4). Invertebrates living within the soft bottom habitat would be killed from burial and construction activities, but the reduction in invertebrates would be localized and temporary (see Section 5.1). Since sand placement could be at the water line, impacts from and associated with turbidity, to grunion, sensitive hard-bottom habitat, and to tidal inlets could occur (see Section 5.2). Least tern nesting sites are located less than 1 mile away at the Bolsa Chica Ecological Reserve, and while snowy plovers do not nest at the receiver site, they may forage in the area. SCOUP implementation guidelines include sensitive bird species monitoring at nesting or over-wintering areas for any beach nourishment project (see Section 2.4.1). In addition, seasonal grunion monitoring (see Section 2.4.2), nearshore monitoring (see Section 2.4.3), tidal inlet monitoring (see Section 2.4.4), and turbidity monitoring (see Section 2.4.5) may also be conducted. Table 2-2 and Table 2-3 summarizes the proposed monitoring guidelines for receiver sites. Direct and indirect impacts at Huntington Beach Bluffs from the Proposed Project would be less than significant for the reasons noted in Sections 5.1 and 5.2, respectively.

5.9.8 HUNTINGTON BEACH STATE BEACH

The habitats within the receiver site boundary are sandy beach and sandy subtidal, and no sensitive hard bottom or vegetated in-water marine habitat is present within the site boundaries (Table 5-3; Figure 5-5). Invertebrates living within the soft bottom habitat would be killed from burial and construction activities, but the reduction in invertebrates would be localized and temporary (see Section 5.1). Since sand placement could be at the water line, impacts from and associated with turbidity, to grunion, and to tidal inlets could occur (see Section 5.2). Least tern and snowy plover nesting sites are located at the Least Tern Nature Reserve. SCOUP implementation guidelines include sensitive bird species monitoring at nesting or over-wintering areas for any beach nourishment project (see Section 2.4.1). In addition, seasonal grunion monitoring (see Section 2.4.2), tidal inlet monitoring (see Section 2.4.4), turbidity monitoring (see Section 2.4.5) may also be conducted. Table 2-2 and Table 2-3 summarizes the proposed monitoring guidelines for receiver sites. Direct and indirect impacts at Huntington State Beach from the Proposed Project would be less than significant for the reasons noted in Sections 5.1 and 5.2, respectively.

5.9.9 WEST NEWPORT BEACH

The proposed potential placement locations at this site are beach berm, back beach dunes, and below MHTL (Table 5-2). The habitats within the receiver site boundary are sandy beach and sandy subtidal, and no sensitive hard bottom or vegetated in-water marine habitat is present within the site boundaries (Table 5-3; Figure 5-6). Invertebrates living within the soft bottom habitat would be killed from burial and construction activities, but the reduction in invertebrates would be localized and temporary (see Section 5.1). Since sand placement could be at the water line, impacts from and associated with turbidity, to grunion, sensitive hard-bottom habitat, and to tidal inlets could occur (see Section 5.2). Least tern and snowy plover nesting sites are located adjacent to the receiver site at the Least Tern Nature Reserve, and snowy plovers may forage in the area. SCOUP implementation guidelines include sensitive bird species monitoring at nesting or over-wintering areas for any beach nourishment project (see Section 2.4.1). In addition, seasonal grunion monitoring (see Section 2.4.2), nearshore monitoring (see Section 2.4.3), tidal inlet monitoring (see Section 2.4.4), and turbidity monitoring (see Section 2.4.5) may also be conducted. Table 2-2 and Table 2-3 summarizes the proposed monitoring guidelines for receiver sites. Direct and

indirect impacts at West Newport Beach from the Proposed Project would be less than significant for the reasons noted in Sections 5.1 and 5.2, respectively. Although the area offshore the Santa Ana River mouth is mostly sand, the northwestern portion of the nearshore area supports 13 small rocky outcrops that have considerable habitat value. They are covered by gorgonians as well as other sessile organisms such as sand tube worms, anemones, and bryozoans (Chambers Group 2016). However, most of the outcroppings are in 20-to 25-foot water depth and the project design would not have an adverse effect on any rocky outcrops (Chambers Group 2016).

5.9.10 BALBOA BEACH

Portions of the Balboa Beach shoreline is an existing beach receiver site for SAR outlet sand under the ongoing OCPW Ocean Outlets Maintenance Program. The proposed potential placement locations at this site are beach berm, beach dike, back beach dunes, and below MHTL (Table 5-2). The habitats within the receiver site boundary are sandy beach and sandy subtidal, and no sensitive hard bottom or vegetated in-water marine habitat is present within the site boundaries (Table 5-3; Figure 5-7). Invertebrates living within the soft bottom habitat would be killed from burial and construction activities, but the reduction in invertebrates would be localized and temporary (see Section 5.1). Since sand placement could be at the water line, impacts from and associated with turbidity, grunion, and to sensitive hard-bottom habitat could occur (see Section 5.2). Least tern nesting sites are located over 2 miles away at the Least Tern Nature Reserve, and snowy plovers may nest at the receiver site (portions are designated critical habitat), as well as forage in the area. SCoup implementation guidelines include sensitive bird species monitoring at nesting or over-wintering areas for any beach nourishment project (see Section 2.4.1). In addition, seasonal grunion monitoring (see Section 2.4.2), nearshore monitoring (see Section 2.4.3), and turbidity monitoring (see Section 2.4.5) may also be conducted. Table 2-2 and Table 2-3 summarizes the proposed monitoring guidelines for receiver sites. Direct and indirect impacts at Balboa Beach from the Proposed Project would be less than significant for the reasons noted in Sections 5.1 and 5.2, respectively.

5.9.11 NEWPORT HARBOR BEACHES

There are 32 small beaches (including China Cove, Balboa Island, Harbor Patrol, Bayside Village Marina, Balboa Marina, as well as others) located within Newport Harbor and Newport Bay (Figures 5-6 to 5-8). The proposed potential placement location at the various harbor sites is beach berm placement (Table 5-2). The habitats within the receiver site boundaries are sandy beaches and mud/sand subtidal habitats. Invertebrates living within the soft bottom habitat would be killed from burial and construction activities, but the reduction in invertebrates would be localized and temporary (see Section 5.1). While least tern nesting sites are located approximately 1.5 miles away at the Least Tern Nature Reserve, the harbor sites provided limited foraging area. Eelgrass beds may be present, but SCoup implementation guidelines includes eelgrass monitoring protocols per the CEMP (NMFS 2014). In addition, turbidity monitoring (see Section 2.4.5) may also be conducted. Table 2-2 and Table 2-3 summarizes the proposed monitoring guidelines for receiver sites. Direct and indirect impacts at Newport Harbor Beaches from the Proposed Project would be less than significant for the reasons noted in Sections 5.1 and 5.2, respectively.

5.9.12 NEWPORT DUNES

The Newport Dunes Waterfront Resort is located in the Upper Newport Bay SMCA and includes a public beach, aquatic park, marina, RV camping, and resort amenities (Figure 5-5). The proposed potential placement locations at this site are beach berm and back beach storm dike (Table 5-2). The habitats within the receiver site boundaries are sandy beaches and mud/sand subtidal habitats. Invertebrates living within the soft bottom habitat would be killed from burial and construction activities, but the reduction

in invertebrates would be localized and temporary (see Section 5.1). Least tern nesting sites are located approximately 4 miles away at the Least Tern Nature Reserve. Eelgrass beds may be present, but SCOUN implementation guidelines includes eelgrass monitoring protocols per the CEMP (NMFS 2014). In addition, turbidity monitoring (see Section 2.4.5) may also be conducted. Table 2-2 and Table 2-3 summarizes the proposed monitoring guidelines for receiver sites. Direct and indirect impacts at Newport Dunes from the Proposed Project would be less than significant for the reasons noted in Sections 5.1 and 5.2, respectively.

5.9.13 CORONA DEL MAR STATE BEACH

The Corona del Mar Beach receiver site is located in the Crystal Cove SMCA. The proposed potential placement locations at this site are beach berm and back beach dunes (Table 5-2). The habitats within the receiver site boundary are sandy beach and sandy subtidal, and no sensitive hard bottom or vegetated in-water marine habitat is present within the site boundaries; however rocky outcroppings/reefs are present offshore and downcoast of the proposed receiver site (Table 5-3; Figure 5-7). Invertebrates living within the soft bottom habitat would be killed from burial and construction activities, but the reduction in invertebrates would be localized and temporary (see Section 5.1). Since sand placement could be at the water line, impacts from and associated with turbidity, to grunion, and sensitive hard-bottom habitat could occur (see Section 5.2). Therefore, seasonal grunion monitoring (see Section 2.4.2), nearshore monitoring (see Section 2.4.3), and turbidity monitoring (see Section 2.4.5) may be conducted. The receiver site is not considered a sensitive bird nesting or overwintering area and therefore sensitive bird species monitoring is not proposed (see Section 2.4.1). Table 2-2 and Table 2-3 summarizes the proposed monitoring guidelines for receiver sites. Direct and indirect impacts at Corona Del Mar State Beach from the Proposed Project would be less than significant for the reasons noted in Sections 5.1 and 5.2, respectively.

5.9.14 LITTLE CORONA DEL MAR BEACH

Little Corona del Mar Beach is a small pocket beach located in the Crystal Cove SMCA with access via only a path from/to the top of the bluff to/from the beach. The proposed potential placement locations at this site are beach berm and back beach dunes (Table 5-2). The habitats within the receiver site boundary are sandy beach and sandy subtidal, and no sensitive hard bottom or vegetated in-water marine habitat is present within the site boundaries; however rocky outcroppings/reefs are present offshore, upcoast, and downcoast of the proposed receiver site (Table 5-3; Figure 5-8). Invertebrates living within the soft bottom habitat would be killed from burial and construction activities, but the reduction in invertebrates would be localized and temporary (see Section 5.1). Since sand placement could be at the water line, impacts from and associated with turbidity, to grunion, and sensitive hard-bottom habitat could occur (see Section 5.2). Therefore, seasonal grunion monitoring (see Section 2.4.2), nearshore monitoring (see Section 2.4.3), and turbidity monitoring (see Section 2.4.5) may be conducted. The receiver site is not considered a sensitive bird nesting or overwintering area and therefore sensitive bird species monitoring is not proposed (see Section 2.4.1). Table 2-2 and Table 2-3 summarizes the proposed monitoring guidelines for receiver sites. Direct and indirect impacts at Little Corona Del Mar Beach from the Proposed Project would be less than significant for the reasons noted in Sections 5.1 and 5.2, respectively.

5.9.15 CRYSTAL COVE STATE PARK

The Crystal Cove receiver site is in the Crystal Cove SMCA, and the beach consists of three distinct coves with narrow sandy areas and rocky reefs abutting the water. The proposed potential placement locations at this site are beach berm and back beach bluff/cliff stabilization (Table 5-2). The habitats within the receiver site boundary are sandy beach and sandy subtidal, and no sensitive hard bottom or vegetated in-

water marine habitat is present within the site boundaries; however rocky outcroppings/reefs are present offshore, upcoast, and downcoast of the proposed receiver site (Table 5-3; Figure 5-9). Invertebrates living within the soft bottom habitat would be killed from burial and construction activities, but the reduction in invertebrates would be localized and temporary (see Section 5.1). Since sand placement could be at the water line, impacts from and associated with turbidity, to grunion, and sensitive hard-bottom habitat could occur (see Section 5.2). SCoup implementation guidelines include sensitive bird species monitoring at nesting or over-wintering areas for any beach nourishment project (see Section 2.4.1). In addition, seasonal grunion monitoring (see Section 2.4.2), nearshore monitoring (see Section 2.4.3), and turbidity monitoring (see Section 2.4.5) may also be conducted. Table 2-2 and Table 2-3 summarizes the proposed monitoring guidelines for receiver sites. Direct and indirect impacts at Crystal Cove State Park from the Proposed Project would be less than significant for the reasons noted in Sections 5.1 and 5.2, respectively.

5.9.16 SALT CREEK BEACH

The Salt Creek receiver site is in the Dana Point SMCA, and there are no known previous nourishment projects in this location except for very small amounts of sand from OCPW's Salt Creek outlet maintenance. The proposed potential placement locations at this site are beach berm and back beach dunes (Table 5-2). The habitats within the receiver site boundary are sandy beach and sandy subtidal, and no sensitive hard bottom or vegetated in-water marine habitat is present within the site boundaries; however rocky outcroppings/reefs are present offshore, upcoast, and downcoast of the proposed receiver site (Table 5-3; Figure 5-10). Invertebrates living within the soft bottom habitat would be killed from burial and construction activities, but the reduction in invertebrates would be localized and temporary (see Section 5.1). Since sand placement could be at the water line, impacts from and associated with turbidity, to grunion, and sensitive hard-bottom habitat could occur (see Section 5.2). SCoup implementation guidelines include sensitive bird species monitoring at nesting or over-wintering areas for any beach nourishment project (see Section 2.4.1). In addition, seasonal grunion monitoring (see Section 2.4.2), nearshore monitoring (see Section 2.4.3), and turbidity monitoring (see Section 2.4.5) may also be conducted. Table 2-2 and Table 2-3 summarizes the proposed monitoring guidelines for receiver sites. Direct and indirect impacts at Salt Creek Beach from the Proposed Project would be less than significant for the reasons noted in Sections 5.1 and 5.2, respectively.

5.9.17 BABY BEACH

Baby Beach is located at the northern end of Dana Point Harbor (Figure 5-11). It is a small sandy beach circumvented by a series of grassy areas and a small parking lot. The proposed potential placement location at this site is beach berm (Table 5-2). The habitats within the receiver site boundaries are sandy beaches and mud/sand subtidal habitats. Invertebrates living within the soft bottom habitat would be killed from burial and construction activities, but the reduction in invertebrates would be localized and temporary (see Section 5.1). Eelgrass beds may be present, but SCoup implementation guidelines includes eelgrass monitoring protocols per the CEMP (NMFS 2014). In addition, turbidity monitoring (see Section 2.4.5) may also be conducted. Table 2-2 and Table 2-3 summarizes the proposed monitoring guidelines for receiver sites. Direct and indirect impacts at Baby Beach from the Proposed Project would be less than significant for the reasons noted in Sections 5.1 and 5.2, respectively.

5.9.18 DOHENY STATE BEACH

Doheny State Beach is located east of Dana Point Harbor and the proposed potential placement locations at this site are beach berm, beach dike and possibly back beach dunes (Table 5-2). The habitats within the representative fill receiver site boundary are sandy beach and sandy subtidal, and no sensitive hard

bottom or vegetated in-water marine habitat is present within the site boundaries; however intertidal and subtidal sandy and cobble substrate is present upcoast of San Juan Creek (Table 5-3; Figure 5-11). Vegetated rocky outcroppings/reefs are also present offshore, upcoast and downcoast of the proposed receiver site. Invertebrates living within the soft bottom habitat would be killed from burial and construction activities, but the reduction in invertebrates would be localized and temporary (see Section 5.1). Since sand placement could be at the water line, impacts from and associated with turbidity, to grunion, and sensitive hard-bottom habitat could occur (see Section 5.2). SCOUP implementation guidelines include sensitive bird species monitoring at nesting or over-wintering areas for any beach nourishment project (see Section 2.4.1). In addition, seasonal grunion monitoring (see Section 2.4.2), nearshore monitoring (see Section 2.4.3), and turbidity monitoring (see Section 2.4.5) may also be conducted. Table 2-2 and Table 2-3 summarizes the proposed monitoring guidelines for receiver sites. Direct and indirect impacts at Doheny State Beach from the Proposed Project would be less than significant for the reasons noted in Sections 5.1 and 5.2, respectively.

5.9.19 CAPISTRANO BEACH COUNTY PARK

Capistrano Beach County Park is located directly west of Coast Highway on Beach Road and the proposed potential placement locations at this site are beach berm, beach dike, and back beach berm (Table 5-2). The habitats within the receiver site boundary are sandy and cobble beach and subtidal, and no sensitive hard bottom or vegetated in-water marine habitat is present within the site boundaries. However, rocky outcroppings/reefs are present offshore of the proposed receiver site (Table 5-3; Figure 5-12). Invertebrates living within the soft bottom habitat would be killed from burial and construction activities, but the reduction in invertebrates would be localized and temporary (see Section 5.1). Since sand placement could be at the water line, impacts from and associated with turbidity, to grunion, and sensitive hard-bottom habitat could occur (see Section 5.2). Therefore, seasonal grunion monitoring (see Section 2.4.2), nearshore monitoring (see Section 2.4.3), and turbidity monitoring (see Section 2.4.5) may be conducted. The receiver site is not considered a sensitive bird nesting or overwintering area and therefore sensitive bird species monitoring is not proposed (see Section 2.4.1). Table 2-2 and Table 2-3 summarizes the proposed monitoring guidelines for receiver sites. Direct and indirect impacts at Capistrano Beach County Park from the Proposed Project would be less than significant for the reasons noted in Sections 5.1 and 5.2, respectively.

5.9.20 POCHE BEACH

Poche Beach is a little pocket beach at the very south end of Dana Point. The proposed potential placement locations at this site are beach berm and beach dike (Table 5-2). The habitats within the receiver site boundary are sandy and cobble beach and subtidal, and no sensitive hard bottom or vegetated in-water marine habitat is present within the site boundaries (Table 5-3; Figure 5-13). However, rocky outcroppings/reefs are present offshore of the proposed receiver site. Invertebrates living within the soft bottom habitat would be killed from burial and construction activities, but the reduction in invertebrates would be localized and temporary (see Section 5.1). Since sand placement could be at the water line, impacts from and associated with turbidity, to grunion, and sensitive hard-bottom habitat could occur (see Section 5.2). Therefore, seasonal grunion monitoring (see Section 2.4.2), nearshore monitoring (see Section 2.4.3), and turbidity monitoring (see Section 2.4.5) may be conducted. The receiver site is not considered a sensitive bird nesting or overwintering area and therefore sensitive bird species monitoring is not proposed (see Section 2.4.1). Table 2-2 and Table 2-3 summarizes the proposed monitoring guidelines for receiver sites. Direct and indirect impacts at Poche Beach from the Proposed Project would be less than significant for the reasons noted in Sections 5.1 and 5.2, respectively.

5.9.21 CAPISTRANO SHORES

The proposed potential placement locations at this site are beach berm and beach dike (Table 5-2). The habitats within the receiver site boundary are sandy and cobble beach and subtidal, and no sensitive hard bottom or vegetated in-water marine habitat is present within the site boundaries (Table 5-3; Figure 5-13). However, rocky outcroppings/reefs are present offshore of the proposed receiver site. Invertebrates living within the soft bottom habitat would be killed from burial and construction activities, but the reduction in invertebrates would be localized and temporary (see Section 5.1). Since sand placement could be at the water line, impacts from and associated with turbidity, to grunion, and sensitive hard-bottom habitat could occur (see Section 5.2). Therefore, seasonal grunion monitoring (see Section 2.4.2), nearshore monitoring (see Section 2.4.3), and turbidity monitoring (see Section 2.4.5) may be conducted. The receiver site is not considered a sensitive bird nesting or overwintering area and therefore sensitive bird species monitoring is not proposed (see Section 2.4.1). Table 2-2 and Table 2-3 summarizes the proposed monitoring guidelines for receiver sites. Direct and indirect impacts at Capistrano Shores from the Proposed Project would be less than significant for the reasons noted in Sections 5.1 and 5.2, respectively.

5.9.22 SAN CLEMENTE NORTH BEACH

As part of the OCPW Ocean Outlets Maintenance Program sand from the Segunda Deschecha Canada Outlet (M02) located at the northwestern extent of North Beach is used to nourish roughly 0.20 acres of beach directly southeast of the outlet. Generally, clearing of sediment in the Segunda Deschecha Outlet is required no more than twice per year (once in the fall and once in the following spring) and, for each maintenance event, includes excavation of approximately 1,000 cy of sediment. The proposed potential placement locations at this site are beach berm, beach dike and below MHTL (Table 5-2). The habitats within the receiver site boundary are sandy and cobble beach and subtidal, and no sensitive hard bottom or vegetated in-water marine habitat is present within the site boundaries (Table 5-3; Figure 5-13). However, rocky outcroppings/reefs are present offshore of the proposed receiver site. Invertebrates living within the soft bottom habitat would be killed from burial and construction activities, but the reduction in invertebrates would be localized and temporary (see Section 5.1). Since sand placement could be at the water line, impacts from and associated with turbidity, to grunion, and sensitive hard-bottom habitat could occur (see Section 5.2). Therefore, seasonal grunion monitoring (see Section 2.4.2), nearshore monitoring (see Section 2.4.3), and turbidity monitoring (see Section 2.4.5) may be conducted. The receiver site is not considered a sensitive bird nesting or overwintering area and therefore sensitive bird species monitoring is not proposed (see Section 2.4.1). Table 2-2 and Table 2-3 summarizes the proposed monitoring guidelines for receiver sites. Direct and indirect impacts at San Clemente North Beach from the Proposed Project would be less than significant for the reasons noted in Sections 5.1 and 5.2, respectively.

5.9.23 SAN CLEMENTE CITY BEACHES

The proposed potential placement locations at this site are beach berm, beach dike, back beach dunes, and below MHTL (Table 5-2). The habitats within the receiver site boundary are sandy beach and sandy subtidal, and no sensitive hard bottom or vegetated in-water marine habitat is present within the site boundaries; however rocky outcroppings/reefs are present offshore, upcoast, and downcoast of the proposed receiver site (Table 5-3; Figure 5-14). Invertebrates living within the soft bottom habitat would be killed from burial and construction activities, but the reduction in invertebrates would be localized and temporary (see Section 5.1). Since sand placement could be at the water line, impacts from and associated with turbidity, to grunion, and sensitive hard-bottom habitat could occur (see Section 5.2). Therefore,

seasonal grunion monitoring (see Section 2.4.2), nearshore monitoring (see Section 2.4.3), and turbidity monitoring (see Section 2.4.5) may be conducted. The receiver site is not considered a sensitive bird nesting or overwintering area and therefore sensitive bird species monitoring is not proposed (see Section 2.4.1). Table 2-2 and Table 2-3 summarizes the proposed monitoring guidelines for receiver sites. Direct and indirect impacts at San Clemente City Beach from the Proposed Project would be less than significant for the reasons noted in Sections 5.1 and 5.2, respectively.

5.9.24 SAN CLEMENTE STATE BEACH

The proposed potential placement locations at this site are beach berm, beach dike, back beach dunes, and below MHTL (Table 5-2). The habitats within the receiver site boundary are sandy beach and sandy subtidal, and no sensitive hard bottom or vegetated in-water marine habitat is present within the site boundaries; however rocky outcroppings/reefs are present offshore, upcoast, and downcoast of the proposed receiver site (Table 5-3; Figure 5-15). Invertebrates living within the soft bottom habitat would be killed from burial and construction activities, but the reduction in invertebrates would be localized and temporary (see Section 5.1). Since sand placement could be at the water line, impacts from and associated with turbidity, to grunion, and sensitive hard-bottom habitat could occur (see Section 5.2). Therefore, seasonal grunion monitoring (see Section 2.4.2), nearshore monitoring (see Section 2.4.3), and turbidity monitoring (see Section 2.4.5) may be conducted. The receiver site is not considered a sensitive bird nesting or overwintering area and therefore sensitive bird species monitoring is not proposed (see Section 2.4.1). In addition, seasonal grunion monitoring (see Section 2.4.2), nearshore monitoring (see Section 2.4.3), and turbidity monitoring (see Section 2.4.5) may also be conducted. Table 2-2 and Table 2-3 summarizes the proposed monitoring guidelines for receiver sites. Direct and indirect impacts at San Clemente State Beach from the Proposed Project would be less than significant for the reasons noted in Sections 5.1 and 5.2, respectively.

5.9.25 CYPRUS SHORE/COTTONS BEACH

The proposed potential placement locations at this site are beach berm, beach dike and below MHTL (Table 5-2). The habitats within the receiver site boundary are sandy and cobble beach and subtidal, and no sensitive hard bottom or vegetated in-water marine habitat is present within the site boundaries (Figure 5-16). However rocky outcroppings/reefs are present offshore, upcoast, and downcoast of the proposed receiver site (Table 5-3). Invertebrates living within the soft bottom habitat would be killed from burial and construction activities, but the reduction in invertebrates would be localized and temporary (see Section 5.1). Since sand placement could be at the water line, impacts from and associated with turbidity, to grunion, and sensitive hard-bottom habitat could occur (see Section 5.2). SCoup implementation guidelines include sensitive bird species monitoring at nesting or over-wintering areas for any beach nourishment project (see Section 2.4.1). In addition, seasonal grunion monitoring (see Section 2.4.2), nearshore monitoring (see Section 2.4.3), and turbidity monitoring (see Section 2.4.5) may also be conducted. Table 2-2 and Table 2-3 summarizes the proposed monitoring guidelines for receiver sites. Direct and indirect impacts at Cyprus Shore/Cottons Beach from the Proposed Project would be less than significant for the reasons noted in Sections 5.1 and 5.2, respectively.

6.0 PROTECTIVE AND CONSERVATION MEASURES

To avoid or minimize impacts that may occur as a result of the Proposed Project, the SCOUP implementation guidelines include a monitoring framework applicable to any combination of sediment source, receiver site, and placement volume, by establishing different monitoring criteria “triggers” for varying categories of projects (M&N 2025). Monitoring for marine biological resources includes:

- Sensitive bird species;
- Grunion;
- Sensitive habitat (HAPCs such as estuaries, kelp beds, surfgrass beds, eelgrass beds, and vegetated rocky reefs);
- Tidal inlet monitoring; and
- Water quality monitoring.

The monitoring criteria triggers for each receiver site are summarized in Section 2.4, Table 2-2 and Table 2-3, and detailed protocols are included in Section 5 of Orange County SCOUP implementation guidelines (M&N 2025). Note that monitoring requirements will be assessed prior to project implementation to determine if site-specific modifications or adjustments are necessary based on updated information.

Table 6-1. Sensitive Biological Resources in the Vicinity of Receiver Sites

Receiver Site	Reef	Kelp	Seagrass	Grunion	Least Tern	Snowy Plover	MPA	Previous Nourishment
West Beach, Seal Beach	Not Present	Not Present	Not Present	Present	Not Present	Overwintering/Roosting	No	No
East Beach, Seal Beach	Not Present	Not Present	Not Present	Present	Not Present	Overwintering/Roosting	No	Yes
Surfside Beach	Not Present	Not Present	Not Present	Present	Not Present	Overwintering/Roosting	No	Yes
Sunset Beach	Not Present	Not Present	Not Present	Present	Not Present	Overwintering/Roosting	No	Yes
Huntington Harbour Beaches	Not Present	Not Present	Eel Grass	Not Present	Not Present	Not Present	No	Yes
Bolsa Chica State Beach	Not Present	Not Present	Not Present	Present	Not Present	Nesting, Overwintering/Roosting	No	Yes
Huntington Beach Bluffs	more than 1,000 ft offshore	Not Present	Not Present	Present	Not Present	Overwintering/Roosting	No	Yes
Huntington Beach State Beach	Not Present	Not Present	Not Present	Present	Nesting	Nesting, Overwintering/Roosting	No	Yes
West Newport Beach	300-1,000 ft offshore	Not Present	Not Present	Present	Not Present	Overwintering/Roosting	No	Yes
Balboa Beach	more than 1,000 ft offshore	Not Present	Not Present	Present	Not Present	Overwintering/Roosting	No	Yes
Newport Harbor Beaches	Not Present	Not Present	Eel Grass	Not Present	Not Present	Not Present	No	Yes
Newport Dunes	Not Present	Not Present	Eel Grass	Not Present	Not Present	Not Present	Yes	Yes
Corona Del Mar State Beach	less than 100 ft	300-1,000 ft offshore	Surf Grass	Present	Not Present	Not Present	Yes	Yes
Little Corona del Mar	less than 100 ft	100-300 ft offshore	Surf Grass	Present	Not Present	Not Present	Yes	Yes
Crystal Cove State Park	less than 100 ft	100-300 ft offshore	Surf Grass	Present	Not Present	Overwintering/Roosting	Yes	Yes
Salt Creek Beach	100-300 ft offshore	300-1,000 ft offshore	Surf Grass	Present	Not Present	Overwintering/Roosting	Yes	No
Baby Beach	Not Present	Not Present	Eel Grass	Not Present	Not Present	Not Present	No	Yes
Doheny State Beach	less than 100 ft	100-300 ft offshore	Not Present	Present	Not Present	Overwintering/Roosting	No	Yes
Capistrano Beach County Park	300-1,000 ft offshore	300-1,000 ft offshore	Surf Grass	Present	Not Present	Not Present	No	Yes
Poche Beach	300-1,000 ft offshore	more than 1,000 ft offshore;	Surf Grass	Present	Not Present	Not Present	No	Yes
Capistrano Shores	300-1,000 ft offshore	more than 1,000 ft offshore;	Not Present	Present	Not Present	Not Present	No	Yes
San Clemente North Beach	300-1,000 ft offshore	more than 1,000 ft offshore;	Surf Grass	Present	Not Present	Not Present	No	Yes
San Clemente City Beaches	100-300 ft offshore	more than 1,000 ft offshore;	Surf Grass	Present	Not Present	Not Present	No	Yes
San Clemente State Beach	300-1,000 ft offshore	300-1,000 ft offshore	Surf Grass	Present	Not Present	Not Present	No	No
Cyprus Shore/Cottons Beach	less than 100 ft	300-1,000 ft offshore	Surf Grass	Present	Not Present	Overwintering/Roosting	No	No

Sources: Everest 2013; Chambers Group 2016, MarineBIOS 2024; EcoAtlas 2024; City of Newport Beach 2022; M&A 2013-2023 (Anaheim Bay, Huntington Harbour, Bolsa Chica, Dana Harbor); Ryan et al. 2017; Ryan et al. 2023.



Figure 6-1. West and East Seal Beach Receiver Sites



Figure 6-2. Surfside Beach, Sunset Beach and Huntington Harbour Beach Receiver Sites



Figure 6-3. Bolsa Chica State Beach Receiver Site



Figure 6-4. Huntington Beach Bluffs Receiver Site

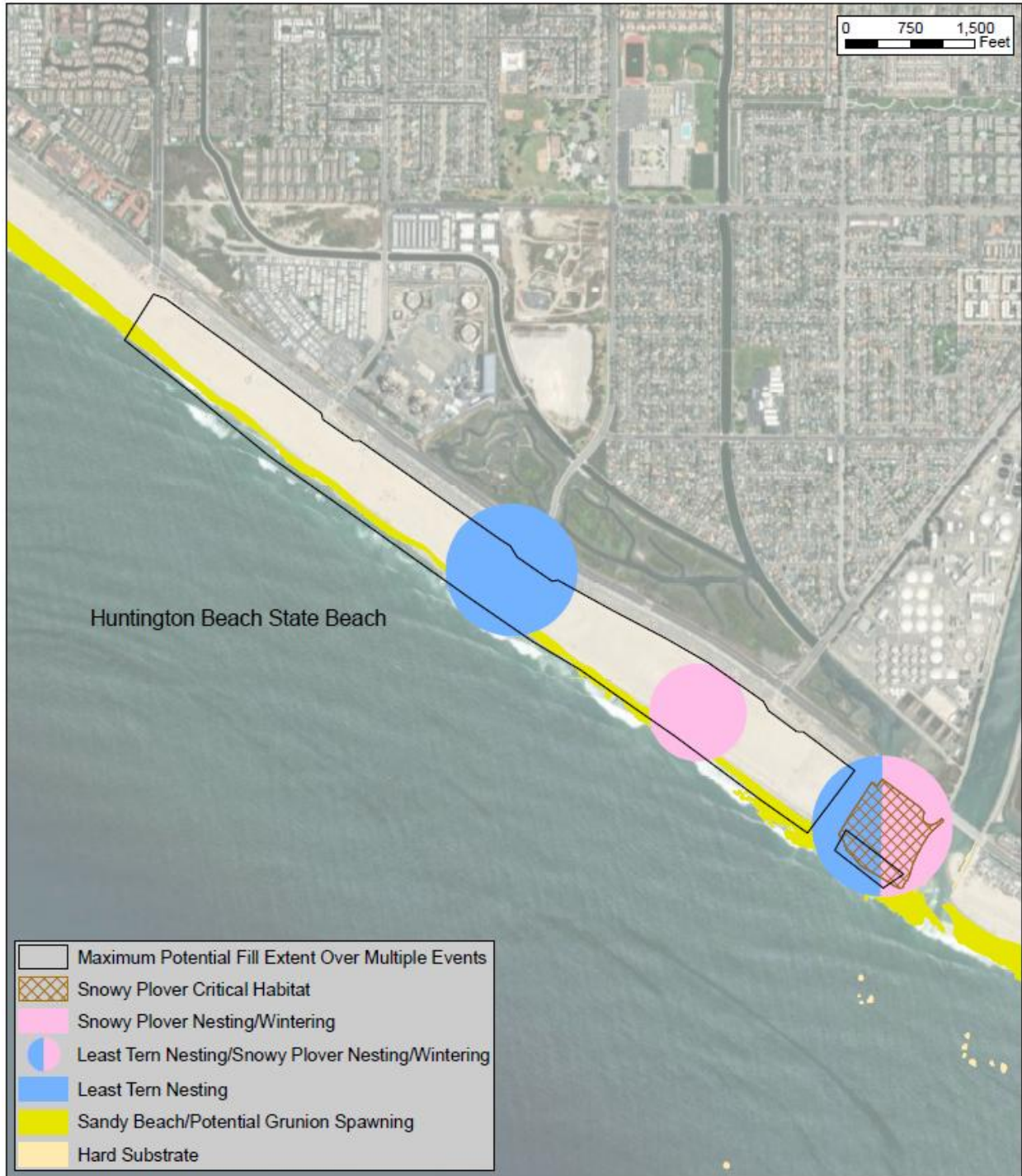


Figure 6-5. Huntington Beach State Beach Receiver Site



Figure 6-6. West Newport Beach and Newport Harbor Beach Receiver Sites

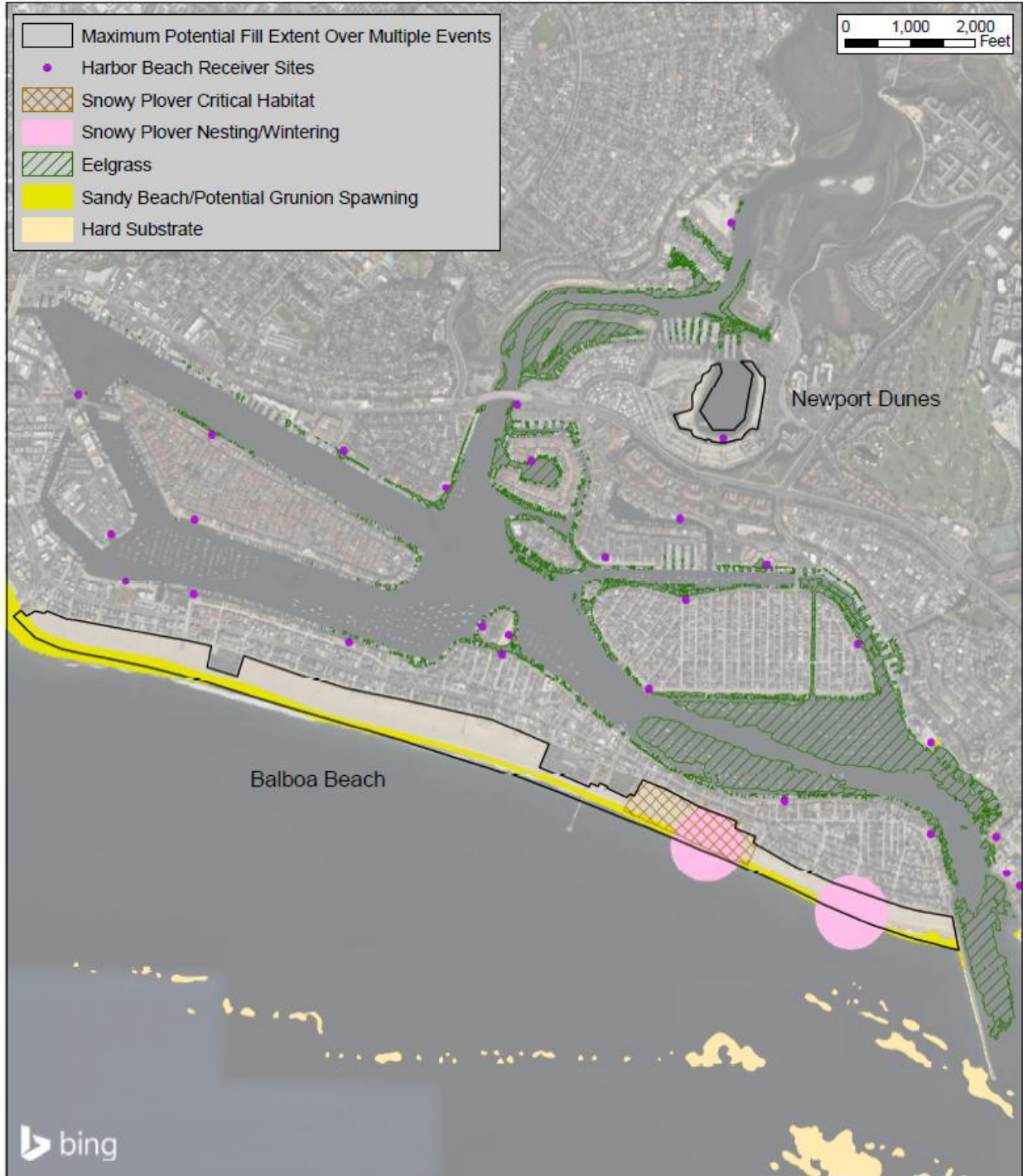


Figure 6-7. Balboa Beach, Newport Harbor, and Newport Dunes Beach Receiver Sites

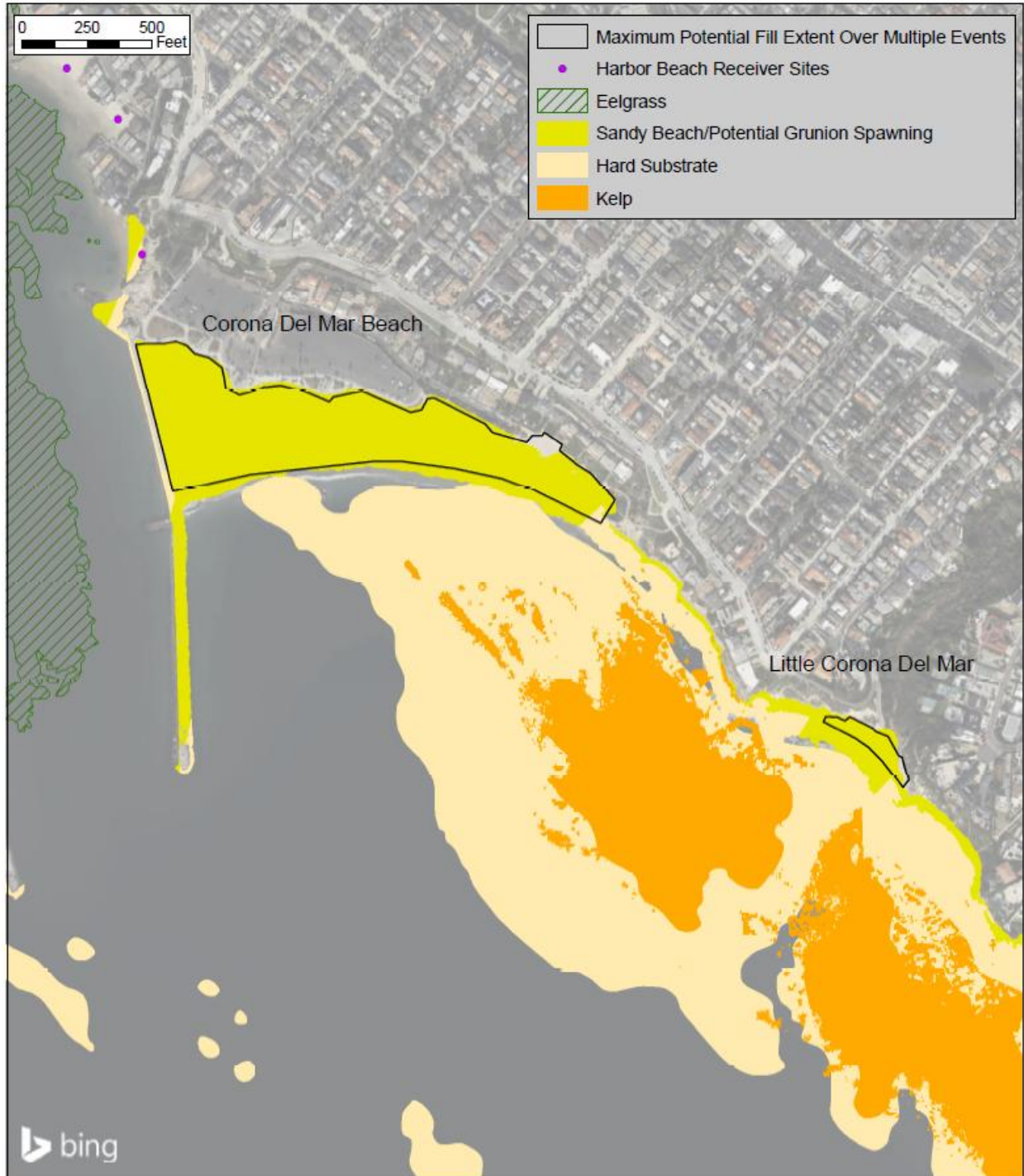


Figure 6-8. Newport Harbor, Corona del Mar, and Little Corona del Mar Beach Receiver Sites

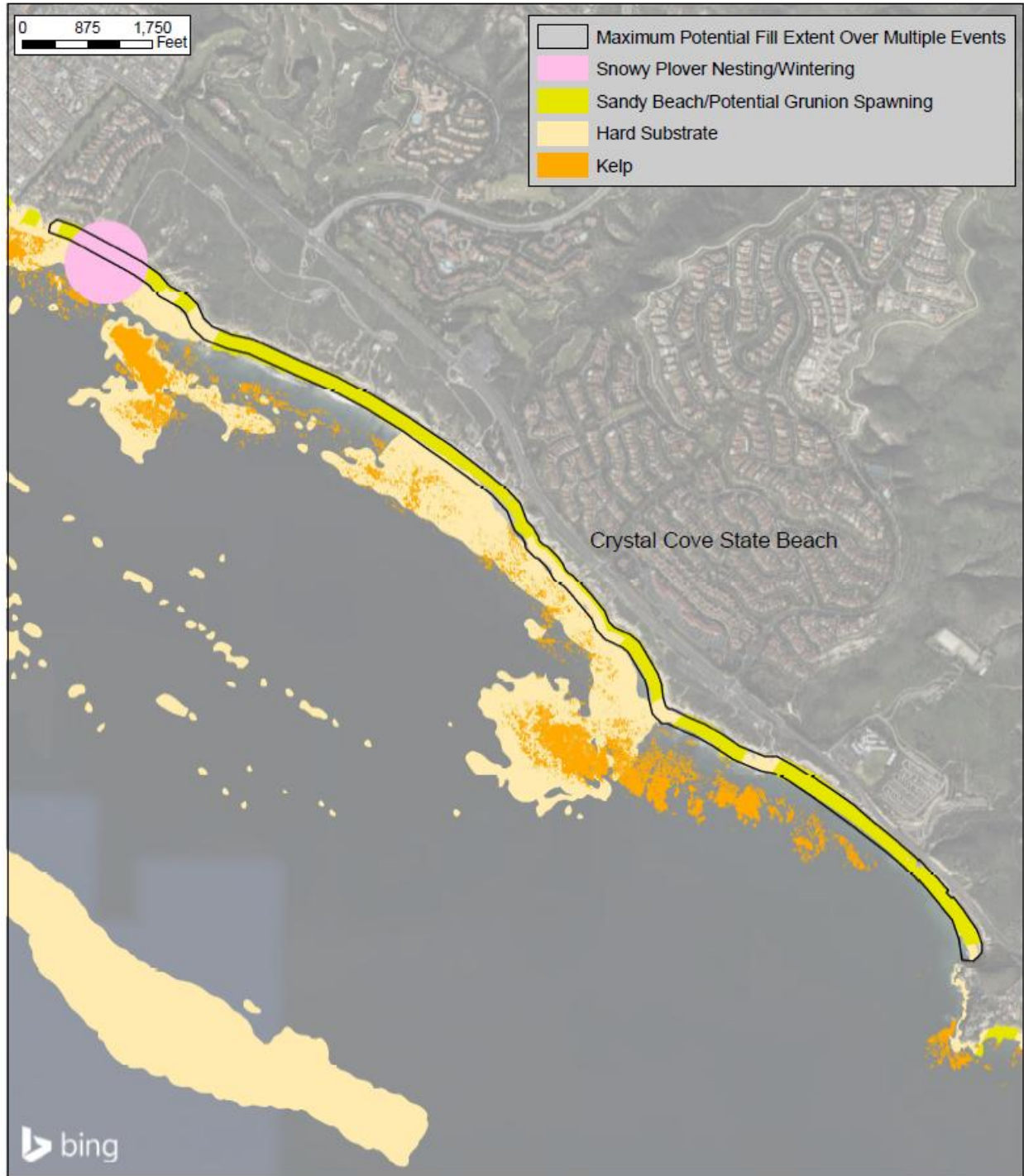


Figure 6-9. Crystal Cove State Beach Receiver Site

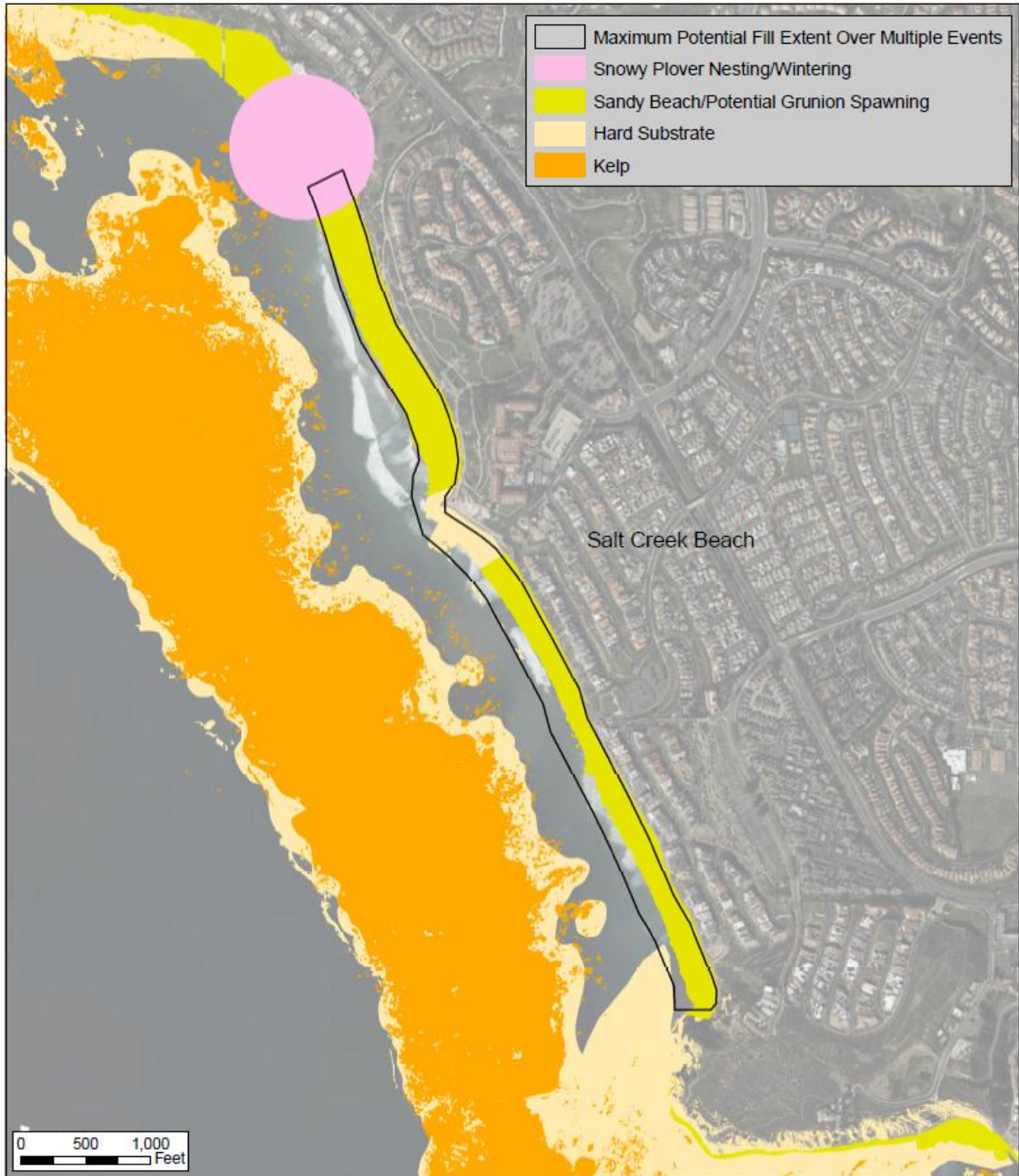


Figure 6-10. Salt Creek Beach Receiver Site

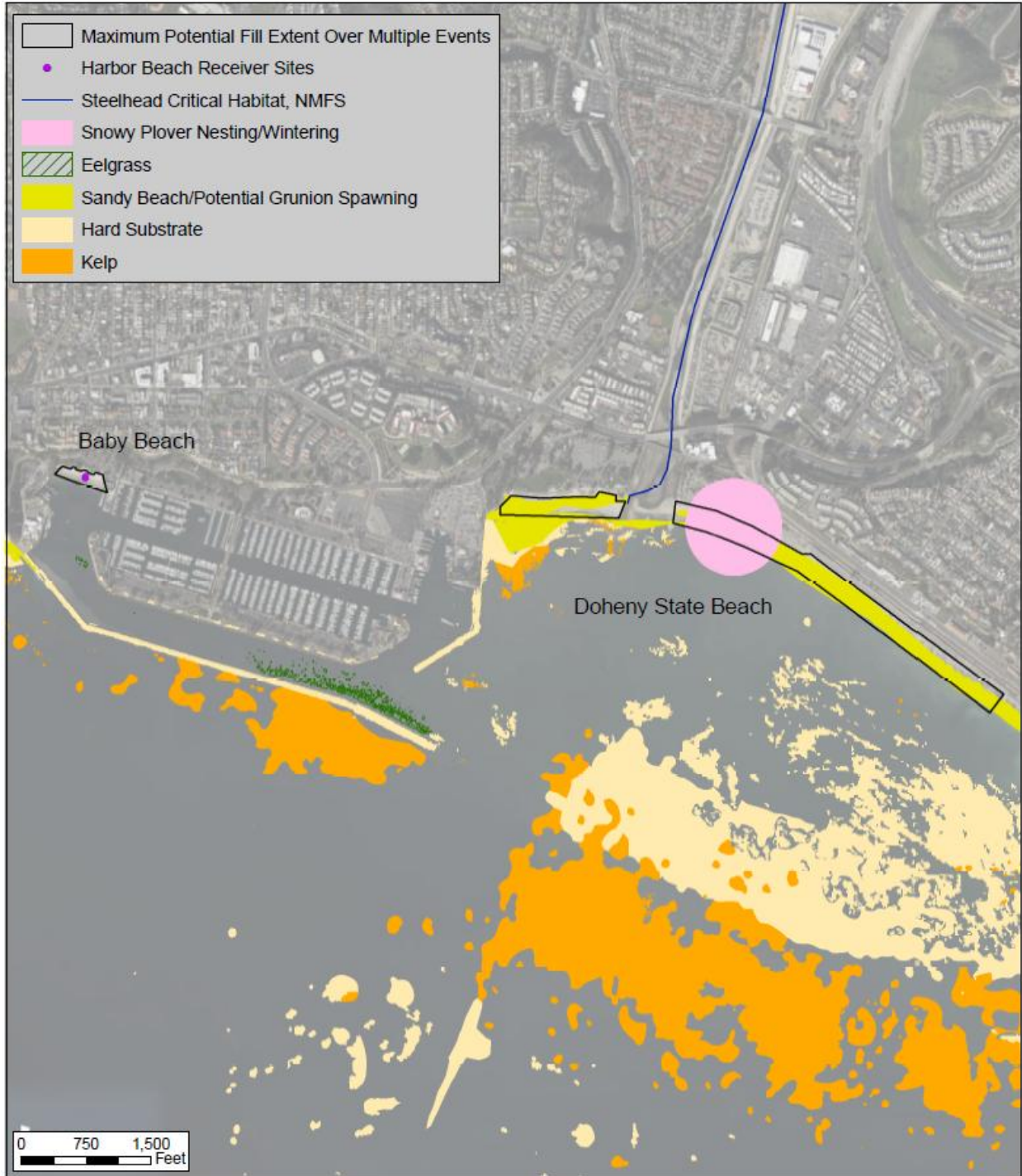


Figure 6-11. Baby Beach and Doheny State Beach Receiver Sites

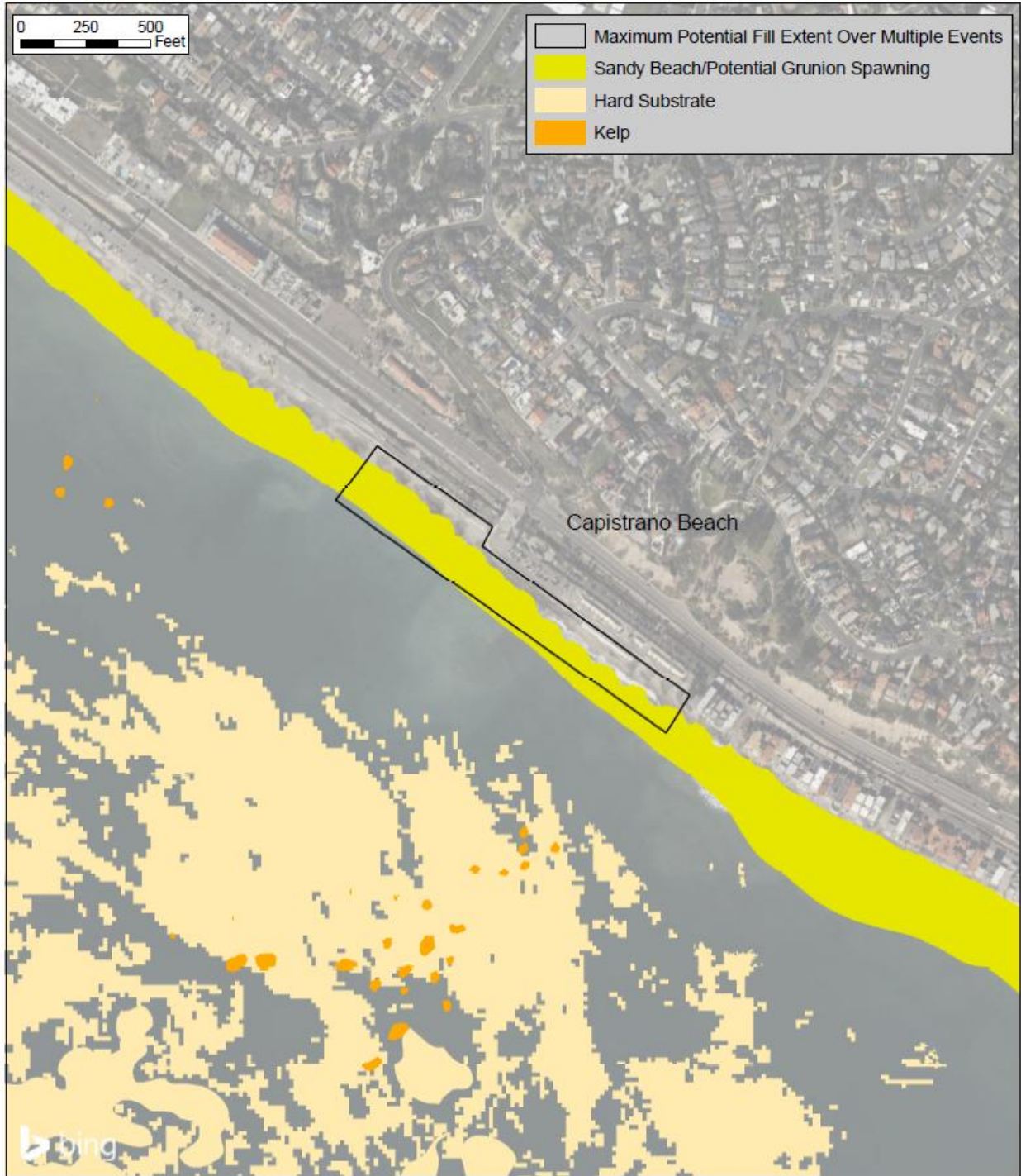


Figure 6-12. Capistrano Beach Receiver Site

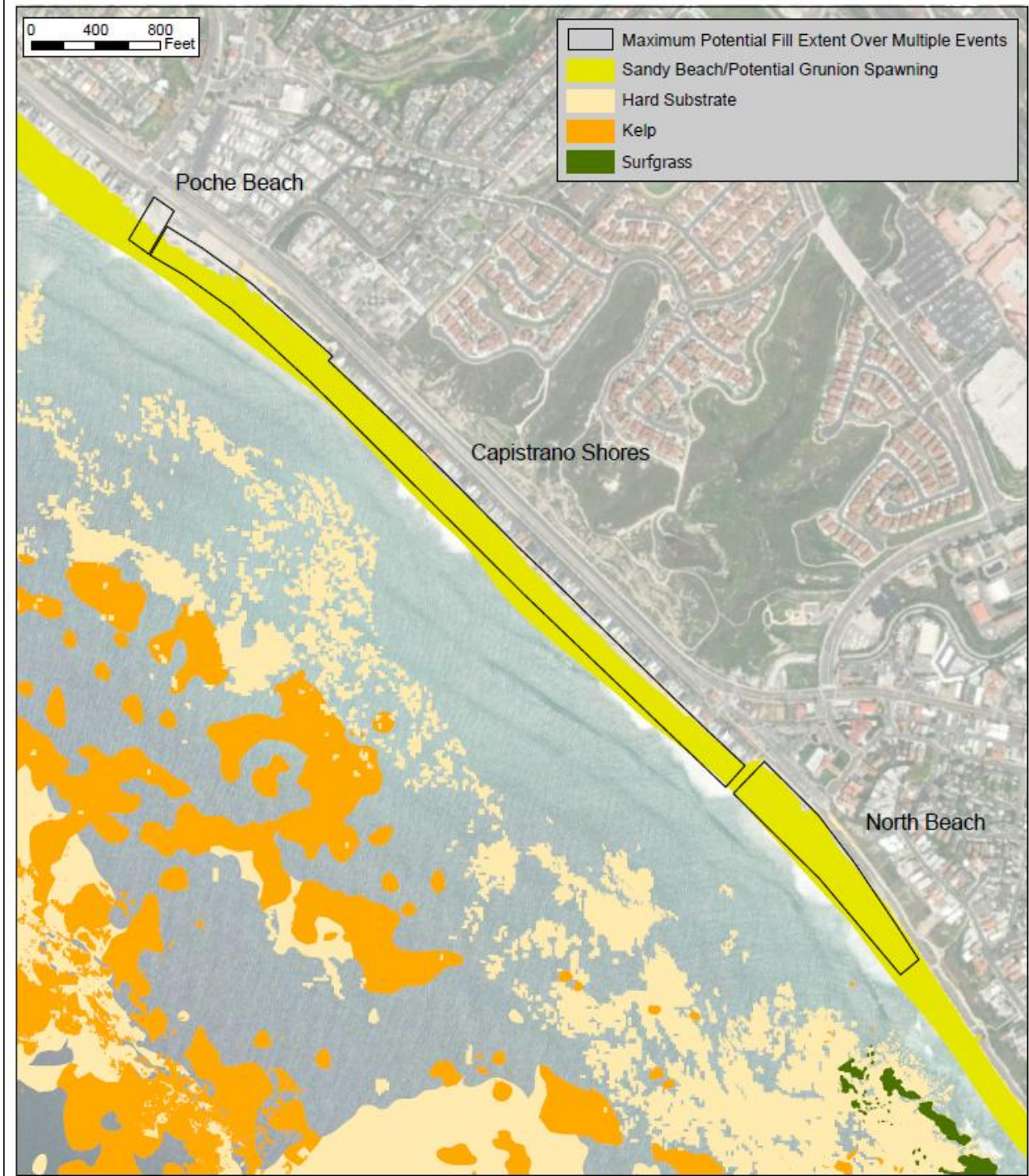


Figure 6-13. Poche Beach, Capistrano Shores, and North Beach Receiver Sites

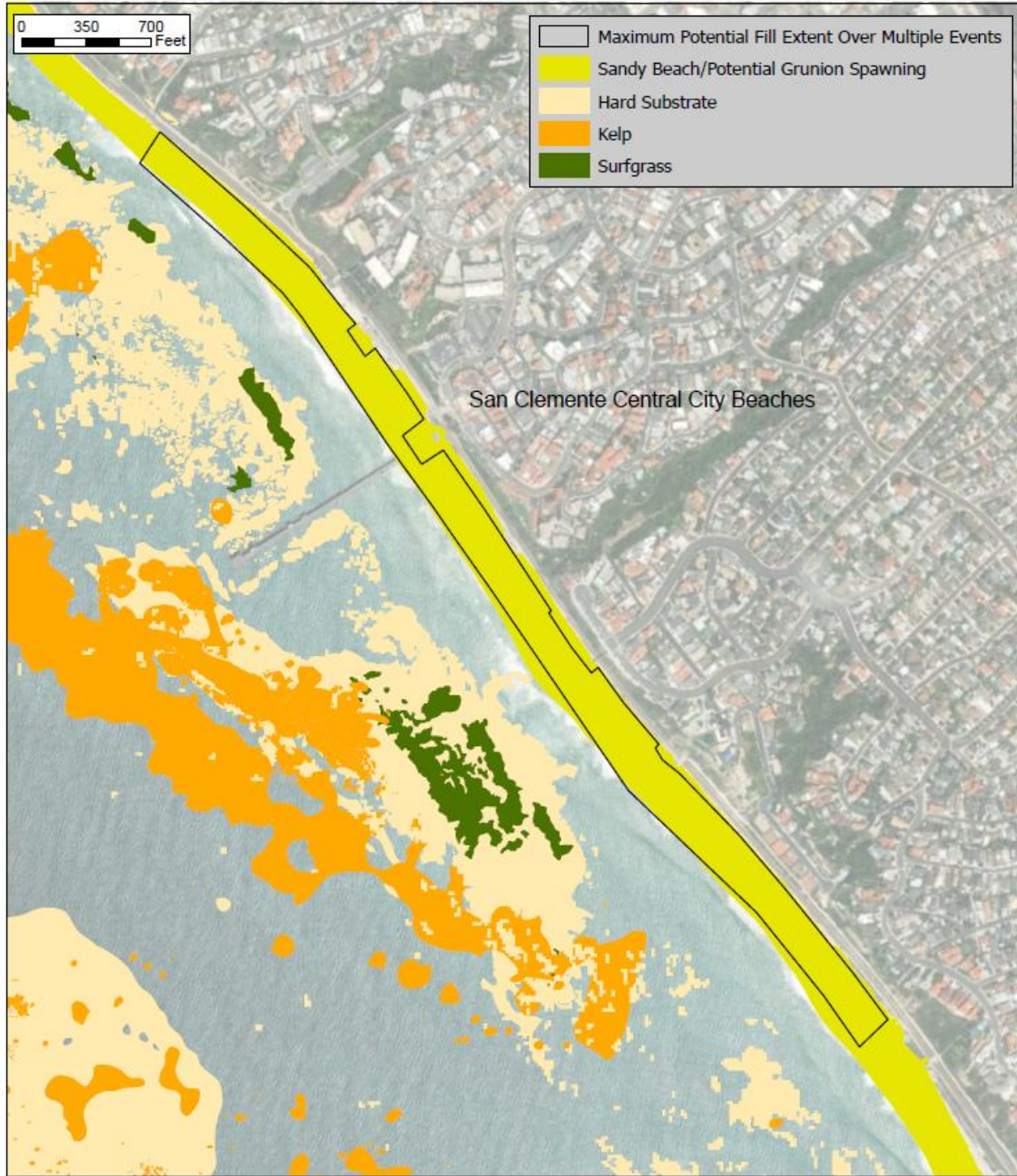


Figure 6-14. San Clemente Central City Beaches Receiver Site



Figure 6-15. San Clemente State Beach Receiver Site

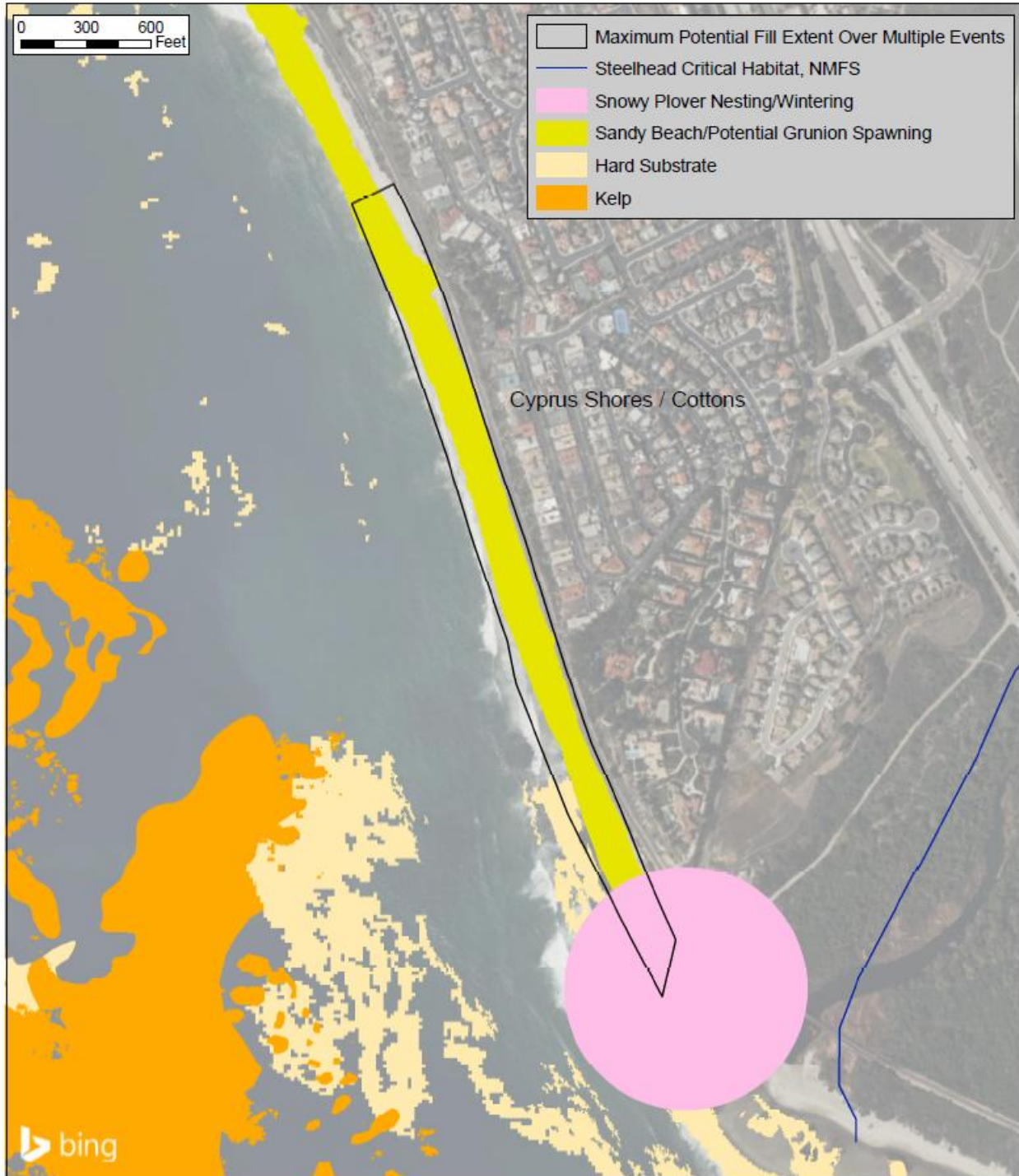


Figure 6-16. Cyprus Shores/Cottons Beach Receiver Site

7.0 CONCLUSIONS

The Proposed Action would be expected to result in a number of construction period impacts to local biota and habitats found in the Project Area (e.g., habitat disturbance, increased turbidity). The majority of these impacts are anticipated to be of a short-term, temporary nature and are not expected to have significant permanent or population-level impacts on sensitive habitat or species, EFH or managed fish species. While construction-related impacts would result in temporary impacts to local biota in the project footprint, of greatest concern is the protection of sensitive nesting or foraging bird species and grunion. To address this concern, protective measures such as seasonal avoidance and/or monitoring during construction are built into the Project design and would reduce any impacts to no adverse effect. Potential indirect impacts associated with the Project include increased turbidity and reduced foraging habitat for sensitive species; however, these impacts are expected to be localized and temporary. Given the available unaffected nearby shoreline and rapid recolonization of the receiver site by invertebrates, no long-term permanent impacts are expected. On the contrary, monitoring demonstrated that beach nourishment beneficially enhanced sandy beach habitat functions after the RBSP I (SAIC 2006). The primary benefit was to increase the persistence of sandy beach habitat across seasons such that habitat was suitable early in the season to support the onset of the grunion spawning season and invertebrate recruitment period. It resulted in increased invertebrate diversity earlier in the season, increased bird use across tide conditions, and enhanced habitat for grunion spawning.

Impacts from the Proposed Action would be minor for the managed species identified in Section 4. The coastal pelagics by nature have low site fidelity. Given the small area affected, interruptions causing pelagics to move into other areas would not cause biologically significant increases in competition due to habitat loss. The project would not impede the spawning success of the coastal pelagics, nor cause disturbances that increase predation. Similarly, impacts from the project would be minor for the groundfish species.

Any disturbance to marine mammals or sea turtles is considered harassment and would be considered an adverse impact; however, the direct receiver site footprints extend from the back beach to the intertidal zone, an area where they are unlikely to occur. No direct or indirect adverse impacts to sensitive hard bottom habitats, eelgrass beds, wetlands, or wildlife corridors are anticipated. Protective measures are in place for several resources to avoid and/or minimize impacts to sensitive marine biological resources.

8.0 REFERENCES

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