

4.0 EXISTING SETTING, IMPACTS, AND MITIGATION MEASURES

Section 4.0 describes the existing setting for the areas potentially affected by the proposed Dana Point Harbor Marina Improvement Project. The existing setting is the base environmental condition for which potential environmental effects of the proposed Marina Improvement Project and the project alternatives in the SEIR are evaluated.

The analyses in Section 4.0 include the existing setting, regulatory setting applicable to the environmental topic, methodology of the impact analysis, thresholds of significance, overview of the Program FEIR impact analysis, identification of direct and indirect project impacts, and mitigation measures identified to avoid or substantially reduce potentially significant adverse project impacts. Graphic exhibits and data matrices are included throughout Section 4.0 where applicable to support the impact analyses. The following environmental issues are assessed in accordance with California Environmental Quality Act (CEQA) Guidelines and CEQA requirements in Section 4.0:

- Land Use
- Geology and Soils
- Hydrology and Water Quality
- Transportation and Circulation
- Air Quality
- Noise
- Biological Resources
- Aesthetics
- Recreation
- Hazards and Hazardous Materials
- Greenhouse Gases

For each topic, the potential project impacts are divided into the following two categories: (1) Less Than Significant Impacts, and (2) Potentially Significant Impacts. Impacts are discussed in the following categories:

- **Less Than Significant Impacts** are those project impacts that are determined to be less than significant such that no additional requirements, conditions, or mitigation measures are needed.
- **Potentially Significant Impacts** are those project impacts that cannot be reduced to a less than significant level by project design features alone and that would require additional mitigation measures to further reduce the impacts. Impacts in this category may be reduced to a less than

significant level with mitigation measures (if feasible) or may remain unavoidable adverse impacts.

4.1 LAND USE AND PLANNING

This section provides a discussion of Land Use and Planning in relation to the proposed project. This section also addresses the proposed project's effects on land use with consideration of local, State, California Coastal Commission (CCC), and federal plans, regulations, and policies.

4.1.1 EXISTING SETTING

Project Location

The project site and Harbor are located in Capistrano Bay on the Southern Orange County coastline, approximately halfway between Los Angeles and San Diego Counties. The Harbor is bordered by the Pacific Ocean to the south; Dana Headlands and Dana Point State Marine Park to the west; Doheny State Beach to the east; and a variety of commercial, hotel, residential, and park uses to the north. Interstate 5 (I-5), located approximately two miles east of the Harbor, runs north-south through the City of Dana Point (City) and provides regional access to the Harbor. The Harbor is primarily accessible from Pacific Coast Highway and Street of the Golden Lantern via Dana Point Harbor Drive. Secondary access is provided by Cove Road. The project location is shown in Chapter 3.0, Figure 3-1.

Harbor Setting

The Harbor is comprised of three areas: a landside area along Dana Point Harbor Drive, adjacent to the bluffs; the Island area (connected by a bridge to the landside); and marina areas consisting of rental slips, commercial fishing slips, federal anchorage areas, docks for the Spirit of Dana Point, Sea Explorer, and the Pilgrim ships, the OC Sailing and Events Center docks, fishing pier, Harbor Patrol docks, marine services docks, fuel dock, sport fishing dock, Embarcadero docks, Marina Services docks, bait barge, and boat launch ramp facilities. The existing land uses surrounding the Harbor include commercial, residential, and recreational uses. The proposed Marina Improvement Project addressed in this Subsequent Environmental Impact Report (SEIR) is comprised of the marina (waterside) portions of the Harbor, Planning Areas (PAs) 8 through 12, as identified in the certified Land Use Plan (LUP) for Dana Point Harbor.

The West Marina (PA 9) channel connects the marina to the West Turning Basin, which contains docks for the Sea Explorer, and the two tall ships, the Spirit of Dana Point and the Pilgrim. In addition, a public beach area, commonly known as Baby Beach, is located adjacent to the West Turning Basin.

The East Marina (PA 10) contains the Orange County Sheriff Harbor Patrol docks, which are located near the entrance to the East Marina. Commercial fishing slips are located adjacent to the Sheriff Harbor Patrol docks. The East Marina channel connects the East Marina to the East Turning Basin, which contains a full-service fuel dock and a bait receiver.

Embarcadero Marina is located in PA 11 northeast of the East Turning Basin. PA 11 also contains the sport fishing docks, charter boat docks, the Catalina Express dock, boat rental facilities, the public boat launch ramp and docks, and docks utilized by Marine Services operators.

The West and East Marinas currently contain 2,409 slips with an average boat length of 29.85 feet (ft). The marinas are fully sheltered from the open ocean by approximately 8,000 linear feet (lf) of federal breakwater plus the island. See Figure 4.1-1 for an illustration of the land uses within the Dana Point Harbor, as identified in the certified Dana Point Harbor Revitalization Plan and District Regulations LUP.

4.1.2 REGULATORY SETTING

State Sovereign Lands/State Tidelands Grant

The State of California (State) acquired ownership of all previously ungranted tidelands, submerged lands, and beds of navigable waterways upon its admission to the United States in 1850. The State holds these lands for the benefit of all the people of the State for waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space purposes. Tidelands are those lands that lie between the lines of the mean high tide and the mean low tide; submerged lands lie below the line of mean low water. The State Lands Commission (SLC) has the review responsibility for tidal and submerged lands legislatively granted in trust to local jurisdictions. All tidelands and submerged lands, granted or ungranted, are subject to the Common Law Public Trust, which is a sovereign public property right held by the State-delegated trustee for the benefit of all people.

Dana Point Harbor is held in trust by the County of Orange (County), in accordance with the State Tidelands Grant. The Tidelands Grant for Dana Point Harbor contains conditions that the Harbor must be used "...only for the establishment, improvement and conduct of a Harbor, and for the construction, maintenance and operation thereon of wharves, docks, piers, slips, quays, and other utilities and appliances necessary or convenient for the promotion and accommodation of commerce and navigation..."¹ In addition, the Tidelands Grant states that the lands shall always remain available for public use for all purposes of commerce and navigation.

California Coastal Act/Local Coastal Program

The California Coastal Act of 1976 (CCA) was created to: (1) protect, maintain, and, where feasible, enhance and restore the overall quality of the Coastal Zone environment and its natural and manmade resources; (2) ensure orderly, balanced utilization, and conservation of Coastal Zone resources, taking into account social and economic needs; (3) maximize public access to and along the coast and maximize public recreational opportunities in the Coastal Zone consistent with sound resource conservation principles and constitutionally protected rights of private property owners; (4) ensure priority for coastal-dependent development over other development on the coast; and (5) encourage State and local cooperation in preparing procedures to implement coordinated planning and development for mutually beneficial uses in the Coastal Zone. The CCA requires all local governments located within the Coastal Zone to adopt a Local Coastal Program (LCP). The LCP is used by jurisdictions to regulate local land uses and development in a manner that is consistent with

¹ Dana Point Harbor Tidelands and Submerged Lands Acquisition, State Lands Commission, February 1962.

the goals of the CCA. Specifically, LCPs identify the location, type, densities, and other land use policies for future development within the Coastal Zone of a jurisdiction.

The project site is located entirely within the Coastal Zone and is under the land use planning and regulatory jurisdiction of the City (landside areas) and the CCC (waterside areas). In 1981, the County approved the LCP for Dana Point, known as the South Coast Planning Unit LCP, and in 1985 the County's LCP was certified by the CCC. The City of Dana Point was incorporated in 1989, and in 1991 the CCC approved an LCPA to transfer LCP discretionary authority for the entire City, including the Harbor, to the City. Landside areas remain under the oversight of the CCC as an appealable jurisdiction while the CCC exercises full discretionary authority over all waterside areas, including all aspects of the Marina Improvement Project.

Implementation of the Dana Point Harbor Revitalization Plan required a series of subsequent approvals by the City of Dana Point and the CCC to modify existing regulatory documents, including the City's LCP. The Revitalization Plan and District Regulations therefore required an LCP Amendment (LCPA). The LCPA included an LUP component and an Implementation Plan (IP) component, which together establish zoning regulations and other implementing actions required for ongoing implementation of improvements and management of Dana Point Harbor pursuant to procedures set forth in the CCA. The LUP component of the LCPA for the proposed Dana Point Harbor Revitalization Project was effectively certified with suggested modifications by the CCC on October 8, 2009. The IP component was approved with suggested modifications by the CCC on January 12, 2011.

During the public and regulatory review and approval process with the City and the CCC, refinements to the LUP and IP components in the form of various suggested modifications were made to the proposed LCPA, all of which were subsequently adopted by the City Council and certified by the CCC. Some specific changes resulting from these suggested modifications made to the Revitalization Plan during the City's discretionary review process included reduction of Commercial Core area building heights, elimination of one dry stack storage building, and reconfiguration of the remaining proposed boat storage structure, elimination of the lighthouse, and the general reconfiguration of the Marine Services Commercial area of the Harbor.

The CCC approved the LCPA subject to a number of suggested modifications to bring the amendment into conformity with the policies of Chapter 3 of the CCA. The key suggested modifications accomplished included the following:

- Provide protection for land uses that are considered as priority uses in the CCA and allow only development (i.e., fishing, public access, water-oriented recreation and incidental commercial uses) that is consistent with the Tidelands Grant. The modifications also institute controls on the expansion of existing and potential construction of additional private (membership) yacht clubs on tidelands.
- Establish the goal for any dock replacement of the Harbor revitalization to be "no net loss" of slips in the Harbor harborwide, or a maximum loss not to exceed 155 slips. In addition, priority is to be given to the provision of slips that accommodate boats less than 25 feet (ft) in length, with the average slip lengths not to exceed an overall average of 32 ft throughout.

- Ensure that land area and parking facilities are maintained, enhanced, and prioritized for coastal-dependent and coastal-related land uses.
- Encourage the provision and use of public transit by having the OC Dana Point Harbor cooperate with the surrounding adjacent cities to determine the feasibility of and potentially implement a Tri-City Trolley.
- Establish tree-trimming policies and requirements to ensure bird breeding, roosting, and nesting protection under the Migratory Bird Treaty Act and the California Endangered Species Act for California bird species of special concern, wading birds (herons and egrets), and owls/raptors.
- Institute provisions for the protection of low-cost visitor-serving facilities and overnight accommodations and prohibit the conversion of existing, or the construction of new, Limited Use Overnight Visitor Accommodations on public tidelands in the Harbor.
- Protect scenic and visual coastal resources.
- Incorporate miscellaneous revisions to the maps, tables, and figures.

The waterside portion of the project is now proceeding through a separate, independent process for environmental clearance and approval. The Coastal Development Permit (CDP) process regulates all development in the Coastal Zone. Any projects proposed within the Coastal Zone are required to obtain a CDP prior to construction. Because the project area includes submerged lands, the CCC would issue the CDP for this project.

County of Orange

Although the Harbor is located entirely in the Dana Point City limits, the Harbor is owned by the County. The County has the responsibility for development, maintenance, and operation of land uses within the Harbor. As noted previously, the County is the trustee of the Harbor for the people of the State of California, pursuant to the State Tidelands Grant. As landowner, all Harbor operations are managed by OC Dana Point Harbor. The marinas, hotel, and other operations such as charter facilities and boat rentals are managed under various operations, management, and/or lease agreements controlled by the County.

The Harbor is shown as a Regional Recreation area in the County General Plan. Development within the Harbor has been historically regulated and land uses defined by the County under the Dana Point Harbor Planned Community District Development Plan, adopted by the County Board of Supervisors on July 22, 1969.

The authority for implementing the LCP (including implementation provisions, development standards, procedures, and land use intensity restrictions) was approved by the CCC and transferred from the County to the City in 1991. The City's General Plan includes the land use plan components of the LCP and is further discussed below.

City of Dana Point

General Plan. The City General Plan, adopted in 1989, and subsequently amended, lists various policies that guide future growth and development in the City. The General Plan includes the land use

plan components of the LCP. The General Plan is the primary planning policy document of the City. It identifies the location, density, and intensity of land uses, the basic design and function of circulation, and policies regarding open space, infrastructure, and public service needs for the entire City. The City's General Plan designates the waterside project area as Harbor Marine Water, and the adjacent landside areas as Harbor Marine Land.

The City's General Plan Land Use Element considers the Harbor one of the most significant resources in defining the character of this coastal community. The Harbor provides a unique blend of natural features and human-made amenities that include visitor/recreation commercial, community facilities, recreation/open space, and Harbor marine land and water uses.

Zoning Ordinance. In 1991 LCP authority for the entire City, including the Harbor, was transferred from the County to the City. As a result of that, and subsequent actions by the City, the LCP became part of the City's zoning ordinance, which includes the implementation provisions, development standards, procedures, and land use intensity restrictions required by the CCA. The City's Zoning Ordinance serves as the implementing program of the City's LCP. Although the Harbor is owned and operated by the County, it is subject to the City's LCP as a result of those actions. In 2006, the City amended the LCP and Zoning Code by adopting LCPA 06-03 for the Dana Point Harbor Revitalization Plan, which includes the Marina Improvement Project as an element.

Dana Point Harbor Revitalization Plan and District Regulations

The Dana Point Harbor District Regulations provide zoning designations for the Harbor and establish regulations for specific land use development projects. The District Regulations address division of the Harbor into 12 planning areas and provide specific regulations, site development standards, and discretionary permit processes applicable to all of these areas.

As stated above, the overall Harbor Revitalization Project was approved by the County Board of Supervisors in 2006, and then forwarded to the City. The Dana Point Harbor Revitalization Plan and District Regulations are intended to replace the certified Land Use Plan and Implementing Actions Program components for the Harbor that is included in the Dana Point LCP. Therefore, as described above, the Revitalization Plan and District Regulations required an LCPA. The LCPA, which included an LUP component and an IP component, was subsequently submitted to the CCC for approval and certification, as described above. The LUP component of the LCPA for the proposed Dana Point Harbor Revitalization Project was approved with suggested modifications by the CCC on October 8, 2009. The IP component was approved with suggested modifications by the CCC on January 12, 2011.

Based on CCC staff recommendations during the LCPA review and approval process, the land use categories described in the Dana Point Harbor Revitalization Plan and District Regulations were revised and a Supplemental Text was provided. The revised and adopted text incorporates the policies and descriptive information from the previously adopted and certified Dana Point LCP, in order to maintain continuity and consistency. The land use category for the Marina Improvement Project areas (PAs 8 through 12) in the Dana Point Harbor Revitalization Plan and District Regulations is identified as "Marinas (waterside)". The material changes recommended by the CCC staff in the Supplemental

text do not appreciably change the “Marinas (Waterside)” portion of the overall Harbor Master Plan for which this SEIR is being prepared.

As part of the CCC’s approval of the LUP component of the LCPA, a suggested modification was included to establish a goal for any dock replacement to attempt to achieve “no net loss” of slips harborwide or to limit the loss of boat slips to a maximum of 155 slips with an average slip length not to exceed 32 ft. In the event that the replacement of docks requires a reduction in the quantity of slips in existing berthing areas, the policy revision also requires that those slips be replaced, if feasible, in new berthing areas elsewhere in the Harbor.

4.1.3 METHODOLOGY

Impacts to land uses were determined by comparing goals and policies adopted in the CCA, the County General Plan, the City’s General Plan, and the Dana Point Harbor District Regulations with the proposed project.

4.1.4 THRESHOLDS OF SIGNIFICANCE

The impact significance criteria used for this analysis are based primarily on Appendix G of the State California Environmental Quality Act (CEQA) Guidelines and the County of Orange Local CEQA Procedures Manual (2000). The project may be considered to have a significant effect related to land use and planning if implementation would result in one of more of the following:

- Physically divide an established community
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect
- Conflict with any applicable habitat conservation plan or natural community conservation plan

4.1.5 OVERVIEW OF PROGRAM FEIR LAND USE AND PLANNING ANALYSIS

Impacts. Implementation of the Marina Improvement Project does not include any permanent land use changes other than renovated and/or replaced marina docks and related infrastructure to better serve visitors, boaters, and existing Harbor uses. The Revitalization Project required that a LCPA be prepared and locally adopted by the City with input from the County and then certified by the CCC. The Program FEIR concluded that because the project required an LCPA, it was by definition “inconsistent” with the current LCP. This was, however, not considered a significant impact because approval of the LCPA would improve overall CCA compliance. All waterside improvements must be reviewed and approved by the CCC as part of a CDP prior to project construction. An application for a CDP will be submitted for approval by the CCC after certification of the SEIR and approval of the Marina Improvement Project by the County Board of Supervisors.

Due to temporary construction activities and/or long-term maintenance or operations, the Revitalization Project, including the Marina Improvement Project, may result in conflicts with Harbor facilities or land uses. In addition, the proposed Revitalization Project, combined with other future development, could increase the intensity of land uses in the area. However, the Program FEIR concluded that with implementation of Project Design Features (PDFs), Standard Conditions of Approval (SCA), and Mitigation Measures (MMs), no significant impacts are anticipated. Measures identified in the Program FEIR and applicable to the Marina Improvement Project are listed below.

During the subsequent approval process for the LUP component of the LCPA, several of the listed PDFs, SCAs, and MMs were clarified and became LUP Policies within the revised Dana Point Harbor Revitalization Plan LUP. Where applicable, the wording has been revised to be consistent with the approved LUP Policy, which is indicated in parenthesis.

Project Design Features (PDFs), Standard Conditions of Approval (SCA), and Mitigation Measures (MMs)

- PDF 4.1-1** Construction phasing for new development shall be designed to minimize the disruption of vehicular and pedestrian access routes and parking availability throughout the Harbor. In the event of temporary closures, alternate routes and clear directional signage will be provided. (LUP Policy 8.1.1-34)
- MM 4.1-1a** Land uses and new development in Dana Point Harbor shall be consistent with the Dana Point Harbor Land Use Plan and applicable policies and regulations contained in the Dana Point Harbor Revitalization Plan and District Regulations. (LUP Policy 2.3.1-1)
- MM 4.1-3a** Access to the Marine Services Commercial areas shall be maintained during all construction phases. A Construction Management Plan shall be prepared identifying the configuration of construction staging areas temporary access routes, and parking areas and will be submitted with development permit applications. (LUP Policy 4.4.1-6)
- MM 4.1-3b** A comprehensive signage program for public access shall be implemented in conjunction with the construction of the Commercial Core Area and subsequent Planning Areas within the Harbor to inform the public of the availability of and provide direction to public parking areas, coastal access and on-site recreational amenities. (LUP Policy 8.5.3-10)

Level of Significance after Mitigation. No unavoidable significant impacts related to Land Use and Planning were identified in FEIR No. 591.

4.1.6 IMPACTS AND MITIGATION

This discussion focuses on potential land use compatibility issues. Other issues related to and affecting adjacent and on-site land uses are discussed in the applicable SEIR sections, such as air quality, noise, traffic/parking, and aesthetics.

The Initial Study (IS) prepared by the County (Appendix A) determined that the project renovates the existing facilities contained within the Harbor and does not divide or alter any community or political boundary. The existing land use as a marina will continue with implementation of the proposed project. No new land uses will divide or otherwise separate the boaters, and the project does not preclude live-aboards. Therefore, the IS concluded that the proposed project would not have a significant impact with respect to physically dividing an established community. Additionally, because the project site is not located within a Habitat Conservation Plan (HCP) or Natural Communities Conservation Plan (NCCP) area, the IS determined that the project would not conflict with any HCPs or NCCPs. Therefore, these issues are not addressed further in this SEIR.

4.1.6.1 Less Than Significant Impacts

Compatibility With Land Use Plans

The proposed project consists of renovations and improvements to the existing marina facilities. Specifically, these include the West and East Marina docks in the Harbor, and gangways and security gates to both marina areas. Additionally, new Embarcadero/Dry Boat Storage Staging docks and dinghy dock, along with renovations to the OC Sailing and Events Center Facility docks, guest docks, Harbor Patrol docks, Marine Services docks, commercial fishing docks, and sport fishing docks are included in the proposed Marina Improvement Project. In order to accommodate boaters during renovations, the project also includes a set of temporary docks to be located in the Harbor's Main Channel and along the eastern breakwater. Once renovations to all dock areas are completed, the temporary docks may become docks for some of the yacht brokers who currently have docks in the East and West Basins, subject to separate agency approvals.

As discussed further in Section 3.0, at project completion the total number of boat slips in the West and East Marinas under the County's preferred design may decrease from 2,409 to 2,293, resulting in a net loss of approximately 116 slips. In order to maximize the number of boat slips, the proposed project includes some doublewide slips, inner channel narrowing, and realigning the West Marina from a north-south orientation to an east-west orientation, consistent with the existing dock orientation in the East Marina.

The renovations to dock facilities throughout the Harbor and the modifications to boat slip size do not change the land use of the project site. Implementation of the Marina Improvement Project does not include any permanent land use change. The proposed project does not change the existing types of recreational uses in the marina or open space uses within the project site. The existing marina and related recreation uses have been ongoing at the site for nearly 40 years, and the proposed project would not change these uses. In addition, the proposed project would not disrupt or divide the placement of existing uses and activities that surround the marina, nor would it displace any businesses, residences, or other uses. The proposed Marina Improvement Project's relationship to the Dana Point Harbor Revitalization Project is further discussed below, under the Dana Point Harbor Revitalization Plan and District Regulations section.

Operationally, renovated and/or replaced marina docks and related dock infrastructure are proposed to better serve visitors, boaters, and existing Harbor uses. Implementation of the project would result in a slight increase in the average slip size from +/-30 ft to no more than 32 ft. This change in the average size of slips in the East and West Marinas would not change the existing land uses or the operations within those marinas; the site would continue to serve as a Harbor and marine-related recreational facility. Boater traffic safety is discussed in Section 4.4 of this SEIR.

The renovations to other docks, including the sport fishing, Harbor Patrol, and commercial fishing docks would not result in operational changes to these dock areas because they are not being relocated, no increase in capacity is planned, and no new uses are being introduced. With project implementation, the guest slips would be relocated adjacent to the Dana Wharf, which is intended to improve visitor access due to the proximity to the Commercial Core. A dinghy dock will also be provided near the Commercial Core and will create greater access for boaters wishing to visit commercial uses by using their dinghies rather than driving their cars to the commercial core area.

The OC Sailing and Events Center docks will be provided on the westernmost side of the facility near Baby Beach. The docks on the eastern side of the OC Sailing and Events Center will become part of the West Basin Marina. Operationally, the center will continue to use the docks for its sailing programs. The uses at the site are not changing and therefore there are no impacts related to land use.

The Marine Services docks currently contain 1,190 lf of dock space, which will be reduced to 896 lf with project implementation. The shipyard currently utilizes approximately 560 lf of this dock space for uses directly related to shipyard operations. The remainder of the dock space is used for monthly rental purposes (e.g. Jet Ski rentals). A portion of the dock space will eventually be allocated for use as staging docks for the Dry Boat Storage building that is a part of the Harbor Revitalization (landside) Project. The possible future reduction of dock space at the Marine Services docks will proportionally reduce the amount of boating activity at this location. The planned uses are consistent with the marina land use designations and will not significantly change from the existing and historic public access, marine repair, and Embarcadero dock land uses. Impacts are therefore considered to be less than significant.

The proposed project would not substantially affect any of the existing off-site land uses and activities, such as the open space along the Island, passive recreation areas within the Harbor, or the existing or planned commercial uses. The renovations to the dock and slip facilities do not change the land uses on the project site and any surrounding uses and activities would continue and would coexist with each other as they do presently, without disruption from the proposed project and with no change in the character of the area.

State Sovereign Lands/State Tidelands Grant. The proposed project will not conflict with the State Tidelands Grant. The proposed project does not entail the sale of any tidelands to a private entity, and the marinas will remain under the control of the County. In accordance with the conditions in the Tidelands Grant for Dana Point Harbor, the proposed project is the improvement of a Harbor and ensures that the lands will remain available for public use. Additionally, the proposed project will ensure that the recreation and commercial fishing uses continue, consistent with the Tidelands Grant requiring that actions associated with the Harbor are necessary or convenient to accommodate

commerce and navigation. Further, the proposed project is intended to comply with approved LUP Policy 3.2.1-1 that states, "Administer the use of the tidelands and submerged lands in a manner consistent with the tidelands trust and all applicable laws". Therefore, impacts related to consistency with the State Tidelands Grant are considered less than significant, and no mitigation is required.

County of Orange. As stated above, the Harbor is shown as a Regional Recreation area in the County's General Plan. The proposed Marina Improvement Project is a continuation of existing recreational marina-related uses and is consistent with the County's General Plan designation. Therefore, impacts related to consistency with the County's General Plan are considered less than significant, and no mitigation is required.

City of Dana Point. The City's General Plan designates the project area as Harbor Marine Water. The proposed Marina Improvement Project is a continuation of existing land uses and is consistent with the City's General Plan designation. As stated above, the Implementation Program component of the Dana Point Harbor LCP incorporates applicable sections of the City's zoning code as they relate to Coastal Permit processing. The Marina Improvement Project is an identified part of the Revitalization Plan and is designed to be consistent with the LCPA as adopted by the City for the Revitalization Plan.

The Land Use Plan component of the LCPA was effectively certified with suggested modifications by the CCC on October 8, 2009 and was adopted by the Dana Point City Council on February 8, 2010. The IP component of the LCPA was approved with suggested modifications by the CCC on January 12, 2011 and was and was adopted by the Dana Point City Council on June 13, 2011.

Therefore, impacts related to consistency with the City planning documents are considered less than significant, and no mitigation is required.

As further discussed below, the CCC retains jurisdiction over the waterside improvements because the Marina Improvement Project area includes submerged lands. As discussed in FEIR No. 591, all waterside improvements are subject to a CDP approval by the CCC prior to project construction.

Dana Point Harbor Revitalization Plan and District Regulations. The Dana Point Harbor Revitalization Plan and District Regulations were intended to replace the certified Land Use Plan for Dana Point Harbor that is included in the City's Land Use Plan of the LCP. The Revitalization Plan and District Regulations therefore required an LCPA, as discussed above. The proposed Marina Improvement Project is a part of the overall Revitalization Plan and is designed to be consistent with both the Plan and the District Regulations, as adopted and effectively certified.

As stated above, during the LCPA review and approval process, the land use categories described in the Dana Point Harbor Revitalization Plan and District Regulations were revised. The land use category for the Marina Improvement Project areas (PAs 8 through 12) in the Dana Point Harbor Revitalization Plan and District Regulations is identified as "Marinas (waterside)." All of the components contained in the proposed Marina Improvement Project are consistent with the marina land use category. Further, the Marina Improvement Project is intended to be fully consistent with all

approved LUP Policies for the Dana Point Harbor Revitalization Plan Land Use Plan. Therefore, because the proposed Marina Improvement Project does not change the land uses within the project area and because it is consistent with the approved LUP Policies, the impacts related to consistency with the Dana Point Harbor Revitalization Plan and District Regulations are considered less than significant, and no mitigation is required. Although FEIR No. 591 concluded that the Revitalization Project was by definition “inconsistent” with the current LCP because the project required an LCPA, the effective certification of the LUP and IP components of the LCPA by the CCC reconciles any inconsistencies between the project and the City’s General Plan.

Local Coastal Program Consistency. As indicated previously, the certified Dana Point LCP as approved for the Revitalization Plan includes the project area. However, the CCC retains jurisdiction because the project area is located within the Coastal Zone. As discussed in FEIR No. 591, all waterside improvements must be approved as part of a CDP by the CCC prior to project construction. An application for a CDP will be submitted for consideration by the CCC after certification of the SEIR by the County. Therefore, the appropriate standard for review is the project’s consistency with the CCA, which identifies Coastal Resources Planning and Management Policies (Chapter 3, Sections 30200 et al.) that address the following issue areas:

- Public Access
- Recreation
- Marine Environment
- Land Resources
- Development
- Industrial Development

Table 4.1.A outlines the applicable CCA policies and discusses the project’s consistency with each applicable policy. Several policies are not included in Table 4.1.A because they address issues that are not relevant to the proposed marina renovations and do not apply to an existing and operating marina facility. Policies not included in the discussion include the following: access and development policies for new development projects; development of private, upland, and agricultural lands; construction altering the natural shoreline; water supply and flood control projects; and policies related to industrial developments.

As indicated above, the policies in Chapter 3 of the CCA are intended to provide protection for suitable oceanfront lands to be used for water-oriented and recreational purposes. The proposed project is consistent with the intent of these policies. The project consists of the improvement of the existing water-oriented recreational and visitor-serving facilities within the marina areas of the Harbor. In addition, the proposed project would further increase public recreational opportunities by providing upgraded facilities that are ADA compliant. As indicated in Table 4.1.A, the proposed project is consistent with CCA policies, and impacts are considered less than significant. No mitigation measures are required.

Table 4.1.A: Consistency with Coastal Act Policies

Coastal Act Policies	Discussion/Analysis of the Proposed Project
<p>Section 30210: In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs, and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.</p>	<p>The proposed project provides for enhanced public access through the rehabilitation of the marina’s access facilities including docks and gangways. The project includes installation of ADA compliant facilities, including ramp access to the docks, thereby increasing public access and improving public safety. Therefore, the proposed project is consistent with Coastal Act Section 30210.</p>
<p>Section 30211: Development shall not interfere with the public’s right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.</p>	<p>The project will not interfere with the public’s right of access to the sea and does not have any effect on the use of dry sand or rocky coastal beaches. The project will not interfere with or modify the public’s right of access to the Dana Point Harbor facilities. The proposed project will upgrade the existing marina facilities and provide additional access through the installation of new ADA compliant facilities. The project will maintain the existing coastal access for the public, which will serve local and regional visitors and enhance the existing public recreational opportunities for boaters as well as for those without boats who wish to access the same facilities. Therefore, the proposed project is consistent with Coastal Act Section 30211.</p>
<p>Section 30213: Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred.</p>	<p>As owner and operator of Dana Point Harbor, the County of Orange is committed to protect, encourage, and provide lower-cost visitor and recreational facilities. The Harbor currently provides a range of public recreational opportunities. The proposed project does not change the cost or availability of visitor and recreational facilities.</p> <p>The proposed project includes renovations to dock and slip facilities within the marina and does not remove or preclude the use of existing passive recreational activities currently available throughout the Harbor. The project will not impact or discourage the use of any existing free and/or low-cost recreational facilities, including access to Baby Beach, the OC Sailing and Events Center, the fishing pier, the Ocean Institute, kayaking, and picnic and scenic grass areas. In addition, through the renovation of the Harbor facilities, including the provision of ADA access that is currently not provided, the project ensures that public access to the dock and slip facilities is provided at</p>

Coastal Act Policies	Discussion/Analysis of the Proposed Project
	<p>public use areas, including the Embarcadero/Dry Boat Storage Staging docks (the Dry Boat Storage was approved by the County and environmentally cleared by FEIR No. 591), the sport fishing docks, and the guest and dinghy docks. Therefore, because the proposed project ensures that the Dana Point Harbor will continue to provide public recreational opportunities through newly renovated and ADA compliant facilities, the project is considered consistent with Coastal Act Section 30213.</p>
<p>30220 Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.</p>	<p>Dana Point Harbor provides a variety of water-oriented activities, including recreational boating, cruising, tours, fishing, and related activities focused on the ocean which, as a result, cannot readily be provided in inland water areas. Dana Point Harbor has been in operation since the late 1960s. Renovating the dock and slip facilities shows a commitment by the County to the long-term use of this area as a water-oriented recreational facility, consistent with Section 30220 of the Coastal Act.</p>
<p>30221 Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.</p>	<p>As owner and operator of the Dana Point Harbor, the County of Orange uses, protects and maintains the oceanfront land for long-term public and commercial recreational activities to complement other similar facilities along the Orange County coastline. The County utilizes the protected waters of Dana Point Harbor to provide long-term recreational uses to complement similar facilities along the Orange County coastline. As demand for water-oriented recreational facilities in Orange County remains high, conversion to other uses is not under consideration or very likely. This is consistent with Section 30221, protecting such recreational facilities for the long term.</p>
<p>30224 Increased recreational boating use of coastal waters shall be encouraged, in accordance with this division, by developing dry storage areas, increasing public launching facilities, providing additional berthing space in existing harbors, limiting non-water-dependent land uses that congest access corridors and preclude boating support facilities, providing harbors of refuge, and by providing for new boating facilities in natural harbors, new protected water areas, and in areas dredged from dry land.</p>	<p>As owner and operator of the Dana Point Harbor, the County of Orange seeks to increase recreational boating use of coastal waters by developing dry storage areas, increasing public launching facilities, and providing upgraded docking space in the existing harbor. The proposed project would renovate the existing marina facilities and enhance the existing recreational boating facilities within the Harbor as intended during the preparation of the overall Dana Point Harbor Revitalization Project. The Harbor Revitalization Project Program EIR included a Dry Boat Storage building for approximately 400 boats and surface boat storage for 93 boats to accommodate the future needs of boaters. In addition, as a part of the overall Harbor program, the public</p>

Coastal Act Policies	Discussion/Analysis of the Proposed Project
	<p>launch ramp was renovated in 2007 and is now ADA compliant, providing one additional floating dock.</p> <p>The waterside project now under consideration encourages increased recreational boating use by providing upgraded ADA-compliant facilities and accommodating changes in the boating needs of the public by providing slightly longer average slip lengths, demonstrated by the current shortage of adequately sized slips.</p> <p>The dock and slip facilities were developed more than 35 years ago when the average length of recreational boating slips was shorter than current boater demand. Although the proposed project may result in a reduction in the total number of boat slips, the marina facilities would provide increased recreational opportunities because the renovated facility would be designed to meet existing and anticipated future market needs, and would facilitate/continue public use within the coastal zone. As discussed in Section 3.0 of this SEIR, the number of slips vacated each year, also known as attrition, has absorbed the loss of slips due to project implementation. The County expects that no boaters will need to be relocated from the Harbor upon project completion because the expected number of vacancies over the last few years has exceeded the number of slips lost with the proposed plan. In addition, FEIR No. 591 included a Dry Boat Storage building that is expected to house more 493 boats, which will have access to the Harbor via the proposed Embarcadero/Dry Boat Storage Staging docks. This component, along with the recently renovated boat launch, is consistent with the Coastal Act Section 30234 to develop dry storage areas and increase public launching facilities. Further, the policy encourages the provision of additional berthing space in existing Harbors; although the number of slips will decrease, the addition of slightly longer slips will help reduce the wait list for longer slips. Additionally, the project does not involve any changes in land uses that would preclude boating. Therefore, the proposed project is considered consistent with the intent of Coastal Act Section 30234.</p>

Coastal Act Policies	Discussion/Analysis of the Proposed Project
<p>Section 30230: Marine resources shall be maintained, enhanced, and where feasible restored. Special protection shall be given to areas and species of special biological or economic significance. Use of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.</p>	<p>As outlined in this SEIR, a number of steps will be taken to protect the waters of Dana Point Harbor and the marine resources located within the Harbor and ocean waters. The proposed project provides for the protection of marine resources by requiring biological surveys to determine presence prior to any construction activities. If present, limitations on hours of construction will be implemented to ensure minimal noise disruptions to wildlife species (see Section 4.7, Biological Resources).</p> <p>Any loss of epibiota species during removal of docks and pilings will be short-term and is not considered significant. These subtidal species are expected to re-establish themselves to healthy populations following disturbance. No other marine species or resources will be adversely affected by the proposed project (see Section 4.7, Biological Resources), and therefore, no species would require restoration. Therefore, the proposed project is consistent with Coastal Act Section 30230.</p>
<p>Section 30231: The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of wastewater discharges and entrainment, controlling runoff, preventing depletion of groundwater supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.</p>	<p>See response to Section 30230. Harbor and coastal waters will be protected through continued participation in the Clean Marinas Program and implementation of the Water Quality Management Plan (WQMP), which includes best management practices (BMPs) for ongoing marina operations and will include implementation of BMPs for construction. BMPs as outlined in Section 4.3, Hydrology and Water Quality, of this SEIR are designed to ensure that water quality is not adversely impacted and that biological productivity is maintained. During construction, BMPs concentrate on preventing soil and sediment, construction debris, and chemicals from entering the marine environment.</p> <p>Dana Point Harbor is a Certified Clean Marina, as defined and administered by the Clean Marinas Program. The purpose of the program is to use BMPs in order to prevent or reduce pollution in the coastal waters. The program requires Certified Marinas to follow guidelines for marina activities including, but not limited to, emergencies, topside boat maintenance and cleaning, and underwater boat hull cleaning. The Dana Point Harbor Marina rules and policies prohibit certain activities that could contribute to poor water quality.</p>

Coastal Act Policies	Discussion/Analysis of the Proposed Project
	<p>This includes prohibiting rebuilding, hull painting, and other major repairs, as well as restrictions for sanding, painting, and the use of chemicals on a boat while the boat is moored at the marina. Owners and contractors are required to follow policies that specify proper methods of in-water boat maintenance and require contractors to be registered and carry identification for any in-water repairs or maintenance services. These methods, required in order to retain the Clean Marinas Program certification, help to ensure that Dana Point’s coastal waters can maintain optimum populations of marine organisms and protect human health, consistent with Coastal Act Section 30231.</p> <p>The County believes that with the Clean Marina Program requirements, potential impacts to water quality as a result of in-water maintenance is negligible; however, to the extent that such activities are or become a concern, that could be addressed by the presence of a shipyard. There is a shipyard operating in the Harbor, and there is no plan for the Harbor that does not include shipyard uses. Shipyards are also subject to regulations designed to maintain and improve water quality. Marine maintenance services provided at the shipyard will continue to be provided with project implementation. The project will not relocate or change current maintenance operations; the potential for impacts to water quality related to in-water maintenance is expected to be less than significant.</p> <p>The marine environment is not significantly altered by the project since the replacement of docks and pilings will result in conditions similar to existing conditions after construction. Marine organisms displaced during the renovations are expected to return to preconstruction populations following disturbance. Therefore, the proposed project is consistent with Coastal Act Section 30231.</p>
<p>Section 30232: Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.</p>	<p>The coastal waters around the project site are impaired by pollution associated with water runoff and other urban sources. However, accidental spillage of hazardous substances during construction will be controlled through implementation of an appropriate NPDES or other regulatory measures to ensure against any impacts resulting from accidental spills. In addition, as</p>

Coastal Act Policies	Discussion/Analysis of the Proposed Project
	<p>discussed under Coastal Policy 30231, above, Dana Point Harbor is a Certified Clean Marina and is required to adhere to standards for containment and cleanup of accidental spills and maintain equipment and materials on site for such accidental spills.</p> <p>During operational activities, spillage of solvents and fuels on the project site can occur through spillage in the waterways. However, the uses on the project site are not changing and the project does not increase capacity. Prevention and clean-up would continue to be subject to the enforcement activities of the Dana Point Harbor Patrol. In addition, implementation of operational BMPs, adherence to the Clean Marina Guidelines, and enforcement of existing marina regulations regarding the transportation and disposal of such wastes would ensure effective containment of accidental spills. Therefore, the project is consistent with Coastal Act Section 30232.</p>
<p>Section 30233: The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects.</p>	<p>Appropriate permits for discharge of materials into jurisdictional waters and placement of piles during construction are required as mitigation by the project (see Section 4.8, Hydrology and Water Quality). Any replacement of the existing dock and slip facilities will require implementation of measures to minimize adverse environmental effects.</p> <p>The project is the renovation of existing structures and the goal to provide greater public safety and access to those facilities during operation. The replacement of the floating dock facilities is considered the least environmentally damaging alternative because potential impacts are confined to areas previously disturbed by the operation and original construction of the facility. In addition, expanding boating facilities to provide public access and recreational opportunities in open coastal waters is specifically allowed under Section 30233, as well as fill associated with restoration purposes.</p> <p>There is no alternative for the renovation of dock and slip facilities that would be less environmentally damaging and that would meet all of the project objectives. Alternative 3 eliminates the significant and adverse impacts due to shading associated with the project. However, Alternative 3 includes only ADA improvements in the East and West Basins and construction of the</p>

Coastal Act Policies	Discussion/Analysis of the Proposed Project
	<p>Embarcadero/Dry Boat Storage Docks, with one ADA gangway. Therefore, although Alternative 3 would be less environmentally damaging, it does not meet the project objectives because it does not renovate and replace any of the deteriorating docks and slips. The proposed project is therefore considered consistent with Coastal Act Section 30233.</p>
<p>Section 30234: Facilities serving the commercial fishing and recreational boating industries shall be protected and, where feasible, upgraded. Existing commercial fishing and recreational boating harbor space shall not be reduced unless the demand for those facilities no longer exists or adequate substitute space has been provided. Proposed recreational boating facilities shall, where feasible, be designed and located in such a fashion as not to interfere with the needs of the commercial fishing industry.</p>	<p>The renovations planned for the commercial fishing docks will extend the longevity/operations of the dock facilities and ensure that Dana Point Harbor continues to include commercial fishing uses. In addition, the sport fishing docks are utilized by many recreational boaters and fishermen. Therefore, the proposed project is consistent with the intent of Coastal Act Section 30234, and recreational boating facilities and commercial fishing uses would not be affected.</p> <p>The proposed project is the renovation and upgrading of recreational boating facilities, as specified in Section 30234. The preferred project design accommodates current changes in the boating needs of the public and responds to the local Dana Point Harbor existing boaters' needs for slightly larger slips. As previously discussed, the number of slips vacated each year, also known as attrition, has absorbed any potential loss of slips due to project implementation. The County expects that no boaters will need to be relocated from the Harbor upon project completion because the expected number of vacancies over the past few years has exceeded the number of possible slips lost with the proposed plan. Boaters with temporary agreements may need to vacate their slips.</p>
<p>Section 30234.5: The economic, commercial, and recreational importance of fishing activities shall be recognized and protected.</p>	<p>See response to Section 30234. Commercial and recreational fishing opportunities will be protected and preserved. Implementation of the proposed project would enhance the facilities within the marinas that support the existing fishing activities. Specifically, the new docks and gangways would be ADA compliant, thereby allowing more people to participate in recreational boating and fishing activities. In addition, the proposed improvements would ensure that commercial fishing activities would continue to be viable into the future, as the life of the facilities would be extended. No proposed project component will reduce existing fishing opportunities. Therefore, the proposed</p>

Coastal Act Policies	Discussion/Analysis of the Proposed Project
	<p>project would not adversely affect the economic, commercial, and recreational importance of fishing activities and is considered consistent with Coastal Act Section 30234.5.</p>
<p>Section 30235: Revetments, breakwaters, groins, harbor channels, seawall, cliff retaining walls, and other construction that alters natural shoreline processes shall be permitted when required to serve coastal dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline and sand supply.</p>	<p>The proposed project does not include any new construction that would alter natural shoreline processes. The existing seawalls in the marina will be repaired as necessary in order to protect existing marina access and facilities. Therefore, the proposed project is consistent with Coastal Act Section 30235.</p>
<p>Section 30240: Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas. Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas and shall be compatible with the continuance of those habitat and recreation areas.</p>	<p>The State Water Resources Control Board (SWRCB) has designated the Dana Point Harbor with a RARE (support of rare, threatened, or endangered species) beneficial use classification. As a result of the RARE beneficial use classification, the SWRCB has designated Dana Point Harbor an Environmentally Sensitive Area (ESA). The Orange County Drainage Area Management Plan (DAMP) also identifies the Harbor as an ESA.</p> <p>The project site itself is a recreational marina, and the project objective is to renovate the existing facilities to ensure the long term viability of the recreational facilities. The existing use as a marina will continue, with those uses being dependent on the waters and habitat areas of the Harbor. In addition, mitigation measures provided in Section 4.7, Biological Resources, are designed to prevent or lessen environmental impacts on biological resources. Because the uses on site will remain essentially the same as currently exist, operation of the proposed project would not degrade or be incompatible with existing habitat and recreational uses. Therefore, the proposed project is consistent with Coastal Act Section 30240.</p>
<p>Section 30244: Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.</p>	<p>As discussed in the Initial Study, no archaeological and paleontological resources as identified on the California State Historic Resources Inventory would be impacted by project implementation. Therefore, the proposed project is consistent with Coastal Act Section 30244.</p>

Coastal Act Policies	Discussion/Analysis of the Proposed Project
<p>Section 30251: The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coast areas, to minimize the alteration of natural landforms, to be visually compatible with the character of surrounding areas and where feasible to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.</p>	<p>The proposed project does not affect the existing public vistas or any natural landforms. The West Marina would be realigned from a north-south orientation to an east-west orientation, consistent with the existing dock orientation in the East Marina. However, this change would not affect the visual quality of the Harbor and will open up the views from the boardwalk into the inner channel. The proposed marina facilities will be visually compatible with the character of the surrounding areas and similar to existing viewsheds in and around the marina. Preservation of the scenic marine character is consistent with the objectives of the California Coastline Preservation and Recreation Plan. Therefore, the proposed project is consistent with Coastal Act Section 30251.</p>
<p>Section 30253: New development shall: (1) Minimize risks to life and property in areas of high geologic, flood, and fire hazard, (2) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area, or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs, (3) Be consistent with requirements imposed by an air pollution control district or the State Air Resources Control Board as to each particular development, (4) Minimize energy consumption and vehicle miles traveled, and (5) where appropriate, protect special communities and neighborhoods which, because of their unique characteristics, are popular visitor destination points for recreational uses.</p>	<p>The proposed project provides for implementation of marina improvements in a manner that minimizes risks to life and property through the implementation of site specific recommendations and specifications prepared by professional engineers and others. In addition, a geotechnical evaluation was prepared for the proposed project, which, in concert with compliance with the seismic requirements of the Uniform Building Code and the recommended engineering design measures, would assure stability, structural integrity, and protection of the improvements in liquefaction risk zones. Additional detail regarding geologic hazards is provided in Section 4.6.</p> <p>As discussed in Section 4.8, Aesthetics, the proposed project will protect new and existing coastal access, thereby enhancing visitor serving recreation opportunities.</p> <p>The project will be implemented consistent with federal, State, and local rules and regulations addressing public health and safety, including requirements from the South Coast Air Quality Management District (SCAQMD). Based on the above reasons, the project is consistent with Coastal Act Section 30253.</p>

Coastal Act Policies	Discussion/Analysis of the Proposed Project
<p>Section 30255: Coastal-dependent developments shall have priority over other developments on or near the shoreline. Except as provided elsewhere in this division, coastal dependent developments shall not be sited in a wetland. When appropriate, coastal related developments should be accommodated within reasonable proximity to the coastal-dependent uses they support.</p>	<p>The proposed project is an improvement to an existing waterside marina use. No landside wetland is affected by the proposed project. The project enhances an existing coastal dependent recreational and visitor-serving use. The project will renovate and extend the usable life span of the existing marina facilities; this will support coastal-dependent marina-related uses, including but not limited to, recreational boating activities, marine retail businesses, commercial and recreational fishing, and Marine Services. Therefore, the proposed project is consistent with Coastal Act Section 30255.</p>

4.1.6.2 Potentially Significant Impacts

No potentially significant impacts have been identified.

4.1.7 CUMULATIVE IMPACTS

As defined in Section 15130 of the CEQA Guidelines, cumulative impacts are the incremental effects of an individual project when viewed in connection with the effects of past, current, and probable future projects within the cumulative impact area for land use. Because the proposed Marina Improvement Project has little to no land use effect, the area of potential cumulative effect is very limited. Therefore, the cumulative impact study area is very limited. In addition, the Program FEIR for the Dana Point Harbor Revitalization Project area fully encompassed the Marina Improvement Project site.

The proposed project site is an existing Harbor and the immediate area surrounding the project site is largely built out. Currently, there are several projects that would be considered within the cumulative study area for land use impacts. The City of Dana Point has identified the following projects as projects that have been proposed or approved but are not yet fully constructed:

- The Headlands – Commercial 35,000 sf Retail/Office (CUP/CDP/SDP approved in 2007)
- The Headlands – Seaside Inn 90 Room Hotel (CDP not yet approved but included as part of HDCP approval)
- The Headlands – Custom Homes 118 SFD (CDPs approved, 25 building permits have been issued by the City)
- Dana Point Harbor Revitalization Plan (landside development)
- Doheny Hotel – 258-Room Hotel with conference room and restaurant facilities

The Headlands projects listed above were included in the cumulative analysis for the Program FEIR, and therefore, because the Marina Improvement Project is a part of the Program FEIR, the cumulative land use impacts associated with these projects have already been considered for the proposed project and were found not to be significant.

Proposed project improvements are intended to be fully consistent with all applicable CCA policies and with the City and County General Plans. The proposed improvements would not alter land use patterns or intensities in other areas of the City and would not contribute to cumulative land use impacts to the City's land use patterns and character. Therefore, the contribution of the proposed project to potential cumulative land use compatibility effects (aesthetics, noise, air quality, and traffic and circulation) with other projects in the study area is considered less than significant.

There are no incompatibilities between the proposed project and planned future projects. Therefore, the contribution of the proposed project to potential cumulative land use compatibility impacts in the project area is considered less than significant.

4.1.8 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

No significant unavoidable adverse land use impacts have been identified.

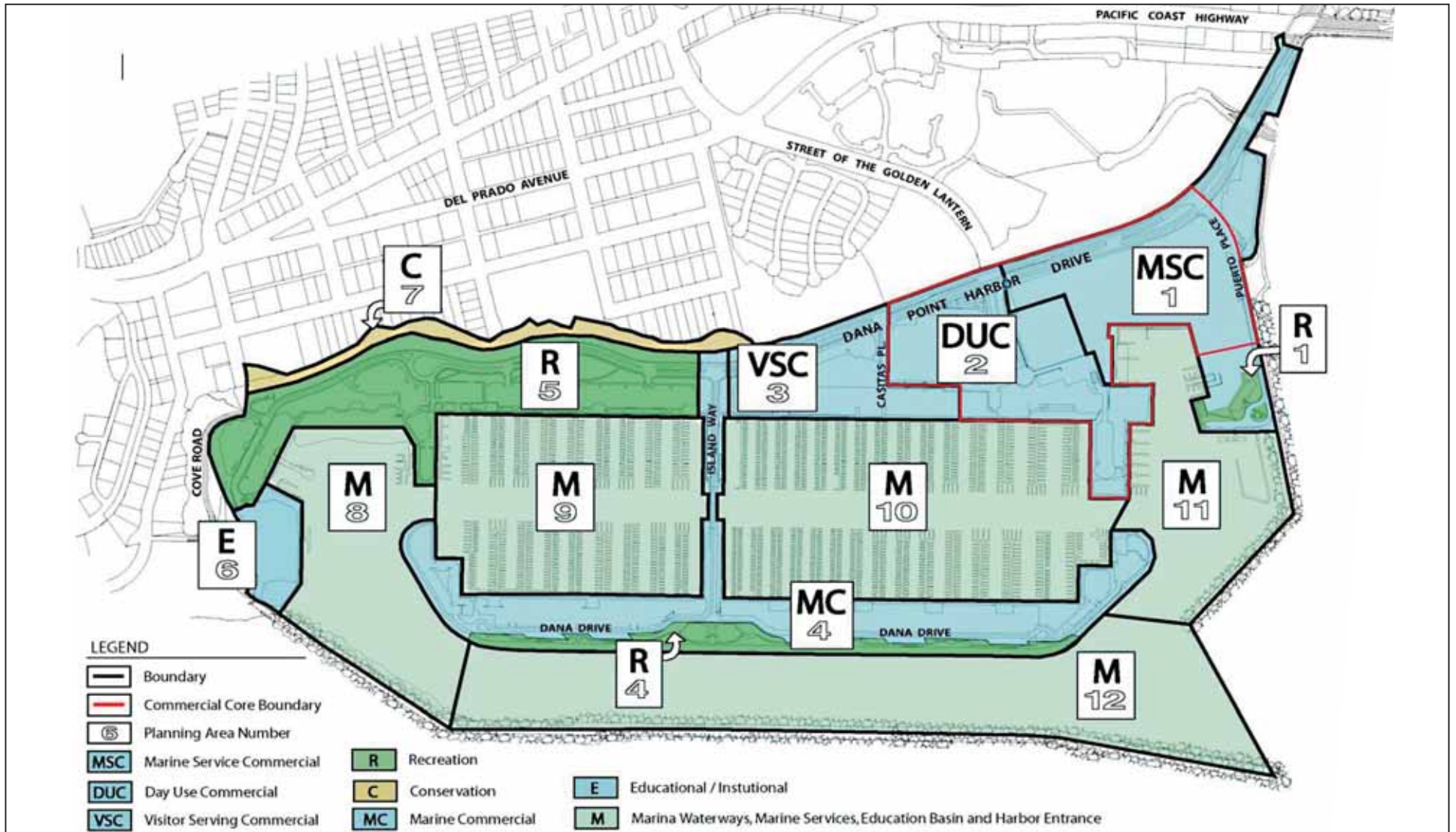
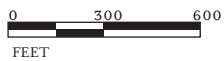


FIGURE 4.1-1

LSA



SOURCE: Dana Point Harbor Revitalization Plan & District Regulations Land Use Plan

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Dana Point Harbor Marina Improvement Project
 Dana Point Harbor Revitalization Plan and
 District Regulations Land Use Plan

4.2 GEOLOGY AND SOILS

This section provides a discussion of the existing geologic and soils environment and an analysis of potential impacts from implementation of the proposed project. This section also addresses the potential for structural damage due to the local geology underlying the proposed project site, as well as slope stability, ground settlement, soil conditions, and regional seismic conditions. This section summarizes information provided in the Final Environmental Impact Report No. 591 (FEIR No. 591) for the Dana Point Harbor Revitalization Project, the *Preliminary Geological/Geotechnical Assessment Report for the Dana Point Harbor Revitalization Project* (2006) prepared by GeoPantech, and the *Geotechnical Engineering Exploration and Analysis for the Proposed Renovations to Dana Point Harbor and Addendum Letter* prepared by Leighton Consulting, Inc. (January 2008). The Geotechnical Preliminary Evaluation and Addendum Letter prepared by Leighton Consulting, Inc. are included in Appendix B of this Subsequent EIR (SEIR).

4.2.1 EXISTING ENVIRONMENTAL SETTING

Geologic Setting

The project site and Harbor are located within the northwest-trending Peninsular Ranges in Southern California. The Peninsular Ranges province is an elongated area characterized by parallel fault-bounded mountain ranges and intervening valleys. The province extends southward from the Transverse Ranges at the northern side of the Los Angeles Basin southward into Mexico. The Harbor is situated at the southeastern corner of the San Joaquin Hills, one of these northwest-trending ranges.

Topography/Landform

The Harbor is a coastal reentrant (cove) protected by the Headlands at Dana Point. This cove is bordered on the north by steep, highly eroded sandy cliffs or bluffs that are approximately 100–200 feet (ft) in elevation. The existing Harbor topography gently slopes from the northwest to the southeast, with a grade change of approximately 20 ft from Dana Point Harbor Drive to the top of the bulkhead.

The protected cove owes its existence to differing resistance to wave erosion of the two bedrock formations exposed along a fault in the steep coastal bluff. Bedrock units include the Capistrano Formation and the San Onofre Breccia, both of which are exposed in the sea cliffs behind the Harbor, which are separated by the Dana Cove Fault. The weaker Capistrano Formation has been preferentially eroded, creating Dana Cove. More youthful sediments have been deposited in the Harbor, including colluvium, alluvium, beach deposits, landslide debris, talus, and artificial fill placed during construction of the Harbor in the late 1960s.

Bedrock Units

San Onofre Breccia. The San Onofre Breccia is a Middle Miocene-age (approximately 11 to 16 million years old) formation of marine origin. It consists of a very coarse, reddish-brown to blue-gray, massive to crudely bedded breccia with interbeds of coarse, pebbly sandstone and siltstone. The soil is generally an earthy, poorly cemented silt, or a well-cemented angular sand. The San Onofre Breccia is exposed at the western end of the Harbor along the east-facing cliffs, where it is in fault contact with the Capistrano Formation. The San Onofre Breccia is a bedrock unit that is resistant to erosion and forms the Headlands at Dana Point.

Capistrano Formation. The Capistrano Formation is a Late Miocene to Early Pliocene-age (approximately 3.6 to 11 million years old) formation of marine origin. In the City of Dana Point (City) area, the Capistrano Formation is widespread, with a total thickness of nearly 2,400 ft. This marine (ocean-deposited) bedrock formation is divided into a few recognizable subunits: a siltstone facies, a sandstone facies, and sandstone with conglomerate and sedimentary breccia. These three facies of the Capistrano Formation are all exposed in the sea cliffs surrounding the project area, generally dipping and sloping northward. The siltstone facies is medium to dark gray and brownish-gray to dark greenish-gray, fine-grained, poorly to moderately consolidated, and massive to moderately fissile (capable of being split or divided in the direction of the grain or along natural planes of cleavage). The sandstone facies is yellowish-brown to pale yellowish-brown and medium gray to light gray, fine- to medium-grained, weakly cemented, and massive to poorly bedded. The sandstone and breccia facies are yellowish-brown and coarse-grained, weakly cemented to friable, with angular to rounded pebbles and cobbles of multiple origins, massive to poorly bedded and with interbeds of well-graded sand and silt. The bedrock encountered is from the siltstone facies of the Capistrano Formation. Capistrano Formation bedrock adjacent to the Dana Cove fault contact is sheared in a zone approximately 70–100 ft wide.

Subsurface Soil Conditions

Geologic processes such as weathering and erosion break bedrock down into smaller particles of sediment. Sediments such as clay, silt, sand, gravel, and other loose deposits that lie on top of bedrock are grouped together in the general category of “surficial materials.” These materials are not soils; they are the deeper earth materials that lie between the soil zone and the underlying bedrock. Soils commonly develop by weathering of the uppermost part of these materials.

Artificial fill, beach sand, and alluvial deposits underlie the Harbor. The sea cliffs surrounding the Harbor to the north and west are cut into marine sedimentary rocks. The rocks exposed in the sea cliff are capped by marine and nonmarine terrace deposits, and the slopes along the sea cliff consist of landslide debris and talus deposits.

Leighton Consulting, Inc. performed a preliminary geotechnical investigation (2008) of landside locations that were preselected to evaluate access for heavy equipment. The results indicate the presence of fill in landside areas to depths that varied from approximately 10–20 ft on the cove side of the Harbor to depths of approximately 23–30 ft below the island side of the Harbor. The fill that underlies the cove side of the Harbor typically consisted of fine- to medium-grained sands with varying clay content that exhibited loose to medium relative thickness. The fill material encountered

below the island side of the Harbor also consisted primarily of sand with greater silt and occasional clay content. Field tests indicated the presence of oversize (cobble and boulder) material within the fill. The presence of oversize material is not considered to be inconsistent with the manner in which the island was created.

The fill was underlain by native soils comprised of loose relative density sands with varying clay content to a depth of approximately 17–25 ft on the cove side of the Harbor. Native soils were generally not identified at the boring located on the island side of the Harbor.

The bedrock was encountered at a depth of 17–25 ft below grade in the cove region of the Harbor and at greater depths below the island region. The bedrock contact appeared to be shallower along the north side of the island, where bedrock was encountered at depths of 23–28 ft as compared to the south side of the island, where bedrock was encountered at a depth of 37 ft.

Bedrock of the Capistrano formation was encountered below the fill and native soils at the depths described above. The bedrock typically consisted of interbedded layers of sandstone and siltstone.

Groundwater Conditions

Landside groundwater was typically encountered at depths of 9–16 ft below grade. The groundwater table was, however, considered to exist at depths of 6–10 ft below grade on the basis of the relative moisture contents of the recovered soil samples. Groundwater in the areas of the seawalls is expected to be subject to tidal fluctuation.

Faults and Seismic History

Historic records of earthquakes in California have been compiled for approximately the past 200 years. More accurate instrumental measurements have been available since 1933. As demonstrated by historic seismicity, earthquakes generated by displacement along regional faults within an approximately 62-mile (mi) radius are considered capable of generating ground shaking of engineering significance at a particular site.

A fault is described as the area where two tectonic or continental plates meet. An “active” fault is defined by the State of California as having had surface displacement within Holocene time (i.e., within the last 11,000 years). The San Andreas Fault, where the western Pacific plate meets the eastern North American plate, is the State’s largest and most active fault. Seismologists have determined that the San Andreas Fault is moving at a rate of approximately two inches per year. A “potentially active” fault is defined as showing evidence of surface displacement during the Quaternary time (i.e., during the last 1.6 million years). These terms are used by the State primarily for use in evaluating the potential for surface rupture along faults and are not intended to describe possible seismic activity associated with displacement along a fault. These definitions are not applicable to blind thrust faults that have only limited, if any, surface exposures.

Orange County, like most regions that border the Pacific Ocean, is a region of high seismic activity, and therefore is subject to potentially destructive earthquakes. Earthquakes are the result of an abrupt release of energy stored in the earth. Major earthquakes are commonly accompanied by foreshocks

and aftershocks, which are usually less intense and represent local yielding and adjustments of rock masses along the main zone of faulting. Earthquakes create two types of hazards: primary and secondary. Primary seismic hazards include ground shaking, ground displacement, subsidence, and uplift due to seismic episodes. Primary hazards can, in turn, induce secondary hazards. These include the following: ground failure (lurch cracking, lateral spreading, and slope failure), liquefaction, seismically induced water waves (tsunamis and seiches), movement on nearby independent faults (sympathetic fault movement), and dam failure.

Active or potentially active faults of seismic concern in the region include the Dana Cove Fault, Newport-Inglewood Fault Zone/South Coast Offshore Zone of Deformation, San Joaquin Hills Fault, Oceanside Blind Thrust Faults, Whittier-Elsinore Fault, the San Andreas Fault, the Palos Verdes Fault, the San Clemente Fault, and the Rose Canyon Fault. Figure 4.2-1 shows the project site proximity to the surrounding fault systems. A brief discussion of each of the fault systems most likely to affect the project area is presented below.

Dana Cove Fault. This well-defined fault zone passes diagonally through the Harbor, directly under and nearly parallel to the existing West Basin Pier (bearing approximately 43 degrees west of north). The seaward projection is estimated to be approximately 250 ft wide, consisting of sheared breccia and contorted siltstones and sandstones. No seismic activity has been reported along this fault, which has been classified as inactive.

Newport-Inglewood Fault Zone/South Coast Offshore Zone of Deformation. A nearby active fault close enough to affect the project area is the South Coast Offshore Zone of Deformation (SCOZD), which is approximately 3.4 mi (5.5 kilometers [km]) southwest of the project area. The SCOZD represents the likely offshore connection between the Newport-Inglewood Fault Zone located to the northwest and the Rose Canyon Fault Zone located further to the south, forming the Newport-Inglewood–Rose Canyon Fault Zone. Local northwest-to-west-trending folds in the shallower horizons are also associated with this zone. The SCOZD extends approximately 42 mi from its northern terminus, located offshore approximately 5 mi south of Newport Beach, to its southern terminus, located offshore southwest of Oceanside.

The SCOZD appears to reflect a tectonic style similar to that of the onshore portion of the Newport-Inglewood Fault, which extends onshore from the east-west Malibu-Santa Monica Fault Zone at the southern front of the Transverse Ranges to the northwest, to offshore between Newport Beach and Laguna Beach at the San Joaquin Hills Structural High. The Newport-Inglewood Fault is characterized by short, discontinuous, northwest-trending en-echelon, right-lateral faults, relatively shallow drag fold anticlines, and subsidiary normal and reverse faults. Scientists from the United States Geological Survey (USGS) also interpret recent faulting at the base of the slope between Dana Point and Oceanside to be related to a strand of the Newport-Inglewood Fault.

San Joaquin Hills and Oceanside Blind Thrust Faults. In addition to surface faults, blind thrust faults are also believed to exist in the region. These blind thrust faults are not expressed at the surface, but are inferred to exist based on indirect information such as seismicity and folded stratigraphy. Two recently postulated fault sources, the San Joaquin Hills Blind Thrust (SJHBT) and the Oceanside

Blind Thrust (OBT), are judged to be potentially significant seismic sources in the project area. The SJHBT is the closest active fault to the project area, located approximately 1.7 mi from the Harbor and is capable of generating a maximum moment magnitude (M_w) 6.8 offshore earthquake.

Whittier-Elsinore Fault. The Whittier-Elsinore Fault Zone is one of the largest fault zones in Southern California. The Whittier-Elsinore Fault Zone extends from near the United States-Mexico border northwesterly to the northern Santa Ana Mountains. At the northern end, the zone of mapped faults branches into two segments west and east: the Whittier Fault and the Chino-Central Avenue Fault. The Whittier Fault generally runs from State Route 91 northwest along the foothills of Yorba Linda to the mouth of Tonner Canyon and on to the Whittier Narrows Recreation Area. This fault created the Puente-Chino Hills. The last major release near this fault was a magnitude 5.9 in 1987.

San Andreas Fault. The San Andreas Fault runs a length of roughly 800 mi through western and Southern California. The fault, a right-lateral strike-slip fault, marks a transform (or sliding) boundary between the Pacific Plate and the North American Plate.

Palos Verdes Fault. The northwest-trending Palos Verdes Fault Zone extends from Santa Monica Bay across the northeast side of Palos Verdes Peninsula to a location offshore from San Clemente, a distance of approximately 60 mi.

Seismic Mapping

Beginning in 1997, the California Division of Mines and Geology (CDMG) has produced “Seismic Hazard Evaluation Reports” for the areas shown on selected USGS topographic maps (7.5-minute series) within the State. The stated purpose of these reports/maps is to identify potential seismic hazards for use by city and county planning agencies in their permitting and land use planning processes. The project site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone.

Seismic Hazards

Ground Shaking and Surface Fault Rupture. The primary seismic effects associated with earthquakes are ground shaking and surface fault rupture. As stated above, the Dana Point Marina Improvement Project is not located within a currently designated Alquist-Priolo Earthquake Fault Zone, and no Special Studies Zones have been designated within the City. The Alquist-Priolo Earthquake Fault Zones are areas determined by the State of California Geologist as affected by potentially and recently active traces of earthquake faults.

Ground shaking and surface fault rupture would typically be considered to have the greatest potential for damage associated with earthquakes. Ground shaking is characterized by the physical movement of the land surface during and subsequent to an earthquake. Surface fault rupture occurs when fault displacement breaks the ground surface along the historic trace of a fault. These seismic events have the potential to cause destruction and damage to buildings and property, including damage resulting

from damaged or destroyed gas or electrical utility lines; disruption of surface drainage; blockage of surface seepage and groundwater flow; changes in groundwater flow; dislocation of street alignments; displacement of drainage channels and drains; and possible loss of life. In addition, ground shaking and surface fault rupture can induce several types of secondary ground failures, including liquefaction and landslides.

The site is likely to experience strong ground shaking during the life of the development. Peak horizontal ground acceleration (PHGA) is generally used to characterize the amplitude of ground motion. A probabilistic seismic hazard analysis was performed to estimate the PHGA value at the site for all active or potentially active faults from results of a search within a 62-mile radius of the site. The approach takes into account site-specific response characteristics, historical seismicity, and the geological characteristics of all faults under consideration. The results suggest that the estimated PHGA with a 10 percent probability of exceedance in 50 years is approximately 0.38 (recurrence interval of 475 years) for the site.

Ground Failure. Secondary earthquake hazards such as liquefaction, lateral spreading, dynamic settlement, and landsliding are generally associated with relatively high intensities of ground shaking. Liquefaction, lateral spreading, and dynamic settlement are associated with shallow groundwater conditions and loose, sandy soils or alluvium.

Liquefaction. Soil liquefaction is a phenomenon that occurs during strong ground shaking, most commonly in generally low- to medium-density, saturated, low-cohesion soils, where the soils experience a temporary loss of strength and behave essentially as a fluid. In extreme cases, the soil particles can become suspended in groundwater, resulting in the soil becoming mobile and fluid-like. Liquefaction generally occurs as a “quicksand” type of ground failure caused by strong ground shaking. The primary factors influencing liquefaction potential are groundwater, soil types, relative density of the sandy soils, confining pressure, and the intensity and duration of ground shaking.

When a soil beneath a structure liquefies, the structure loses its integrity as the ground becomes unstable. Surface soils on slopes move downward, and ground oscillation occurs on areas of flat topography. Loss of bearing strength under structures is potentially most damaging because it leads directly to losses in the strength of the structure’s foundation and endangers people and property.

The project area is located in a zone designated as having a potential for liquefaction based on the Seismic Hazard Zones Liquefaction Map for the USGS *Dana Point, California 7.5-minute quadrangle* (refer to Figure 4.2-2). The Seismic Hazard Zone Report (SHZR) 049 notes that “in the Dana Point Quadrangle, artificial fill areas large enough to show at the scale of mapping consist of engineered fill for elevated freeways, the Harbor, and some of the mass graded areas. Since these fills are considered to be properly engineered, zoning for liquefaction in such areas depends on soils conditions in underlying strata.”

Lateral Spreading. Lateral spreading is the horizontal movement of soil masses caused by seismic waves moving through the ground; this movement is usually toward an open face slope or a steep slope that has been weakened by saturation. It occurs as a result of liquefaction of the subsurface soils. The occurrence of liquefaction and the potential for slope instability indicate lateral displacement of the Harbor's seawall is likely through the phenomenon of lateral spreading should a significant seismic event occur.

Subsidence. Subsidence refers to broad-scale changes in the elevation of the land. Common causes of land subsidence are pumping water, oil, and gas from underground reservoirs; dissolution of limestone aquifers (sinkholes); collapse of underground mines; drainage of organic soils; and initial wetting of dry soils (hydrocompaction). Subsidence is also caused by heavy loads generated by large earthmoving equipment. The project site is not located within an area of known subsidence that may be associated with groundwater or petroleum withdrawal, peat oxidation, or hydrocompaction.

Landslides and Slope Instability. Although no significant slopes exist within the proposed project site, the cliffs behind the project area have been historically subject to landsliding. Slope repair and landslide mitigation on the historic landslide areas have been accomplished by shotcrete and rock anchors. Periodic slumping of cliff materials may also be anticipated due to continued erosion of the friable Capistrano Formation sandstones along this sea cliff. Factors that have been identified as contributing to the landsliding hazard for these slopes include bluff face instability, seepage, block falls, and adverse bedding.

Seawall

Within the West and East Basins on the cove side, upland soils are retained by a reinforced concrete quay wall. The total bulkhead length of the project area on the cove side is approximately 5,100 linear feet, including an approximately 230 ft boat ramp section. The concrete quay wall is cast in place with either riprap or concrete panel slope protection, depending on the location of the bulkhead within the Harbor. Approximately 2,300 linear feet of the bulkhead is protected by concrete panels while the remaining 2,570 linear feet is stabilized with riprap. The quay wall is a gravity wall system, meaning that it relies on its own weight, the weight of the soil over the heel, and the friction between the supporting soil and the footing to resist the tendency of the wall to slide and overturn. The primary purpose of the quay wall/slope protection system is to retain the fill soils and provide the necessary physical and visual separation requirements between the waterside and the landward development. In short, the bulkhead system was designed to allow elevated and developable land close to the water's edge.

The seawall system along the north and south island sides of the basins of the Harbor consists of a cantilever retaining wall that is located at the crest of a slope that descends at an inclination of 1.5H:1V into the adjacent basins. The face of this descending slope is covered by a revetment, which consists of a series of cast-in-place concrete panels. A reinforced concrete thrust beam is located at the toe of the revetment panels to resist the tendency for the panels to slide down the slope. The panels, which are 10 ft wide and 20 ft long with a 1.5-inch gap between successive panels, are tied together by a thrust block. The panels are reported to be approximately 6 inches in thickness and

include steel reinforcement. The seawall system that exists in the boat launch area and along the eastern access channel of the marina generally consists of a similar retaining wall with riprap revetment covering the descending slope. The retaining structure along the south side of the boat launch ramp consists of a cantilever retaining wall of varying heights.

The overall structural condition of the exposed portions of the quay wall and concrete revetment in the basin area appears to be relatively good; however, select areas of the quay wall and the concrete revetment panels show signs of deterioration and distress. Damage of the concrete panel revetment slabs was first noted in February 1971, eight months after the filling of the Harbor. A subsequent underwater inspection performed in 1974 revealed that the maximum displacement of the panels had occurred within the intertidal zone adjacent to the base of the quay wall.

The *Bulkhead Structural Evaluation* prepared by the BlueWater Design Group (December 2003) observed overall area settlement of 1 to 2 inches throughout the site. This includes areas significantly beyond the wall, including the parking areas and concrete drainage swales. Based on the observed uniformity, settlement has likely occurred throughout the entire site, rather than just within the local proximity of the wall. Settlement is suspected because of the use of loose unconsolidated fill material that was subsequently flooded after construction (when the cofferdams were breached). There is also a low-velocity flow of water during tidal fluctuations that may cause some movement of soil. It is not clear, based on field observations, when the settlement occurred over the life of the current facilities. There is evidence of grinding and placement of concrete transition strips on the sidewalks where differential movement has occurred. The quay wall and revetment slope are designed to retain the earth of the upland side and provide a transition from the uplands area to the marina. Lateral load is imposed by the wedge of soil being retained as well as by surcharge from transient or live loads on the surface (such as vehicles).

4.2.2 METHODOLOGY

This section addresses the potential for structural damage due to the local geology underlying the proposed project site, as well as slope instability, ground settlement, unstable soil conditions, and regional seismic conditions. Geologic/geotechnical conditions affecting the site are summarized from compiled information and analyses, including referenced documents/publications and a site-specific program of geotechnical exploration, sampling, and laboratory testing. The Preliminary Geotechnical Investigation prepared for the project site is included in Appendix B of this SEIR.

4.2.3 THRESHOLDS OF SIGNIFICANCE

The impact significance criteria used for this analysis are based primarily on Appendix G of the State CEQA Guidelines and the County of Orange Local CEQA Procedures Manual (2000). The project may be considered to have a significant effect related to Geology and Soils if implementation would result in one of more of the following:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
 - 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.
- Strong seismic ground shaking
 - Seismic-related ground failure, including liquefaction
 - Landslides
 - Result in substantial soil erosion or the loss of topsoil
- 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
 - Be located on expansive soils, as defined in Table 18-1-B of the California Building Code (2001), creating substantial risks to life or property
 - Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal system where sewers are not available for the disposal of wastewater

4.2.4 OVERVIEW OF PROGRAM FEIR GEOLOGY AND SOILS ANALYSIS

Impacts. The Program FEIR concluded that soil conditions such as collapsible and expansive soils, soil erosion, and subsidence would have some effect on implementation of the Revitalization Project. Because the Revitalization Project is located in a region that experiences seismic activity, the Program FEIR concluded that development would expose people and structures to effects associated with seismic activity. However, analysis concluded that with compliance with the County Zoning Code, the Uniform Building Code,¹ Standard Conditions of Approval (SCA), Project Design Features (PDFs), and Mitigation Measures (MMs), the impacts would be less than significant. Measures identified in the Program FEIR and applicable to the Marina Improvement Project are listed below.

During the subsequent approval process for the Land Use Plan (LUP) component of the LCPA, several of the listed PDFs, SCAs, and MMs were clarified and became LUP Policies within the revised Dana Point Harbor Revitalization Plan LUP. Where applicable, the wording has been revised to be consistent with the approved LUP Policy, which is indicated in parenthesis.

Project Design Features (PDFs), Standard Conditions of Approval (SCA), and Mitigation Measures (MMs)

- MM 4.3-4** Site safety requirements shall address specifications of the Occupational Safety and Health Administration (OSHA). Applicable specifications prepared by OSHA related to earth resources consist of Section 29 CFR Part 1926, which are focused on worker safety in excavations.

¹ Currently referred to as the California Building Code.

- MM 4.3-6** If cranes and pile-driving equipment are required, adequate setbacks shall be observed from bulkhead areas to prevent failures due to increased lateral and surcharge loads. (LUP Policy 8.6.7-9)
- MM 4.3-9** Conformance with the latest Uniform Building Code, California Building Code, or International Building Code and County Ordinances can be expected to satisfactorily mitigate the effect of seismic ground shaking. Conformance with applicable codes and ordinances shall occur in conjunction with the issuance of Building Permits in order to ensure that over excavation of soft, broken rock and clayey soils within sheared zones will be required where development is planned. (LUP Policy 8.6.7-13)
- MM 4.3-14** Engineering design for all structures shall be based on the probability that new structures will be subjected to strong ground motion during the lifetime of development. Construction plans shall be subject to the County review and shall include applicable standards, which address seismic design parameters. (LUP Policy 8.6.7-14)
- MM 4.3-15** Mitigation of earthquake ground shaking shall be incorporated into the design and construction in accordance with Uniform Building Code requirements and site-specific design. (LUP Policy 8.6.7-15)
- MM 4.3-19** Further investigation and detailed characterization of the existing fill conditions is required to identify the extent of the potential for liquefaction and includes:
- Recommended new building setback distances from the quay wall ranging from 2 to 3 times the height of the bulkhead wall for localized liquefaction and lateral spreading failure to several times the height of the revetment slope and bulkhead system for global seismic instability, to be considered during the planning and design phases of the project;
 - Supporting proposed structures on deep foundations extending into bedrock;
 - Stiffened floor slab designs;
 - Total or partial removal of the potentially liquefiable soils and replacement with compacted fill;
 - Soil remediation and site improvement. (LUP Policy 8.6.7-11)
- MM 4.3-20** Further evaluation of lateral spreading potential is required. If it is found that the lateral spreading potential is high, then Mitigation Measures shall include:
- New building setback distances from the quay wall ranging from 2 to 3 times the height of the bulkhead wall;
 - Repair or replacement of existing seawall for site containment;
 - Total/partial removal of the potentially liquefiable soils and replacement with compacted fill; and/or
 - Soil remediation and site improvement.

Level of Significance after Mitigation. No significant impacts related to Geology, Soils, or Seismicity were identified following implementation of mitigation measures and/or compliance with applicable standards and policies of the County Grading Code and Manual.

4.2.5 IMPACTS AND MITIGATION

Potential geologic hazards include surface fault rupture, seismic shaking, liquefaction, seismically induced settlement, landsliding, acute erosion, subsidence, and collapsible/expansive soils. An evaluation of the potential impacts on the site from these potential geologic hazards is summarized below.

Less Than Significant Impacts

Fault Surface Rupture. No known active or potentially active faults are mapped through the site; therefore, the site is not located within a currently designated Alquist-Priolo Earthquake Zone. Based on this, the potential for surface fault rupture at the site is considered low. Therefore, fault surface rupture impacts are not expected with development of the proposed project, and no mitigation is required.

Subsidence. The project site is not located within an area of known subsidence that may be associated with groundwater or petroleum withdrawal, peat oxidation, or hydrocompaction. Therefore, significant subsidence impacts are not expected with development of the proposed project, and no mitigation is required.

Landsliding. No significant slopes exist within the proposed project site. Therefore, the potential for on-site landsliding is not considered a potential impact for the proposed project. The proposed project is not anticipated to impact or contribute to the factors causing a landsliding hazard for the slopes behind the project area due to the substantial distance from the project area to the bluff face. Due to the distance, the surrounding cliffs pose no significant threat to the proposed project, and no mitigation is required.

Soil Erosion. No soil erosion or loss of topsoil is anticipated. However, soil disturbance could occur for the following purposes: lighting improvements; utility connections; and gangway/landside connections. The proposed platforms for the ADA gangways will require excavation of approximately 189 cubic yards of soil material. However, the excavated soils would be stockpiled on site, and source control Best Management Practices (BMPs) outlined in the project's Erosion and Sediment Control Plan and Water Quality Management Plan (WQMP) would be used to prevent soil erosion. The mitigation measures presented in Section 4.3, Hydrology and Water Quality, require soil erosion control plans and erosion control measures during construction that will ensure that soil erosion impacts will be reduced to a less than significant level. No additional mitigation measures are required.

Potentially Significant Impacts

Seismic Shaking. Southern California is a seismically active region that can be expected to experience strong seismic shaking from future earthquakes generated by various active or potentially active faults. The Harbor could be subjected to strong ground shaking during a significant earthquake on a nearby or regional fault. Earthquakes that can produce strong shaking at the site may occur on mapped active (e.g., the Newport-Inglewood Fault Zone) or other postulated active faults (e.g., SCOZD) in the region, or on faults with little or no surface expression, such as the SJHBT and OBT Faults. Although the project site is not located within a designated Alquist-Priolo Earthquake Fault Zone, the region has experienced earthquake activity in the past. A major earthquake associated with any of the faults in the region could result in moderate to severe ground shaking. As with most areas in Southern California, damage to marina facilities and infrastructure could be expected as a result of significant ground shaking during a strong seismic event in the region. However, due to the nature of the project being floating docks and slips, impacts to dock facilities due to earthquakes are expected to be minimal. In addition, one of the project's primary objectives is to renovate the deteriorating marina facilities in accordance with current codes, seismic requirements and ADA requirements which would improve ingress and egress in an emergency.

All structures must comply with the seismic requirements of the International Building Code (IBC), the California Building Code (2010), and recommended engineering design measures. The project would incorporate current codes and seismic requirements in the replacement and/or renovation of the docks and pilings. Although compliance with these standards is anticipated to limit hazards from seismic ground shaking to less than significant levels, Mitigation Measure 4.2-1 has been proposed to ensure that potential seismic ground-shaking impacts to ADA platforms proposed for landside access to the floating docks are reduced to less than significant levels.

Liquefaction. Liquefaction can be defined as a significant and relatively sudden reduction in stiffness and shear strength of saturated sand soils caused by a seismically or statically induced increase in pore water pressure. Potential for seismically induced liquefaction exists whenever saturated relatively loose sand soils exist where the potential for seismic shaking is adequately high. In general, the consequences of liquefaction tend to be greater as the depth of saturated sandy soils become shallower and their volume becomes larger. Also, the site consequences of liquefaction become greater when a site has an open face, which is the case in the Harbor.

As shown in Figure 4.2-2, the Harbor is located in a zone designated as having a potential for liquefaction based on the Seismic Hazard Zones Liquefaction Map for the *Dana Point, California* USGS 7.5-minute quadrangle.

The potential for liquefaction to occur has been evaluated based upon subsurface data collected to provide general characterization for the overall Harbor facility. The liquefaction analysis was conducted on the basis of maximum moment magnitude of 6.8. The analysis indicated there is the potential for liquefaction to occur with the fill and alluvial soils that comprise the Island as well as the small peninsula adjacent to the sport fishing docks in the eastern region of the Harbor and in the peninsula area of the OC Sailing and Events Center in the western region of the Harbor. Liquefaction potential was determined to exist in either relatively thin layers or significantly thicker zones,

typically on the order of 10 to 15 ft in thickness. The liquefaction potential was found to be significantly less extensive throughout the Cove side of the Harbor.

The proposed renovation includes the construction of nine new pedestrian platforms that comply with ADA specifications at various locations throughout the Harbor. The platforms are intended to provide access from the boardwalk to the gangways that extend to the floating docks. The liquefaction potential of the soils and the potential for instability of the slopes will affect the design of the platform foundations, requiring specific engineered foundations to ensure reasonable safety. To reduce the impact of liquefaction, the platforms are proposed to consist of a reinforced structural concrete slab supported by a fixed foundation that will be situated behind (landside) the existing seawall, with the slab cantilevering to the gangway, a distance of approximately 8 ft from the Harborside face of the wall. The foundations will be supported within the soils that underlie the site along the perimeter of the marina. Excavation of the soils may encounter groundwater at depths below 6 ft. Therefore, a groundwater dewatering permit will be required, as listed in Section 4.3. Implementation of Mitigation Measure 4.2-1 will ensure that liquefaction impacts associated with the ADA platforms will be reduced to less than significant levels.

Seawall Stability Due to Liquefaction and Seismically Induced Slope Displacements. The primary seismic hazard associated with the seawall is the potential for liquefaction and the potential for slope instability. The results of the liquefaction analysis indicated that several strata were susceptible to liquefaction. The stability of the slopes that support the retaining wall of the seawall system was analyzed based on liquefied conditions.

The results of the liquefaction analysis indicated that several strata were susceptible to liquefaction in the cove region, but the slope stability analysis indicated an adequate factor of safety for slope stability. In summary, the seawall along the cove region may be considered to be generally stable with respect to the overall stability for static, pseudostatic, and liquefied conditions. Although the potential for slope instability was not considered to be of significance along the cove side of the Harbor, the consolidation of the liquefiable deposits indicates the potential for settlement and distortions to the seawall. The magnitude of this settlement was estimated to be on the order of 1–2 inches. Slope instability appears to be of significance for the area analyzed in the western region of the island, the peninsula area adjacent to the sport fishing docks, and the OC Sailing and Events Center, where the potential for liquefaction to occur is expected to result in severe slope instability and large lateral displacements. Estimation of the potential lateral displacement suggests displacements on the order of several feet.

Lateral pressures from superimposed loads such as from automobiles or construction equipment, can add to the load imposed upon the wall if the surcharge is located at a distance from the back of the wall equal to or less than the height of the wall. The magnitude of the surcharge load depends on the size of the surface area that is subjected to a vertical load relative to the wall height and distance from the wall. Construction equipment used in demolition or to construct the proposed project has the potential to impact the stability of the seawall if the load is not properly set back from the wall. Implementation of Mitigation Measure 4.2-2, which requires appropriate setbacks from the wall, will reduce the load impacts on the seawall to less than significant levels.

The guide piles that will be installed within the marina will be primarily subjected to lateral loading conditions associated with minor wave action, wind, and more significantly, by the impact loads associated with boats that dock at the platforms. In addition, the slope movements that may occur as a result of liquefaction could impart significant additional lateral load on the guide piles within the zone of slide movement. Therefore, the embedded piles should be in continuous contact with the adjacent soils and bedrock to provide lateral load resistance. The preferred method of pile installation is piles that are drilled and set in place within predrilled boreholes to facilitate pile driving. In-situ construction techniques will minimize disturbance and yet allow proper continuity between the piles and boreholes to achieve lateral load resistance. Therefore, it is anticipated that the piles will be set in a borehole of slightly greater dimension in which the pile is secured by grout injection around the perimeter of the pile, filling the annular space. The use of predrilled boreholes to facilitate pile driving will present difficulties with borehole stability where the seafloor sediments are of significant thickness. In these cases predrilling is recommended to be performed such that the borehole diameter is no larger than the diameter of a circular pile or the width of a square pile so that once driven to the design tip elevation, sufficient continuity exists between the pile and the adjacent soils and bedrock. Implementation of Mitigation Measure 4.2-1 will ensure that lateral load impacts associated with the piles will be less than significant.

The proposed project area is subject to liquefaction potential in the event of an earthquake as an existing condition prior to implementation of the proposed project. The proposed project neither contributes to nor lessens the impacts associated with liquefaction. However, in the event of an earthquake that is capable of producing liquefied conditions, the potential for liquefaction to impact the seawall, gangways, and platforms is considered potentially significant. Although the proposed project does not include remedial improvements to the seawalls, no permanent inhabitable structures are proposed as part of the Marina Improvement Project. Therefore, the Geotechnical Evaluation and Addendum Letter (Leighton and Associates 2008) concluded that remedial actions to the subsoil or the design of the foundation systems are not required. Although the liquefaction potential is an existing condition, the potential for liquefaction to impact the seawalls, gangways, and platforms is considered a significant unavoidable impact. This impact is not a direct project impact, but rather an existing condition of the project site. Implementation of Mitigation Measures 4.2-1 and 4.2-2 will lessen the potential liquefaction impacts but cannot fully mitigate the existing conditions.

Mitigation Measures

The following measure would reduce potential seismic ground-shaking impacts to the ADA platforms and lateral load impacts associated with pile installation to less than significant levels.

- 4.2-1** To reduce potential seismic ground-shaking impacts associated with the Americans with Disabilities Act (ADA) platforms, OC Dana Point Harbor and the Director, OC Public Works (OC PW)/Building Permit Services shall, prior to issuance of building permits, review and approve final design plans to ensure that recommendations contained in the Geotechnical Evaluation prepared for the proposed project (Leighton Associates, Inc., January 2008) are incorporated into final site drawings. The potential damaging effects of regional earthquake activity shall be considered in the design of each structure. The seismic evaluation shall be based on basic data, including the Uniform Building Code (UBC) Seismic Parameters.

Structural design criteria shall be determined in consideration of building types, occupancy category, seismic importance factors, and possibly other factors. Design construction shall be performed in conformance with the latest UBC, California Building Code, or International Building Code and County Ordinances. Conformance can be expected to satisfactorily mitigate the effect of seismic groundshaking (refer to FEIR No. 591, Mitigation Measures 4.3-9 and 4.3-12).

The following measure would reduce potential lateral load impacts from construction equipment on the seawall to a less than significant level.

- 4.2-2** To reduce potential lateral and surcharge load impacts from construction equipment near the seawall, OC Dana Point Harbor shall review and specifically approve contract provisions requiring equipment and/or storage setbacks from the seawall prior to issuance of any contract to demolish or construct within the project area. To reduce potential impacts associated with the instability of the seawall due to increased lateral loads imposed by construction equipment, adequate setbacks shall be observed from bulkhead areas for cranes, pile-driving equipment, or any other heavy construction equipment. (refer to FEIR No. 591, Mitigation Measure 4.3-6).

4.2.6 CUMULATIVE IMPACTS

Impacts on geology and soils are generally localized or site specific and generally do not result in or from regionally cumulative impacts, with the exception of sedimentation and subsidence due to subsurface withdrawal. The cumulative study area for geology and soils is the project site, the immediately adjacent properties that physically abut the project site and other projects whose activities could directly or indirectly affect the geology and soils of the proposed project site.

While the entire Los Angeles region is susceptible to seismic hazards, it is also notable that many of the hazards are highly localized, such as those areas in the Harbor that may be susceptible to liquefaction. Although the proposed project would neither contribute to nor lessen the potential impacts associated with liquefaction since it is an existing condition, the potential for liquefaction to impact the seawall, gangways, and platforms is considered a significant unavoidable adverse impact. This impact, however, is not a direct project impact, but rather an existing condition and is therefore not considered cumulatively significant. The proposed project, in combination with other planned projects such as construction of the Commercial Core, would not compound or increase geological impacts.

As discussed above, there are no geotechnical conditions on site that will prohibit construction and no activities associated with the project that would contribute to any incremental effects such as risk of ground failure, slope failure, or settlement problems in the project vicinity. In addition, there is no subsurface withdrawal of water or oil that could produce subsidence.

Mitigation Measures 4.2-1 and 4.2-2 have been proposed to ensure that recommendations contained in the Geotechnical Evaluation prepared for the proposed project are incorporated into final project plans, and adequate setbacks will be implemented to ensure no project construction activities contribute to seawall failure. Furthermore, sedimentation will be controlled through project design and mitigation included in the Hydrology and Water Quality section of this SEIR. Incorporation of

these mitigation measures will minimize or avoid potential hazards due to on-site and off-site geologic factors and ensure that the project's geological impacts are considered less than cumulatively considerable. As stated in the analyses included in Section 4.2.4 above, the project would not contribute to any regional or localized geologic or soil-related risks.

4.2.7 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

The mitigation measures described above will reduce the project's potential geologic, seismic, and soils-related impacts and contribution to cumulative geology, seismic, and soils impacts to below a level of significance. However, liquefaction, which is an existing condition on site, will continue to have the potential to impact the seawall and gangway platforms in select locations in the event of an earthquake capable of producing liquefied conditions. Therefore, impacts associated with liquefaction are significant unavoidable adverse impacts of the proposed project related to geology and soils.

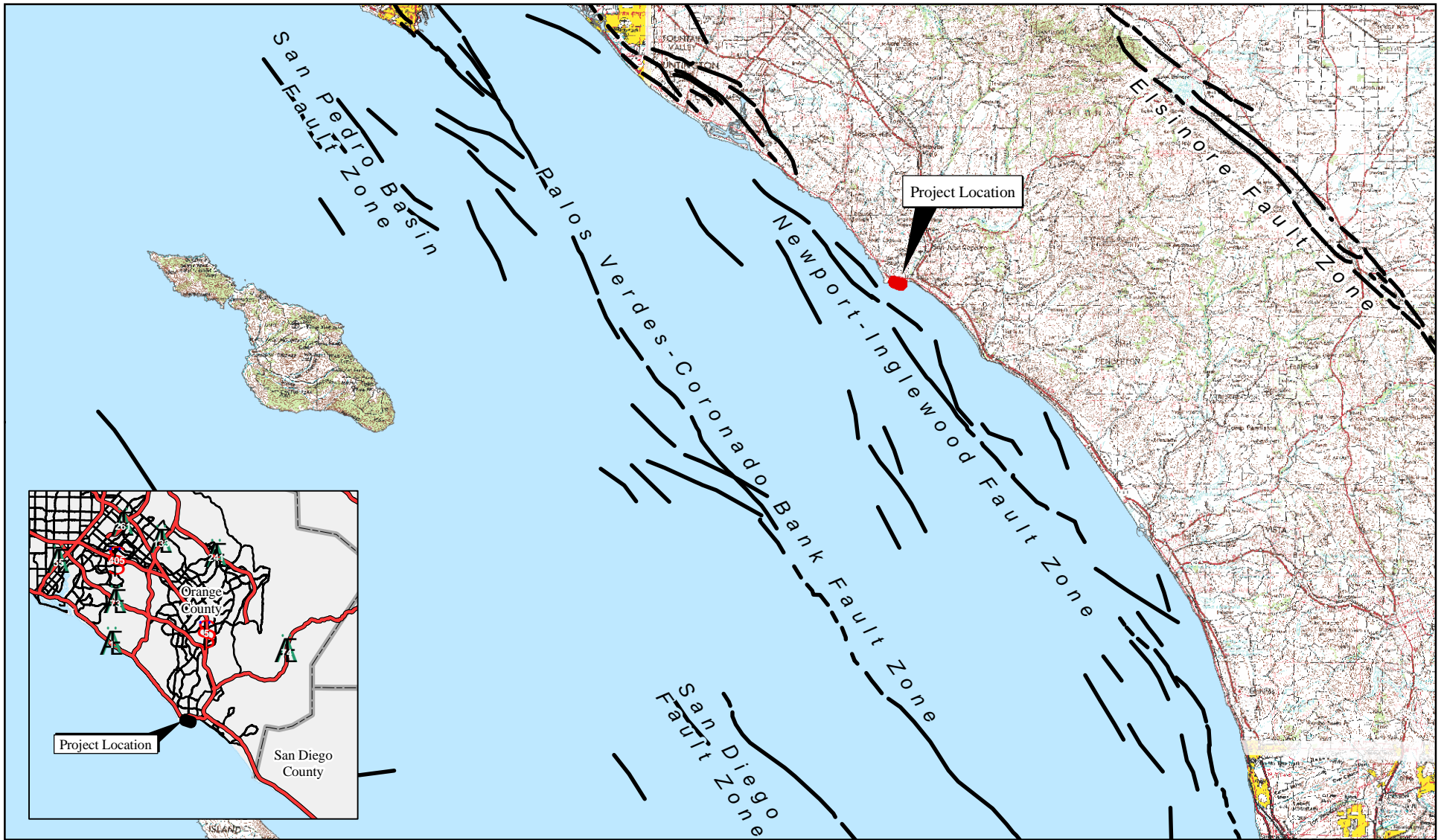
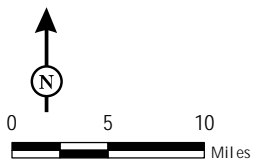


FIGURE 4.2-1

LSA



LEGEND

- Project Location
- Fault Lines

Dana Point Harbor Improvement Project
Earthquake Fault Lines

SOURCE: California Seismic Hazard Mapping Program (2002), USGS 250K QUAD (1980).

I:\CAE0601\G\6_3_10\fault_zones.mxd (6/4/10)

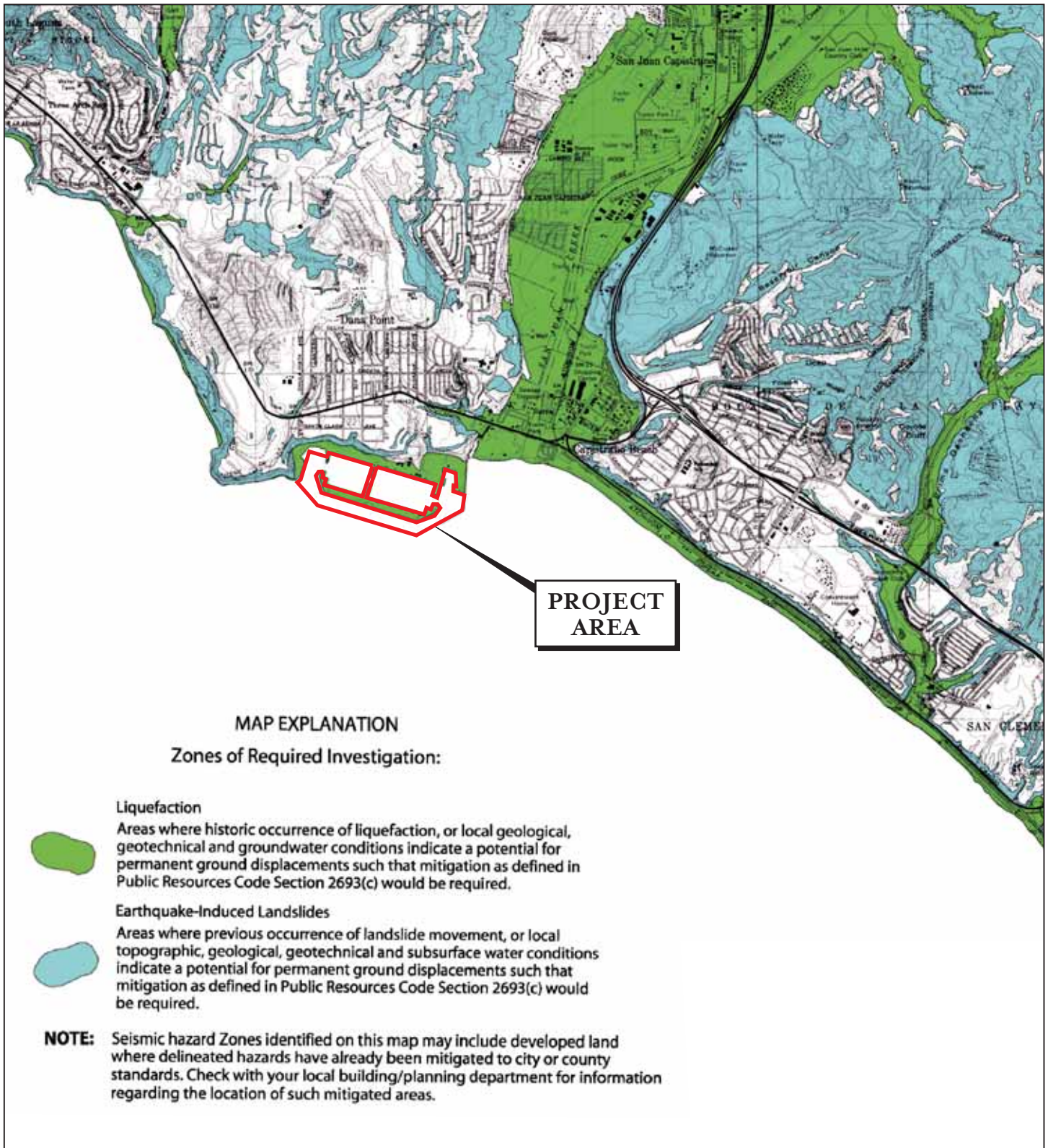
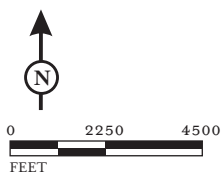


FIGURE 4.2-2

LSA



Dana Point Harbor Marina Improvement Project

Seismic Hazards

SOURCE: State of California Seismic Hazard Zones, Dana Point Quadrangle, Dec. 21, 2001

4.3 HYDROLOGY AND WATER QUALITY

This section addresses potential impacts to hydrology and water quality resulting from implementation of the proposed project. This project is required to meet drainage and water quality requirements for surface water runoff. Documents reviewed and incorporated as part of this analysis include: the Final Program Environmental Impact Report for the Dana Point Harbor Revitalization Project, 2006; Water Quality Management Plan, Dana Point Revitalization Project, November 2004 (Fusco Engineering, Inc.); the San Diego Regional Water Quality Control Board (RWQCB) Basin Plan, 1994, with amendments effective prior to April 25, 2007; the State Water Resources Control Board California Ocean Plan, 2001; the State Water Resources Control Board 2010 Integrated Report; and the California RWQCB, San Diego Region, Order No. R9-2009-0002, National Pollution Discharge Elimination System (NPDES) No. CAS0108740, Statewide Construction General Permit (Order No. 2009-0009-DWQ), Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds of the County of Orange, the Incorporated cities of Orange County, and the Orange County Flood Control District (OCFCD) within the San Diego Region, and the Orange County Drainage Area Management Plan.

4.3.1 EXISTING SETTING

Project Location

Dana Point Harbor (Harbor), located within the City of Dana Point (City), is within the Dana Point hydrologic subarea (HSA) (901.14) of the San Juan hydrologic unit (901), within the San Diego Basin. The Marina Improvement Project lies within the San Juan Creek Watershed (Watershed), which ultimately drains to the Pacific Ocean. More specifically, the Marina Improvement Project lies within the Dana Point Coastal Streams Watershed, a subwatershed of the San Juan Creek Watershed. The Dana Point Coastal Streams receiving water is the Harbor.

The Harbor is bordered by the Pacific Ocean to the south, Dana Headlands and Dana Point Marine Life Refuge to the west; Doheny State Beach to the east; and a variety of commercial, hotel, residential, and park uses to the north.

San Juan Creek Watershed

The San Juan Creek Watershed covers 133.9 square miles and includes portions of the cities of Dana Point, Laguna Hills, Laguna Niguel, Mission Viejo, Rancho Santa Margarita, and San Juan Capistrano. Its main tributary, San Juan Creek, originates in the Santa Ana Mountains district of the Cleveland National Forest in the easternmost part of Orange County.¹ A number of coastal drains discharge to the Pacific Ocean through Dana Point Harbor. San Juan Creek and its main tributaries, Arroyo Trabuco Creek and Oso Creek, flow into the Pacific Ocean, south of the Harbor. Salt Creek

¹ Orange County Watershed and Coastal Resources Division Web site, <http://www.ocwatersheds.com/watersheds/sanjuan.asp>, accessed April 20, 2007.

and its tributaries Arroyo Salado Creek and San Juan Canyon Creek discharge to Salt Creek Beach, north of Dana Point Harbor.

The Dana Point Coastal Streams watershed is almost fully developed. Remaining undeveloped areas include open space within the Aliso and Wood Canyons Regional Park in the upper watershed and the Salt Creek Corridor Regional Park in the eastern part of the watershed.

Harbor Drainage Pattern

Harbor Off-Site Drainage Facilities. Existing storm water conveyance facilities in Dana Point Harbor convey drainage from existing off-site commercial and residential development, as well as the Harbor and portions of Street of the Golden Lantern, Cove Road, Santa Clara Avenue, Street of the Blue Lantern, Dana Point Harbor Drive, Scenic Drive, and the adjoining off-site properties in the vicinity of Dana Point Harbor. Drainage is conveyed to the Pacific Ocean via a series of various-sized storm drains. Most of the runoff from the off-site properties above the Harbor is collected within the existing storm drain system in the Street of the Golden Lantern and Cove Road. Bluff top surface storm water is conveyed by a series of existing V-ditches that are located at the back of (north of) the Harbor parking lots, at the base of the bluffs. Between there and the outlet location, the pipe accepts runoff from various inlets located in the Harbor parking lots and Dana Point Harbor Drive. A minor portion of sheet flow runoff originating from Dana Point Harbor Drive enters the Harbor from Casitas Place, Street of the Golden Lantern, and Embarcadero Place, but most off-site flows are collected within the curb and gutters of Dana Point Harbor Drive and conveyed into the regional (County) storm drain facilities that run into the Harbor marinas.

Harbor On-Site Drainage Facilities. Within Dana Point Harbor, most on-site runoff from the parking lots, structures and facilities enters a series of drain inlets and catch basins prior to discharging into the Harbor marinas. Some of these systems tie into the County storm drains running underground into a collection system which drains into the Harbor, while others discharge directly into the Harbor marinas through smaller pipe outfalls. For example, runoff from the parking lot at the southern end of the East Marina within the Commercial Core enters a 24-inch (in) grate inlet and discharges directly into the East Basin through an outfall adjacent to the County of Orange (County) 60 in reinforced concrete pipe (RCP). This localized drainage system is typical of the existing parking lots throughout the Harbor.

Rooftop drainage from the existing buildings immediately north of the boat launch ramp area is collected by a series of 4 to 6 in pipes and confluence into a larger pipe that discharges directly into the Harbor. This system is also typical of other rooftop collection systems throughout the Harbor.

In summary, all on-site flows and a portion of off-site runoff from the surrounding streets collects at a series of grate inlets, catch basins, and roof drainage pipes, all of which discharge directly into the Harbor marinas through a series of local outfall pipes, storm drains, and/or direct sheet flow from sloped sidewalks and hardscape areas.

East and West Marinas. East Marina receives runoff from three existing storm water outfalls, located in the quay wall approximately 5 to 10 feet (ft) below the water surface. Two 18 in pipes discharge runoff from an area near the Harbor and surrounding bluffs. One is located at the boat launch ramp, and the other is located east of Island Way. The Golden Lantern Storm Drain discharges runoff from a 60 in pipe from a storm drain network that extends farther inland into the City. At the County maintenance yard area and shipyard, the runoff sheet flows across the surface and adjacent parking lots and enters Dana Point Harbor adjacent to the boat-launch ramp. As part of the recent boat-launch improvements, constructed in 2007, a trench drain system was installed along the ramp apron to collect runoff and treat it via an in-line storm water filtration vault. The treated runoff then continues to the existing storm drain that discharges into the Harbor marina. In addition, a filtered catch basin was installed at the boat wash area to screen boat wash runoff and direct it to the sanitary sewer system for treatment.

The West Marina receives runoff from five storm water pipes. There are two 18 in pipes that discharge runoff from areas adjacent to the Ocean Institute dock and Ensenada Place. The 51 in El Encanto Storm Drain discharges runoff from a storm drain network that extends beyond the Harbor. A small 15 in pipe discharges runoff from Dana Point Harbor Drive, west of Island Way, and a 24 in pipe discharges drainage from the Baby Beach West Storm Drain.

The existing Harbor storm water pipe system and drainage areas are summarized in Table 4.3.A.

Table 4.3.A: Existing Storm Drain Facilities

Pipe Location	Drainage Area (DA)	Pipe Size (inches)	Watershed (Drainage) Area (acres)
East Marina			
Boat Launch Ramp	1	18	10.4
Golden Lantern Storm Drain	2	60	247
East of Island Way	3	18	10.7
West Marina			
West of Island Way, Dana Point Harbor Drive	4	15	5.3
El Encanto Storm Drain	5	51	195
Ocean Institute dock	6	18	4.63
Baby Beach West Storm Drain	7	24	34.1
Ensenada Place	8	18	14.7

Source: Dana Point Revitalization Project FEIR No. 591

Surface Water Quality

The majority of the runoff into the Harbor is localized to the adjacent Harbor facilities and access roads near the base of the surrounding bluffs. The Dana Point Harbor facilities include numerous restaurants, shops, parking areas, and boat service facilities (e.g., boat storage and maintenance areas, fuel dock and supply stores); picnic areas (including a grass/landscaped area bordering Baby Beach); the OC Sailing and Events Center (east side of Baby Beach); and the Ocean Institute and Brig Pilgrim & Spirit of Dana Point (schooner) complex (west side of Baby Beach), all of which contribute surface

water pollutants to the Harbor and impact water quality. The substantial recreational boat traffic may also represent a potential contaminant source.

Other factors that likely influence water quality in the Harbor region include fecal droppings by birds and mammals (e.g., skunks, rats, feral cats, and dogs). Birds in particular, mainly seagulls and pigeons, but including Brewer's blackbirds, ravens, and brown pelicans, can number in the hundreds to thousands in the Baby Beach region. There are strong seasonal variations (e.g., more gulls in the winter). Some bird control measures, such as netting under the fishing pier near the Ocean Institute to discourage nesting by pigeons, which appear to have reduced fecal droppings near Baby Beach.¹

Baby Beach Water Quality. Baby Beach has experienced many beach closure dates inside the Harbor during the dry season due to water quality impairments. This occurs mainly because untreated urban runoff is discharged directly into the Harbor marinas. The Orange County Health Care Agency Environmental Health Division samples for coliform bacteria and enterococcus at several locations within Dana Point Harbor during the dry season months of April to October.

Baby Beach has had numerous problems with bacteria impairment. High fecal bacteria concentrations have been found in the Harbor since 1996. To address this impairment, Orange County Health Care Agency implements Reporting Programs in accordance with State of California Water Resources Control Board standards. California Health and Safety Code, Section 115910 requires that all violations of the AB 411 Ocean Water-Contact Sports Standards between April 1 and October 31 must be reported to the State of California Water Resources Control Board by all California coastal counties on a monthly basis. The water quality monitoring program runs year-round, and water samples are obtained in several locations throughout Dana Point Harbor. In addition, seven special bacteriological investigations have been undertaken in accordance with the Clean Beach Initiative to address the bacteria contamination and potential ways to decrease bacteria levels. Four primary potential sources of bacteria contamination in Baby Beach have been identified for which best management practices (BMPs) have been implemented:

- Contaminated discharges from urban runoff
- Bacteria resident in beach sediments
- Limited near-beach water circulation
- Bacterial contamination from birds

A project recently completed to help improve water quality at Baby Beach was the Baby Beach Storm Drain to Sanitary Sewer Diversion and Filtration Project. This was one of several planned water quality improvement projects for Baby Beach. The Diversion and Filtration Project cut and removed a section of the concrete storm drain. A concrete manhole structure was cast around the storm drain. A 1.5 ft high concrete dam was cast inside the manhole structure to divert the low flows (nonstorm flows) into an 18 in diameter hole in the side of the manhole. The 18 in diameter pipe flows approximately 90 ft to a series of screens that trap trash and debris. After the screens, the flow enters

¹ Data Mining Task for State of the Beach Report: Evaluation of Bacteriological Data and Associated Parameters for Baby Beach, Dana Point Harbor, CA, prepared by Science Applications International Corporations, January 2003.

a 50 ft, 4 in diameter polyvinyl chloride (PVC) pipe and flows to the existing sanitary sewer. There are backflow preventers to prevent sewage water from entering the storm drain in the event the sewer plugs.

During the winter season, a valve on the 4 in diameter diversion line to the sewer is turned to close down the diversion to ensure that storm water does not enter the sewer system. During a storm event, the “first flush” will exit the storm screens and travel in an 18 in pipe a distance of approximately 140 ft to the upper parking lot (across Dana Point Harbor Drive). There, the “first flush” storm flows will enter two 11 x 26 ft concrete vaults containing 150 storm filters that will further clean the water. After the “first flush” storm water exits the storm filters, the flow will enter a 200 ft long 18 in diameter pipe (crossing Dana Point Harbor Drive) and then reenter the storm drain a few feet from the sea wall.

The Baby Beach Storm Drain to Sanitary Sewer Diversion and Filtration Project has resulted in a reduction in the frequency of bacteria postings at Baby Beach. The Baby Beach Storm Drain to Sanitary Sewer Diversion and Filtration Project addresses a known source of bacteria input to Baby Beach. Bacteria generated by the large population of birds that frequent Baby Beach contributes significantly to the bacteria problems at Baby Beach. Studies have shown that some bacteria may regrow once it has entered the sediment between high tide and low tide around Baby Beach. Studies have also shown that this bacteria has the ability to survive for many months and may even reproduce.

As part of an ongoing water quality improvement program, the County has installed 41 FossilFilters™ throughout the public areas of Dana Point Harbor. The City has storm drain inserts installed along Dana Point Harbor Drive between Pacific Coast Highway and Street of the Golden Lantern. The City and County share maintenance responsibilities and currently conduct inspections and preventative maintenance of these storm drain inserts every two weeks and replace the filter once annually. FossilFilters™ are trough-type inserts filled with granular amorphous alumina silicate media to remove pollutants by sorption. They are configured to remove sediment, constituents absorbed to sediment, and oil and grease. Gross pollutants such as trash and green waste are also captured by the trough design. The use of these filters and inserts throughout the various areas of the Harbor provides treatment of dry weather nuisance flows and initial storm flows.

Sediment Quality

The following discussion presents the results of investigations that have been conducted to evaluate sediment quality in the Harbor marinas.¹ The investigations included analysis of sediment samples representative of the material that exists throughout the Harbor. This information is used to determine water quality impacts resulting from sediment disruption from construction activities of the proposed project.

The Harbor was divided into three testing areas based on sediment grain size characteristics and geographic location.² Area A, consisting of the West Anchorage and Main Channel West, contains predominantly coarse-grain material. Area B consists of the Baby Beach, West Turning Basin, West

¹ Dredge Material Evaluation, Dana Point Harbor Maintenance Dredging, Moffatt & Nichol, March 2007.

² Ibid.

Basin Channel, and Pilgrim Moorage. Area C consisted of the Boat Launch Ramp Basin, East Basin Channel, and East Basin Outfall. Areas B and C consisted of predominantly fine-grained sediments.

The study concluded that sediments from Area A contain relatively low values of contaminants; contaminant concentrations in Area A sediments are similar to or only slightly elevated above contaminant concentrations in the Capistrano and Baby Beach reference samples. Polycyclic aromatic hydrocarbon (PAH) concentrations in Area A samples range from 4 to 100 times higher than the reference samples, but are still considered relatively low.

Contaminants were not found in Area B in excess of Effects Range Low (ERL) screening values. Several contaminants (copper, total chlordane compounds, acenaphthene, benzo(a)pyrene, benzo(a)anthracene, total high molecular weight PAHs and total PAHs) were found in Area C in excess of lower effects-based screening values. However, the study concluded that overall sediment contamination in Areas B and C will most likely not cause toxicity to benthic organisms. The bulk of the observed contamination in Area C can be attributed to the shoaled area in front of the 60 in storm water outfall entering the East Basin.

Groundwater Conditions

Based upon the geotechnical report prepared for the proposed project, groundwater was typically encountered at depths of 9 to 16 ft below grade. The groundwater table was, however, considered to exist at depths of 6 to 10 ft below grade on the basis of the relative moisture contents of the recovered soil samples. Groundwater in the areas of the seawalls is expected to be subject to tidal fluctuation.

4.3.2 REGULATORY SETTING

Discharges into waters of the United States are subject to the regulatory authority of the United States Army Corps of Engineers (Corps) under Section 404 of the federal CWA and Section 10 of the Rivers and Harbors Act; the State Water Resources Control Board (SWRCB) and the applicable RWQCB under Sections 303, 401, and 402 of the CWA and the California Porter-Cologne Water Quality Act.

Federal Requirements of the Clean Water Act

Section 303. Section 303 of the CWA requires that the State adopt water quality objectives for surface waters. The San Diego RWQCB Water Quality Control Plan (Basin Plan) contains water quality objectives that are considered necessary to protect the specific beneficial uses it identifies. Section 303(d) specifically requires the State to develop a list of impaired water bodies and subsequent numeric total maximum daily loads (TMDLs)¹ for any constituents that impair a particular water body. These constituents include inorganic and organic chemical compounds, metals, sediment, and biological agents.

¹ The TMDL is the total amount of a constituent that can be discharged while meeting water quality objectives and protecting beneficial uses. It is the sum of the individual load allocations for point source inputs (e.g., an industrial plant), load allocations for nonpoint source inputs (e.g., runoff from urban areas), and natural background, with a margin of safety.

The State Water Board approved the 2010 Integrated Report on August 4, 2010. The 2010 Integrated Report includes changes to the 2006 Clean Water Act Section 303(d) list of impaired water bodies and Clean Water Act Section 305(b) report on the quality of waters in California. On November 12, 2010, the United States Environmental Protection Agency (EPA) approved the inclusion of all waters to California’s 2008–2010 Section 303(d) list of impaired waters requiring TMDLs and disapproved the omission of several water bodies and associated pollutants that meet federal listing requirements. The EPA did not include any additional waters in San Diego Region 9. The EPA is providing the public an opportunity to review its decision to add waters and pollutants to California’s 2008–2010 Section 303(d) list.

According to the State Water Board approved 2010 Integrated Report, Dana Point Harbor is impaired for copper, toxicity, and zinc. The Pacific Ocean shoreline at Baby Beach is impaired for enterococcus and total coliform (both are pathogens). Table 4.3.B summarizes the receiving waters and their classifications by RWQCB Region 9.

Table 4.3.B: 303(d) Impairments of Downstream Water Bodies

Receiving Water	Hydrologic Unit Code	303(d) Impairment	Size Affected
Dana Point Harbor – Bay and Harbor	901.14	Copper Toxicity Zinc	119 acres
Pacific Ocean Shoreline – Dana Point HSA, at Dana Point Harbor at Baby Beach	901.14	Enterococcus Total Coliform	- miles

Source: California’s 2010 Integrated Report, approved by the United States Environmental Protection Agency on November 12, 2010.
 HSA = hydrologic subarea

There are no TMDLs currently approved for Dana Point Harbor that could regulate contributions of surface runoff into impaired water bodies; TMDLs for Baby Beach and Dana Point Harbor are pending. There are no existing target design constituents in the San Juan hydrologic unit.

Section 401. Section 401 of the CWA specifies that any applicant for a federal license or permit to conduct any activity, including but not limited to the construction or operation of facilities that may result in any discharge into navigable waters, shall provide the federal licensing or permitting agency a certification from the State in which the discharge originates or will originate from the State agency with jurisdiction over those waters (San Diego RWQCB) that the project will comply with water quality standards, including beneficial uses, water quality objectives, and the State antidegradation policy.

Section 402. Direct discharges of pollutants into waters of the United States are not allowed, except in accordance with the NPDES program established in Section 402 of the CWA. The main goal of the NPDES program is to protect human health and the environment. Pursuant to the NPDES program, permits that apply to storm water discharges from municipal storm drain systems, specific industrial activities, and construction activities (1 acre [ac] or more) have been issued. NPDES permits establish enforceable effluent limitations on discharges, require monitoring of discharges, designate reporting requirements, and require the permittee to perform BMPs. Industrial (point source) storm water permits are required to meet effluent limitations; municipal permits are governed by the maximum extent practicable (MEP) or the Best Available Technology (BAT)/Best Control Technology (BCT) application of BMPs.

Section 404. The United States Army Corps of Engineers (Corps) regulates discharges or fills into waters of the United States under Section 404 of the CWA via the Nationwide Permit (NWP) or Individual Permit program. There are several categories of NWPs, which can be utilized for projects that fall under specific categories. A Preconstruction Notification (PCN) to the Corps district engineer is required for most activities that result in the loss of greater than 0.1 ac of waters of the United States. The Corps reviews the PCN on a case-by-case basis to determine whether the adverse effects of the proposed work on the aquatic environment are minimal. The Corps will also determine whether a particular drainage is considered waters of the United States and subject to regulation under Section 404.

Section 10 of the Rivers and Harbors Act. Section 10 of the Rivers and Harbors Act requires authorization from the Corps for the creation of any obstruction to the navigable capacity of any of the waters of the United States. Corps approval is necessary to build or commence the building of any wharf, pier, dolphin, boom, weir, breakwater, bulkhead, jetty, or other structures in any port, roadstead, haven, Harbor, canal, navigable river, or other water of the U.S. In addition, Corps approval is necessary to excavate or fill, or in any manner to alter or modify the course, location, condition, or capacity of any port, roadstead, haven, Harbor, canal, lake, Harbor of refuge, or enclosure within the limits of any breakwater, or of the channel of any navigable water of the U.S.

State Water Quality Regulations

Porter-Cologne Water Quality Control Act (Division 7 of the California Water Code). The Porter-Cologne Act establishes a regulatory program to protect water quality and to protect beneficial uses of State waters. It empowers the Regional Boards to formulate and adopt, for all areas within the regions, a Basin Plan that designates beneficial uses and establishes such water quality objectives that in its judgment will ensure reasonable protection of beneficial uses. Each Regional Board establishes water quality objectives that will ensure the reasonable protection of beneficial uses and the prevention of nuisance. The Water Code provides flexibility for some change in water quality, provided that beneficial uses are not adversely affected.

State Requirements under Section 402 of the CWA

California Ocean Plan. The SWRCB has adopted a Water Quality Control Plan (WQCP) for ocean waters of California called the California Ocean Plan. With the exception of wildlife habitat, the Ocean Plan identifies the same beneficial uses as the San Diego Basin Plan. The Ocean Plan has similarly established water quality objectives for bacteriological, physical, chemical, radioactive, and biological characteristics. The Plan also incorporates general requirements for the management of wastes discharged directly into the ocean, effluent quality requirements for waste discharges directly into the ocean, discharge prohibitions, and general provisions. The Ocean Plan is incorporated by reference into the San Diego Basin Plan.

General Construction Permit. On September 2, 2009, the SWRCB adopted the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (General Construction Permit); Order 2009-0009-DWQ; NPDES No. CAS000002. In accordance with NPDES regulations, the State of California requires that any construction activity disturbing 1 ac or more of soil comply with the General Construction Permit. To obtain authorization for proposed storm water discharges pursuant to this permit, the landowner (discharger) is required to submit a Notice of Intent (NOI) to the SWRCB, prepare a Storm Water Pollution Prevention Plan (SWPPP), and implement BMPs detailed in the SWPPP during construction activities. Dischargers are required to implement BMPs meeting the technological standards of BAT and BCT to reduce or eliminate storm water pollution. BMPs include programs, technologies, processes, practices, and devices that control, prevent, remove, or reduce pollution. Permittees must also maintain BMPs and conduct inspection and sampling programs as required by the permit. Dischargers are also required to comply with monitoring and reporting requirements to ensure that discharges comply with the numeric action levels and numeric effluent limitations specified in the permit.

The proposed project is not subject to the requirements of this permit because it will disturb less than 1.0 ac of soil.

Local Requirements under Section 402 of the CWA

Construction and operation of the proposed project is subject to requirements of the following local permits and regulations.

Municipal NPDES Permit. Orange County is the principal permittee for the Municipal NPDES Permit for the San Diego Region, Order No. R9-2009-0002 (NPDES No. CAS0108740), titled "Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds of the County of Orange, the Incorporated Cities of Orange County, and the Orange County Flood Control District within the San Diego Region." The NPDES Permit prohibits discharges, sets limits on pollutants being discharged into receiving waters, and requires implementation of technology-based standards.

Under the NPDES permit, the County is responsible for the management of storm drain systems within its jurisdictions. The County is required to implement management programs, monitoring programs, implementation plans, and all BMPs outlined in the Orange County Drainage Area

Management Plan (DAMP) and to take any other actions as may be necessary to protect water quality to the MEP.

Orange County DAMP. The DAMP implements the Municipal NPDES Permit requirements and is the principal policy and guidance document for the County’s NPDES program. The DAMP satisfies the requirements of the NPDES urban runoff permit program and identifies measures intended to reduce the discharge of pollutants to the MEP, using BMPs, control techniques and systems, engineering methods, and other appropriate provisions.

Permittees within the San Diego RWQCB jurisdiction are required to inventory a set of predetermined high-priority commercial facilities/activities. The DAMP provides a list of those commercial facilities/activities that are automatically considered “high priority” within the San Diego RWQCB jurisdiction. The DAMP predetermines that marinas are high-priority commercial sites. Marinas are a potential pollutant-generating activity; the potential pollutants generated by marina facilities are identified in Table 4.3.C. The DAMP also identifies the Harbor as an Environmentally Sensitive Area (ESA) because it is a 303(d) listed water body and because it is designated with a RARE (support of rare, threatened, or endangered species) beneficial use classification by the SWRCB. Because the proposed project is located within a designated ESA and is part of the overall Harbor Revitalization Project, it is considered a priority project.

Table 4.3.C: Potential Pollutants Generated by Marinas

Activity	Sediments	Nutrients	Metals	Organics and Toxicants	Floatable Materials	Oxygen Demanding Substances	Oil and Grease	Bacteria	Pesticides
Marinas			X	X	X	X	X	X	

Source: 2003 Orange County Drainage Area Management Plan.

The 2003 DAMP requires that each permittee, including the County, prepare a Local Implementation Plan (LIP) as an appendix to the DAMP. The County’s LIP describes the activities that the County has previously undertaken and is currently undertaking to meet the requirements of the permit and to make meaningful improvements to urban water quality.

As listed in the DAMP, all construction projects, regardless of size or priority, are required to implement BMPs to prevent discharges into the storm drain system or watercourses. DAMP Section 8.4.4.1 specifies minimum requirements for all projects and specific site management requirements for high- and medium-priority projects. All construction projects are required, at a minimum, to implement and be protected by an effective combination of erosion and sediment controls and waste and material management BMPs. A description of the minimum requirements for all construction sites under the DAMP is provided in Table 4.3.D. These minimum requirements are conveyed to construction contractors as part of the permit conditions and plan notes.

Table 4.3.D: Minimum Requirements for All Construction Sites

Category	Minimum Requirements
Erosion and Sediment Control	Sediments from areas disturbed by construction shall be retained on site using an effective combination of erosion and sediment MEP controls, and stockpiles of soil shall be properly contained to minimize sediment transport from the site to streets, drainage facilities, or adjacent properties via runoff, vehicle tracking, or wind.
Waste and Materials Management Control	Construction-related materials, wastes, spills, or residues shall be retained on site to minimize transport from the site to streets, drainage facilities, or adjoining property by wind or runoff.

Source: County of Orange, DAMP, Minimum Requirements for all Construction Sites, July 2003.

Dana Point Harbor Revitalization Water Quality Management Plan (WQMP)

The Revitalization Project Program Environmental Impact Report (PEIR) included a Program WQMP, which addresses construction storm water runoff management for Dana Point Harbor in its entirety to satisfy the regulatory requirements of the County, City, and other agencies having jurisdiction over water quality control. Development and individual revitalization projects within the Harbor will rely upon a site-specific approach (all or a portion of a Planning Area) for the site design, source control, and treatment control BMPs to mitigate storm water runoff pollution conditions. The Program WQMP recommends categories of treatment BMPs applicable to the specific land use within planning areas to be considered at the time of Coastal Development Permit approval. The existing Program WQMP will be amended to include source control BMPs for the proposed project during construction for staging areas and any area of soil disturbance. The platforms associated with the ADA gangway connections have been designed to drain away from the marina waters into parking areas where the pre-discharge treatment can occur. Specific site design and treatment control BMPs are not applicable to the waterside improvements. However, a number of site design and treatment control BMPs are included in the overall Revitalization Project, which will improve the quality of water discharging to the Harbor.

Beneficial Uses

The San Diego RWQCB’s Basin Plan identifies beneficial uses of water as necessary for the survival or well being of humans, plants and wildlife. The Basin Plan also establishes implementation programs to achieve water quality objectives to protect beneficial uses and requires monitoring to evaluate the effectiveness of the programs. Table 4.3.E presents the beneficial uses of water as recognized by the San Diego Basin Plan.

Table 4.3.E: Beneficial Water Uses in San Diego Water Basin

Beneficial Use	Beneficial Use Description	Dana Point Harbor	Pacific Ocean
AQUA	Includes the uses of water for aquaculture or mariculture operations including, but not limited to, propagation, cultivation, maintenance, or harvesting of aquatic plants and animals for human consumption or bait purposes.		X
BIOL	Includes uses of water that support designated areas of habitats, such as established refuges, parks, sanctuaries, ecological reserves, or Areas of Special Biological Significance, where the preservation or enhancement of natural resources requires special protection.		X
COMM	Commercial or recreational collection of fish, shellfish, or other organisms for human consumption or bait.	X	X
IND	Uses of water for industrial activities that do not depend primarily on water quality	X	X
MAR	Uses of water to support marine ecosystems.	X	X
MIGR	Support of habitats necessary for migration, acclimatization between fresh and salt water, or other temporary activities by aquatic organisms.	X	X
NAV	Uses of water for shipping, travel, or other transportation by private, military, or commercial vessels.	X	X
RARE	Support of habitats necessary for the survival and maintenance of rare, threatened, or endangered species.	X	X
REC-1	Recreational uses of water involving body contact with the water.	X	X
REC-2	Nonrecreational uses of water	X	X
SHELL	Support of aquatic habitats suitable for the collection of filter-feeding shellfish.	X	X
SPWN	Support of aquatic habitats suitable for reproduction and the early development of fish.	X	X
WILD	Support of terrestrial ecosystems.	X	X

Source: San Diego Regional Water Quality Control Board, Basin Plan, 1994.

As a result of the RARE (support of rare, threatened, or endangered species) beneficial use classification for Dana Point Harbor, the SWRCB has designated Dana Point Harbor an Environmentally Sensitive Area (ESA).

Water Quality Objectives

As required by the Porter-Cologne Act, the San Diego RWQCB has developed water quality objectives for ocean waters within its jurisdiction to protect the beneficial uses of those waters and published them in the Basin Plan. The Basin Plan also establishes implementation programs to achieve these water quality objectives and requires monitoring to evaluate the effectiveness of these programs. Water quality objectives must comply with the State antidegradation policy (SWRCB Resolution No. 68-16), which is designed to maintain high-quality waters while allowing some flexibility if beneficial uses are not unreasonably affected. Ocean water quality objectives for the San Diego region are listed in Table 4.3.F.

Table 4.3.F: Ocean Waters Water Quality Objectives

Constituent	Objective
Dissolved oxygen	The dissolved oxygen concentration in ocean waters shall not at anytime be depressed more than 10 percent from that which occurs naturally, as the result of the discharge of oxygen-demanding waste materials.
Hydrogen ion concentration (pH)	The pH value shall not be changed at anytime more than 0.2 pH units from that which occurs naturally.

Source: San Diego Regional Water Quality Control Board, Basin Plan, 1994.

4.3.3 THRESHOLDS OF SIGNIFICANCE

The impact significance criteria used for this analysis are based primarily on Appendix G of the State CEQA Guidelines and the County of Orange Local CEQA Procedures Manual (2000). The Initial Study contained in Appendix A determined that the proposed project would not have a significant impact with respect to the following: would not alter the existing drainage pattern of the site or area, thereby increasing erosion/siltation; would not exceed the capacity of existing or planned storm water drainage systems; would not provide substantial additional sources of polluted runoff; and would not place housing or structures within a 100-year flood, which would impede or redirect flood flows. Therefore, these issues are not addressed further in this SEIR.

The project may be considered to have a significant effect related to water quality if implementation would result in one of more of the following:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);
- Have a significant adverse impact on groundwater quality or otherwise substantially degrade water quality;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- Cause inundation by seiche, tsunami, or mudflow

4.3.4 OVERVIEW OF PROGRAM FEIR HYDROLOGY AND WATER QUALITY ANALYSIS

Impacts. The Program FEIR concluded that grading, excavation, and construction activities associated with the proposed Revitalization Project could impact water quality due to erosion of exposed soils and subsequent deposition of particles and pollutants in drainage areas. These areas include the entire project study area subject to this SEIR. It was determined that operation of the Revitalization Project could alter drainage patterns and increase erosion and runoff amounts, thereby causing long-term impacts on the quality of storm water and urban runoff. Additionally, the Program FEIR stated that the project site could be subject to flood hazards from San Juan Creek. Cumulatively, the Revitalization Project, along with other future development, could increase hydrology and drainage impacts in the area. However, the Program FEIR analysis concluded that drainage and water quality impacts would be reduced to a less than significant level with incorporation of best management practices (BMPs), Project Design Features (PDFs), Standard Conditions of Approval (SCA), and Mitigation Measures (MMs). Measures identified in the Program FEIR and applicable to the Marina Improvement Project are listed below.

During the subsequent approval process for the Land Use Plan (LUP) component of the LCPA, several of the listed PDFs, SCAs, and MMs were clarified and became LUP Policies within the revised Dana Point Harbor Revitalization Plan LUP. Where applicable, the wording has been revised to be consistent with the approved LUP Policy, which is indicated in parenthesis.

Project Design Features (PDFs), Standard Conditions of Approval (SCA), and Mitigation Measures (MMs)

- SCA 4.4-4** OC Dana Point Harbor Department shall obtain coverage under the NPDES Statewide Stormwater Permit for General Construction Activities from the State Water Resources Control Board. Evidence of receipt of permit approval must be presented prior to the issuance of a Grading Permit. (LUP Policy 7.6.1-2)
- SCA 4.4-5** As required for obtaining any Grading or Building Permits, OC Dana Point Harbor shall demonstrate compliance under California's General Permit for Stormwater Discharges Associated with Construction Activity by providing a copy of the Notice of Intent (NOI) submitted to the State Water Resources Control Board and a copy of the subsequent notification of the issuance of a Waste Discharge Identification (WDID) Number or other proof of filing in a manner meeting the satisfaction of the Manager, RDMD/Building Permit Services. Projects subject to this requirement shall prepare and implement a Stormwater Pollution Prevention Plan (SWPPP). A copy of the current SWPPP shall be kept at the project site and available for review on request. (LUP Policy 7.6.1-3)
- SCA 4.4-8** As required for obtaining any Grading or Building Permit (whichever comes first), OC Dana Point Harbor shall prepare a Water Quality Management Plan (WQMP) and/or a project-specific amendment specifically identifying Best Management Practices (BMPs) that will be used onsite to minimize the volume, velocity and pollutant load of runoff, including measures to prevent, eliminate and/or otherwise effectively address dry weather nuisance flow. The WQMP shall follow

the model WQMP prepared by the County Flood Control District, July 1, 2003 or the most recent version available. This WQMP or amendment thereto shall also demonstrate conformance with the policies and provisions governing Water Quality and Hydrology identified in Chapter 2 of the Dana Point Harbor Revitalization Plan, Resource Protection section including applicable provisions from the Project Design Features and Requirements section. The WQMP may include one or more of the following:

- Discuss regional water quality and/or watershed programs (if available for the Harbor);
- Address and include Site Design BMPs (as applicable) such as minimizing impervious areas, maximizing permeability, minimizing directly connected impervious areas, creating reduced or “zero discharge” areas, and conserving natural areas;
- Include the applicable Routine Source Control BMPs and where necessary Treatment Control BMPs as defined in the DAMP; and;
- Demonstrate how surface runoff and subsurface drainage shall be managed and directed to the nearest acceptable drainage facility (as applicable), via sump pumps if necessary. (LUP Policy 7.6.1-5)

SCA 4.4-9 As required for obtaining any Grading or Building Permits (whichever comes first), OC Dana Point Harbor shall include in the WQMP the following additional Priority Project information:

- Include post-construction Structural Treatment Control BMP(s) as defined in the DAMP; and
- Include a conceptual Operation and Maintenance (O&M) Plan that (1) describes the long-term operation and maintenance requirements for the post-construction Treatment Control BMP(s); (2) identifies the entity that will be responsible for long-term operation and maintenance of the referenced Treatment Control BMP(s); and (3) describes the proposed mechanism for funding the long-term operation and maintenance of the referenced Treatment Control BMP(s). (LUP Policy 7.6.1-6)

SCA 4.4-10 As required for obtaining a Certificate of Use and Occupancy, OC Dana Point Harbor shall confirm compliance with the WQMP, including:

- Demonstrate that all structural Best Management Practices (BMPs) described in the project’s WQMP have been implemented, constructed and installed in conformance with approved plans and specifications;
- Demonstrate that OC Dana Point Harbor has complied with all non-structural BMPs described in the project’s WQMP;
- Submit for review and approval an Operations and Maintenance (O&M) Plan for all structural BMPs for attachment to the WQMP; and

- Demonstrate that copies of the project's approved WQMP (with attached O&M Plan) are available for each of the incoming occupants (LUP Policy 7.6.1-7)

MM 4.4-1 OC Dana Point Harbor shall prepare an assessment of the potential impacts of inundation from a tsunami taking into account future sea-level rise on the existing and proposed building structures along the seawall. (LUP Policy 8.6.2-9)

MM 4.4-2 OC Dana Point Harbor shall prepare an assessment of the potential wave run-up from a seiche or tsunami near the Harbor during a major seismic event including but not limited to an event on the Newport-Inglewood Fault and/or San Jacinto Mountains Faults prior to submittal of the first coastal development permit for development of the Commercial Core. (LUP Policy 8.6.3-6)

Level of Significance after Mitigation. No unavoidable significant impacts related to Hydrology and Water Quality were identified in the Program FEIR.

4.3.5 IMPACTS AND MITIGATION

This section addresses the potential impacts related to the removal of nearly all floating docks and piles; reconstruction of portions of the quay wall; installation of new docks, guide piles (or alternate anchoring methods), gangways, security gates, dock boxes, and utilities. This section also addresses the effects of operational changes resulting from project implementation.

Less Than Significant Impacts

Dam Inundation. The potential hazard for dam inundation and seismically induced flooding is generally associated with seismically induced failure of a reservoir located on drainages upstream of a site. The project area is not located downstream or downslope of any reservoir or water storage facilities that could adversely affect the project area in the event of earthquake-induced failures. Therefore, the potential for seismically induced flooding is considered remote.

Seiche and Tsunami

A tsunami is a sea wave generated by a large submarine landslide or an earthquake-related ground deformation beneath the ocean. Historic tsunamis have been observed to produce a run-up on shore of several tens of feet in extreme cases. Seiches are large oscillating waves generated in enclosed bodies of water in response to ground shaking. Because of the partially enclosed configuration of the Harbor, there is a possibility of seiche occurring within the Harbor.

The tsunami hazard in Southern California has been qualitatively calculated as "moderate" south of Palos Verdes to San Diego. It was predicted that a 100-year tsunami event could result in a run-up of approximately 4 ft above mean sea level in the vicinity of Laguna Beach and the Dana Point coast. The Harbor is partially shielded from tsunami waves by the headlands, which deflect ocean waves approaching the shore from the west. However, the Harbor could incur significant damage in the event that a tsunami generated in the southern Pacific Ocean strikes Dana Point. Inundation maps are

currently being developed for California under the United States National Tsunami Hazard Mitigation Program. Preliminary estimates for tsunami run-up heights on the Southern California coast have been predicted to range from 6–18 ft for a tectonically triggered tsunami event. Inundation maps showing site-specific wave run-ups at the Harbor have not yet been published.

Although extremely rare, a tsunami or seiche could cause damage to the marina facilities and boats docked at the Harbor. However, the Marina Improvement Project would not change or worsen these existing conditions, and there is an established warning system in place that would provide early notification of an advancing tsunami that would allow for evacuation. Therefore, potential impacts to public safety due to inundation by a tsunami or seiche would be less than significant.

Although people would be evacuated in the event of a tsunami, there could be property damage due to inundation and swamping of small vessels. However, tsunamis or seiche are extremely rare, and there would not be a substantial change from existing conditions with regard to marina facilities and the number of boats docked at the Harbor. Therefore, potential impacts related to damage to structures and boats would also be less than significant.

Operational Impacts

The Harbor drainage pattern (off-site and on-site drainage facilities) would not be altered as part of the proposed project. The reconfiguration of the boat slips in West and East Marinas would result in a net decrease in floating dock area of approximately 32,990 square feet due to the new configuration. However, the docks are not considered an impervious area, as typically defined, because of the gaps in the docks that are over open marina waters. Therefore, the project would not increase storm water flows into the West and East Marinas since there is no increase in the impervious area or capacity of the marina. Because the proposed project is not increasing the capacity of the marina or adding a new use to the Harbor, there will be no increase in pollutants generated on site above existing conditions. As a result, the drainage pattern, runoff volumes, and pollutants from on and off the site would remain essentially the same as in the existing condition. Therefore, potential drainage impacts as they relate to drainage pattern, runoff volumes, and pollutants are considered less than significant, and no mitigation is required.

Potentially Significant Impacts

Water Quality Impacts. Implementation of the Marina Improvement Project may result in short-term water quality impacts associated with temporary construction staging area(s), excavation associated with the construction of new ramp structures and waterside improvements associated with the removal of the docks and piles, and construction of the new docks and piles. Each of these impacts is discussed in more detail below.

The County would be required to obtain a Section 10 Permit from the Corps for placement of piles in navigable waters and a Section 404 Permit from the Corps for the discharge of material. In addition, the County would be required to obtain an RWQCB water quality certification for the federal permits listed above.

An RWQCB water quality certification would specify methods for ensuring the protection of water quality during construction activities in the Harbor. In addition, specific conditions would include the use of BMPs to minimize the discharge of construction materials from landside construction equipment, control of floating debris, discharge of displaced water produced during construction of the concrete pilings to minimize discharge of pollutants to the Harbor, placement of fueling activities such that they would not affect water quality, and provision of spill containment and cleanup equipment to control potential accidental spills.

Pile Replacement. Proposed marina improvements would be made over eight phases, during which vessels would be relocated to available berths in the Marina or moved to the temporary dock, as necessary. Within each area, the phases will include removal of the existing dock and piles and installation of the new dock and piles. Piles will be removed by vibratory extraction equipment mounted to a crane operating from a barge. However, if piles break off at the mudline, they will be manually cut 2–3 ft below the mudline. The old piles will be lifted from the water using a crane and then trucked off site. The last phase would be placement of the piles. The preferred method of pile installation is to predrill boreholes to facilitate pile driving. Prestressed concrete piles will then be driven into these holes and grouted with cement or sand.

Removal and replacement of pile structures could temporarily affect water quality if water quality protection measures were not implemented. Proposed pile removal and replacement in the Harbor would result in the short-term disturbance of localized Harbor sediments. As is typical for marina projects, disruption to sediments could adversely affect water quality by temporarily resuspending sediments, thereby increasing turbidity. In addition, chemicals that are present in the sediments could be released to the water column during resuspension, which could temporarily degrade water quality. Further, suspended sediments in the water column can lower levels of dissolved oxygen, increase salinity, increase concentrations of suspended solids, and possibly release chemicals present in sediments into the water.

The degree of turbidity resulting from the suspended sediments would vary substantially with the quantity and duration of the construction activity and would also depend on the methods used, the quality of equipment, and the care of the operator. Higher turbidity is expected to be confined to the specific area of dock improvements.

Substantially depressed oxygen levels resulting from high turbidity (i.e., below 5 milligrams per liter [mg/L]) can cause respiratory stress to aquatic life, and levels below 3 mg/L can cause mortality. However, oxygen levels resulting from project construction activities are not expected to remain low for long periods. Nonetheless, while the impacts are expected to be short term and have a less than significant impact on water quality within each specific phase, the project will be conducted over a period of several years. Thus, site-specific turbidity levels may be above ambient levels within a portion of the Harbor for an extended period. BMPs and Mitigation Measures are proposed to limit the spread of the turbidity plume outside the specific work area. As a result, increased turbidity levels would be relatively short-lived and generally confined to within a few hundred yards of the activity or within the area of containment outside the specific work area. After initially high turbidity levels within the specific work area, sediments would disperse, and background levels would be restored within hours of disturbance. In addition, tidal currents would slowly dissipate the oxygen-poor water mass and replenish ambient oxygen levels

within one to several tidal exchanges. Therefore, only temporary water quality impacts related to suspended solids and depressed oxygen levels in the water column of the specific work area would be expected. As a result, turbidity and sedimentation impacts would remain confined to within the Harbor marinas. Beaches outside of the Harbor, such as Doheny Beach or Capistrano Beach, would not be impacted by turbidity and sediment disruption within the marinas.

Proposed construction activities of the OC Sailing and Events Center facilities would occur adjacent to Baby Beach, which is impaired for bacteria. The proposed improvements to the OC Sailing and Events Center pilings and docks would not increase bacteria loadings into Baby Beach. The proposed improvements would disrupt the sediments, which could adversely affect water quality by temporarily resuspending sediments, thereby increasing turbidity, as stated above. However, implementation of BMPs would reduce these impacts to less than significant levels.

Sediment testing for the Dana Point Harbor Dredge Material Evaluation (Kinnetic Laboratories and Moffatt & Nichol 2007) indicated that fine sediments in one particular zone near the 60 in storm drain in the East Basin contain elevated levels of copper and total dichloro-diphenyl-trichloroethane (DDT) compared to other sites tested. Consequently, pile removal and replacement in the vicinity of this one zone may result in the resuspension of material that could temporarily degrade water quality. This has a potential to result in a potentially short-term adverse impact to water quality within the East Basin. Mitigation Measures to reduce the level of impact to less than significant are provided below.

Implementation of BMPs would reduce water quality impacts associated with pile removal and replacement. Common BMPs utilized during marina projects include silt curtains,¹ turbidity curtains, and gunderbooms.² Silt curtains and turbidity barriers are designed to deflect and contain sediment within a limited area. They provide time for soil particles to fall out of suspension and help prevent these particles from being transported to other areas. Therefore, although temporary water quality impacts related to suspended solids in the water column would be expected, impacts related to resuspension of sediments would be reduced to a less than significant level with implementation of Mitigation Measures 4.3-1 and 4.3-2, which require that the appropriate permits are obtained and that water quality BMPs are incorporated into the project and ensure that impacts related to pile removal and replacement are less than significant.

Dock Removal and Replacement. Removal of the existing dock system consists of separating the slips in the water and floating the structures to the west side cove staging area, where landside construction equipment would remove the slip structures from the water via crane and transport

¹ Silt curtains are intended to allow suspended sediment at a site to settle out of the water column in a controlled area, minimizing the area that is affected by the increased suspended sediment. A silt curtain is an impermeable barrier. It is constructed of a flexible reinforced thermoplastic material. The upper hem has flotation material and the lower hem has ballast material. Silt curtains are most effective when used on a project where they are not opened and closed to allow equipment access to the area. Silt curtains are also limited to project locations with less than 1–2 knot currents.

² Gunderbooms are designed to allow water to flow through the curtain while filtering suspended sediment from the flow. Gunderbooms are similar to silt curtains but are constructed of permeable geotextile fabrics. They are also designed to extend from the water surface to the project bottom.

the discarded material off site for proper disposal. This process does create some debris that has the potential to impact water quality if it is not contained and disposed of properly. Implementation of a trash and debris containment boom, as described in Mitigation Measure 4.3-3, will contain the dock debris within the waterside construction area, where the material can be easily recovered for proper disposal. Implementation of Mitigation Measure 4.3-4 will ensure that impacts related to trash and debris from dock removal and replacement are less than significant.

OC Dana Point Harbor is also considering alternative methods for disposing the existing piles. There is a potential to reuse the removed piles to create off-shore artificial reefs as an alternative to trucking them off site. Pier pilings have been utilized successfully for many artificial reefing projects from Alaska to Florida. When randomly piled to a height of 10 to 15 feet, pier pilings tend to preserve the underlying seafloor while providing good vertical relief. Regardless of the ultimate destination for the removed piles, Mitigation Measures 4.3-3 and 4.3-4 would be required in order to ensure that dock debris does not adversely impact water quality.

Landside Excavation and Construction Equipment. The proposed renovation includes the construction of nine new pedestrian platforms that comply with Americans with Disabilities Act (ADA) specifications at various locations throughout the Harbor. Current plans indicate that construction of the nine ADA platforms will require excavation of approximately 189 cubic yards of soil. The foundation for the platform consists of a mass concrete pour to fill the excavation that will be required to establish a consistent bearing grade between the seawall and the platform foundation. The mass concrete pour foundation will be approximately 7 ft perpendicular to the wall by 10 ft parallel to the wall and at least 6.5 ft below current grade.

Shallow groundwater was encountered at the site during the geotechnical investigation, and groundwater dewatering may be required during excavation activities and platform foundation installation. Discharge of groundwater into storm drains and receiving waters has the potential to significantly impact water quality. Construction dewatering on the proposed Marina Improvement Project also may be required if water has been standing on site and needs to be removed for construction, vector control, or other reasons.

Any dewatering or construction-related non-storm water discharges would be controlled in compliance with the Construction General Permit and the State permit for dewatering or an individual permit (Mitigation Measure 4.3-4). These permits require permittees to conduct monitoring of dewatering discharges and adhere to effluent and receiving water limitations contained within the permit so that water quality of surface waters is ensured protection. Compliance with the applicable dewatering permit would further assure that the impacts of these discharges are appropriately addressed.

Excavation and construction activities associated with the proposed project could impact water quality during construction due to sheet erosion of exposed soils and subsequent deposition of particles and pollutants in drainage areas. Construction controls are considered separately from other types of water quality management because the measures are temporary and specific to the type of construction. Construction of the proposed project could produce typical pollutants such as sediments, nutrients, heavy metals, toxic chemicals related to construction and cleaning, waste

materials (including washwater, paints, wood, concrete, and sanitary wastes), fuel, and lubricants. These pollutants can leak from heavy equipment, be spilled, or can be eroded by rain from exposed stockpiles. Once released, they may adsorb onto sediment particles and can be transported into the aquatic environment, where they may become available to enter aquatic food chains, cause fish toxicity problems, contribute to algal blooms, and impair recreational uses. Excavation and construction equipment impacts shall be analyzed and controlled through the preparation of an Erosion and Sediment Control Plan and WQMP prior to the issuance of any construction permits. Subject to the findings of the various plans, the proper construction-related BMPs, which prevent degradation of water quality, shall be determined. Implementation of MMs 4.3-5 and 4.3-6 will ensure that impacts related to construction equipment discharging to a waterway are less than significant.

Mitigation Measures

The following measures would reduce water quality impacts related to pile removal and replacement to a less than significant level.

- 4.3-1** To reduce water quality impacts related to pile removal and replacement, OC Dana Point Harbor shall verify, prior to the issuance of any construction permits, that authorization has been obtained from: (1) the United States Army Corps of Engineers (Corps) under the Section 404 Permit program for the discharge of material into jurisdictional waters; and (2) the Corps, under Section 10 of the Rivers and Harbors Act for the placement of piles. In addition, standard conditions of the Corps permits require Section 401 water quality certification by the Regional Water Quality Control Board (RWQCB). In order to obtain these authorizations, the County shall develop a mitigation plan subject to review and approval by the appropriate resource agencies (Corps, United States Fish and Wildlife Service [USFWS], National Marine Fisheries Service [NMFS], California Department of Fish and Game [CDFG], and RWQCB).
- 4.3-2** To reduce water quality impacts related to pile removal and replacement, OC Dana Point Harbor shall verify, prior to the issuance of any construction permits, that best management practices (BMPs) for all pile removal and replacement activities have been incorporated into project plans in order to reduce impacts to water quality to the maximum extent practicable in a manner meeting the approval of the OC Public Works (OC PW) Director. The construction contractor shall be responsible for performing and documenting the application of silt curtains and other BMPs identified in this document.

The following measure would reduce impacts related to trash and debris from dock removal and replacement to a less than significant level.

- 4.3-3** Prior to the issuance of any construction permits, OC Dana Point Harbor shall verify that a trash and debris containment boom has been incorporated into project plans and will be implemented during all dock removal and replacement activities in order to reduce impacts to water quality to the maximum extent practicable in a manner meeting the approval of the OC Public Works (OC PW) Director. The construction contractor shall be responsible for performing and documenting the application of the trash and debris containment boom.

The following measure would reduce impacts related to dewatering or construction-related nonstorm water discharges to a less than significant level.

- 4.3-4** To reduce impacts related to dewatering or construction-related non-storm water discharges, the construction contractor shall determine, prior to commencement of grading activities, whether dewatering of groundwater will be necessary during project construction. Any dewatering will require compliance with the State General Permit for discharges to land with a low threat to water quality or a dewatering permit from the San Diego Regional Water Quality Control Board (RWQCB), consistent with National Pollutant Discharge Elimination System (NPDES) requirements. Once it receives and reviews the Notice of Intent (NOI), the RWQCB will decide which permit is applicable and whether sampling is required. A copy of the permit shall be kept at the Marina Improvement Project, available for City and/or RWQCB review upon request.

The following measures would reduce impacts related to water quality during landside construction to a less than significant level.

- 4.3-5** To reduce impacts related to water quality during landside construction, the Construction Contractor shall prepare an Erosion and Sediment Control Plan (ESCP) for approval by the Director, OC Public Works (OC PW)/Building Permit Services to demonstrate compliance with local and State water quality regulations for construction activities. The ESCP shall be approved prior to the issuance of any construction permits and shall identify how all construction materials, wastes, or demolition debris, etc., shall be properly covered, stored, and secured to prevent transport into local drainages or coastal waters by wind, rain, tracking, tidal erosion, or dispersion. The ESCP shall also describe how the applicant will ensure that all best management practices (BMPs) will be maintained during construction. A copy of the current ESCP shall be kept at the offices of OC Dana Point Harbor and be available for review on request (refer to FEIR No. 591, Standard Conditions of Approval [SCA] 4.4-7).
- 4.3-6** To reduce impacts related to water quality during landside construction, the Construction Contractor shall submit for review and approval by the Director, OC Public Works (OC PW)/Inspection Services Division, an Amendment to the Dana Point Harbor Conceptual Water Quality Management Plan (WQMP) specifically identifying best management practices (BMPs) that will be used on site to control predictable pollutant runoff. Any required Amendment to the Conceptual WQMP shall be approved prior to the issuance of any construction permits. The WQMP will specifically identify BMPs that will be used on site to minimize the volume, velocity, and pollutant load of runoff, including measures to prevent, eliminate, and/or otherwise effectively address dry weather nuisance flow control predictable pollutant runoff. The WQMP shall follow the model WQMP as outlined in Exhibit 7.1 1 of the 2003 Drainage Area Master Plan, prepared by the County of Orange Flood Control District on July 1, 2003, or the most recent version available. This WQMP shall also demonstrate conformance with the policies and provisions governing Water Quality and Hydrology identified in Chapter 2 of the Dana Point Harbor Revitalization Plan, Resource Protection section, including applicable provisions from the Project Design Features and Requirements section. The WQMP shall identify, at a minimum, the routine structural and nonstructural measures specified in the current Drainage Area Management Plan (DAMP). The WQMP may include one or more of the following:

- Discuss regional water quality and/or watershed programs (if available for the project);
- Address Site Design BMPs (as applicable) such as minimizing impervious areas, maximizing permeability, minimizing directly connected impervious areas, creating reduced or “zero discharge” areas and conserving natural areas;
- Include the applicable Routine Source Control BMPs and where necessary, Treatment Control BMPs as defined in the DAMP; and
- Demonstrate how surface runoff and subsurface drainage shall be managed and directed to the nearest acceptable drainage facility (as applicable), via sump pumps if necessary (refer to Land Use Plan [LUP] I-6.1-6).

4.3.6 CUMULATIVE IMPACTS

For cumulative analysis related to Hydrology and Water Quality, the study area evaluated is the Dana Point Coastal Streams Watershed since the project site is the end receiving water for this subwatershed. This subwatershed is mostly built out, except for open space areas, which are not proposed for development. Urbanization of the Dana Point Coastal Streams Watershed has caused increases in urban runoff to the Dana Point Harbor receiving waters.

New development and redevelopment can result in increased urban pollutants in dry weather and storm water runoff from project sites. Likewise, urbanization leads to an increase in impervious area, which leads to increased peak storm flows and runoff velocity without drainage control measures in place. However, each project within the Dana Point Coastal Streams Watershed must comply with the Orange County Municipal NPDES permit, the DAMP, and the Orange County Hydrology Manual, and must include applicable BMPs to prevent adverse water quality and drainage impacts.

The proposed project site is an existing Harbor, and the immediate area surrounding the project site is largely built out. Currently, there are several projects that would be considered within the cumulative study area for hydrology/water quality impacts. The following projects are projects that are proposed or approved but are not yet fully constructed:

- The Headlands – Commercial 35,000 sf Retail/Office (CUP/CDP/SDP approved in 2007)
- The Headlands – Seaside Inn 90 Room Hotel (CDP not yet approved but included as part of HDCP approval)
- The Headlands – Custom Homes 118 SFD (CDPs approved, 25 building permits have been issued by the City)
- Dana Point Harbor Revitalization Plan (landside development)
- Doheny Hotel – 258-Room Hotel with conference room and restaurant facilities

The Headlands projects listed above were included in the cumulative analysis for the Program EIR, and therefore, because the Marina Improvement Project is a part of the Program EIR, the cumulative impacts associated with these projects, along with the landside development of the Revitalization Project, have already been considered for the proposed project. With implementation of proposed mitigation for the Marina Improvement Project and the Headlands projects, impacts related to Hydrology and Water Quality would be considered less than cumulatively significant.

The Commercial Core Project associated with the Dana Point Harbor Revitalization Project or the Doheny Hotel Project could potentially be under construction at the same time as the Marina Improvement Project. Those projects have the potential to contribute debris and sediment from demolition, grading, and construction activities associated with the redevelopment. However, the Commercial Core Project is required to adhere to the mitigation measures in the Program FEIR, and both projects are required to adhere to the standards in the Orange County Hydrology Manual and DAMP. Current NPDES regulatory requirements, such as the DAMP requirement, are designed to restore the quality of existing receiving waters as well as prevent any further degradation. That is, the intent of NPDES regulations is to improve water quality while taking into account inevitable development/redevelopment in a particular area. The overall Harbor Revitalization Project, as noted in the Program FEIR, prepared a Water Quality Management Plan (WQMP) that identified a number of source control, treatment control, and sediment and erosion control BMPs for implementation during each specific project. Overall, the Harbor Revitalization Project is making a number of improvements to the drainage and treatment of the surface water on site. Therefore, implementation and operation of the Revitalization Projects would result in a positive impact on water quality. The Doheny Hotel and Revitalization Projects' compliance with the DAMP and WQMP, and with the additional requirements included in the Program FEIR, would reduce cumulative impacts associated with construction and operation to less than significant levels.

The proposed project would be required to prepare a WQMP, in compliance with the DAMP, which would mitigate the project's contribution to drainage and erosion impacts to less than significant levels. Therefore, no adverse cumulative impacts related to Hydrology and Water Quality would result from the proposed project when it is combined with other foreseeable projects that are planned or expected to occur in the Dana Point Coastal Streams Watershed.

4.3.7 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

Implementation of Mitigation Measures 4.3-1 through 4.3-6, described above, would reduce potential project and cumulative hydrology and water quality impacts to less than significant levels. Therefore, there are no significant unavoidable adverse impacts of the proposed project related to hydrology and water quality.

4.4 TRANSPORTATION AND CIRCULATION

This section of the Subsequent Environmental Impact Report (SEIR) addresses both vehicle traffic and boater traffic changes resulting from the proposed project. The vehicle traffic analysis provides a discussion of transportation, circulation and parking in the existing setting and identifies the project's potential short- and long-term impacts on vehicle traffic conditions and parking. The following analysis recommends mitigation measures to reduce the significance of potential impacts pursuant to the California Environmental Quality Act (CEQA).

The traffic discussion includes information provided in both the Program Final EIR (FEIR No. 591) and the Dana Point Harbor Boat Traffic Study (Moffat and Nichol, November 2007), which are included in Appendix C to this SEIR.

4.4.1 EXISTING SETTING

Interstate 5 (I-5), located approximately two miles east of the Harbor runs north-south through the City and provides regional access to the Harbor. The Harbor is primarily accessible from Pacific Coast Highway and the Street of the Golden Lantern via Dana Point Harbor Drive. Secondary access is provided by Cove Road and the Pacific Ocean.

The proposed project is primarily composed of renovation of the West and East Marinas and the gangways and security gates to both Marina areas. Additionally, new Embarcadero/Dry Boat Storage Staging docks and a new dinghy dock, along with renovations to the Marine Services docks, OC Sailing and Events Center docks, guest slips, Harbor Patrol docks, commercial fishing docks, and sport fishing docks are included in the proposed project. It should be noted that the proposed project does not include additional recreation facilities that would increase the capacity or attraction of users to the project area. In addition, no increased boating capacity is included in the project, as previously discussed in Chapter 3.0, Project Description.

Harborwide Existing Trip Generation

Automobile traffic is currently generated by people traveling to and from various uses in the Harbor area, including boating-related activities, but also including other recreational uses (e.g., sightseeing and activities within the retail and commercial areas). The Dana Point Harbor Revitalization Project Program FEIR No. 591 estimated the existing daily traffic volumes for the Harbor using trip generation rates from the Institute of Transportation Engineers (ITE Trip Generation Manual, 7th Edition, 2003). The Program FEIR estimated that all Harbor uses currently generate approximately 19,198 average daily trips (ADT). Of this, it was estimated that the existing Marina areas (Planning

Areas 8, 9, 10, 11, and 12), generate approximately 7,373 ADT,¹ based on an existing slip count of 2,491 and a trip generation factor of 2.96 trips per slip.

The Dana Point Harbor Marina Improvement Project addressed in this SEIR includes a total existing slip count of 2,409 slips in the West and East Marinas plus 65 existing slips (42 guest slips, 8 Harbor Patrol slips and 15 commercial fishing slips) and 4,196 existing linear feet (lf) of dock space in the additional project areas: Embarcadero/Dry Boat Storage Staging docks; Marine Services docks; sport fishing docks; and OC Sailing and Events Center docks. The Program FEIR assumed an existing slip count of 2,491 slips and did not include a tabulation of dock linear footage for any uses. The areas where this SEIR includes linear footage were previously accounted for by the land use associated with them and the number of square feet of that land use. Therefore, traffic associated with the 4,196 lf of dock space would have been accounted for in the trips associated with each land use analyzed in the Program FEIR. For example, the Program FEIR included a 6,000 square foot (sf) Harbor Patrol Building that would generated an ADT of 66 trips based on a land use generation rate of 11.01 trips per 1,000 sf.

This SEIR analyzes traffic based on a total existing slip count of 2,474 (2,409 plus 65) which is a worst-case scenario that assumes 100 percent slip occupancy. As described above, the linear feet of existing dock space were included in the landside traffic analysis based on the associated land uses (trailer parking, shipyard, Harbor Patrol building, etc). Table 4.4.A compares the ADT for existing slip counts from the Program FEIR to the SEIR project, as well as the ADT based on those existing slip counts.

Table 4.4.A: Existing Slip Count and ADT Comparison

	Total Number of Existing Slips	ADT
Program FEIR	2,491	7,373
SEIR Project	2,474	7,323
Net Difference	-17	-50

Note: Trip generation based on a factor of 2.96 trips per slip, consistent with the Program FEIR.

ADT = average daily trips

For consistency purposes and ease of comparison, the Program EIR ADT of 7,373 will be used as an existing ADT volume for the following traffic analysis. The net difference of an additional 50 ADT is considered minor and does not affect the overall analysis in this SEIR.

Existing Parking

To determine the Harbor parking capacity, the Program FEIR divided the Harbor into five parking zones (A through E), counted all parking spaces within each Zone and summarized the on-site

¹ Dana Point Harbor Revitalization Project, Program Environmental Impact Report, Table 4.5-2, *Existing Trip Generation (Harborwide and Commercial Core)*, RBF, January 2006.

parking requirements for existing land uses based on County of Orange (County) and City of Dana Point parking requirements. The State Department of Boating & Waterways (DBW) parking guideline for boat slips is 0.6 parking spaces per boat slip, which was used to calculate the required boat slip parking quantity. The Program FEIR determined that there was an off-street parking requirement for 1,467 designated boater parking spaces based on the existing total number of recreational boat slips, in the East and West basins.¹ The Program FEIR concluded that there was an excess of parking spaces provided in all Harbor parking zones, except for the commercial area. Since certification of the Program FEIR, and based on suggested modifications from the California Coastal Commission Staff during the Local Coastal Program Amendment (LCP) process, the existing parking analysis was re-organized. The five parking zones mentioned above (A through E) were modified to adjust the configuration of the zones serving the commercial core area of the Harbor and are now identified as roman numerals I through V. Updated slip counts were also performed and it was determined that there was an off-street parking requirement of 1,444 designated boater parking spaces, based on the current number of recreational boat slips (2,409) in the East and West basins. Figure 4.4-1 depicts the existing Parking Zones I through V. Table 4.4.B depicts the existing parking requirements throughout the Harbor.

Boater Traffic

The Dana Point Harbor Boat Traffic Study (Moffat and Nichol, November 2007) was prepared to analyze boat traffic conditions in the inner channel under existing conditions and with the proposed renovation configuration. The study analyzed historical boat traffic data from similar Marinas and conducted observations of boat traffic on a summer Saturday in the Harbor. The modeled boat traffic counts were calibrated based on the measured and observed boat traffic from the summer weekend day. The results indicate that the typical summer weekend boat traffic is comprised of approximately 18 percent of berthed vessels.

4.4.2 METHODOLOGY

The proposed project was analyzed for potential impacts resulting from two sources: construction activities and boater trips. Because the project does not contain any landside uses and is specifically the renovation of dock facilities in the water, no changes in land use (landside uses) traffic were analyzed. The project will relocate some ADA parking spaces so that they are located next to the proposed ADA gangways. In addition, approximately 150 parking spaces will be used for the construction staging area during project construction. These parking spaces would become available once construction activities are finished. However, the Marina Improvement Project does not include any other permanent changes to surface parking lots throughout the Marina; therefore, impacts to parking are analyzed on the basis of potential conflicts with construction staging and construction-related traffic.

¹ Dana Point Harbor Revitalization Project, Program Environmental Impact Report, Table 4.5-5, *Existing Parking Requirements*, RBF, January 2006.

Table 4.4.B: Dana Point Harbor Existing Parking Requirements Summary

Parking Zone	Planning Area	Description	Land Use	Parking Requirement	Existing		
					Existing Size	Required Spaces	Provided Spaces
I	1	Surface Boat Storage	Boat Use ²	0.25 per boat	516 Boats	129	
	1	Dry Stack Boat Storage	Boat Use	0.25 per boat	0	0	
	1	BSB X	Office	1 per 250 sf of gfa	2,500 sf	10	
	1	Shipyards Building	Motor Vehicle Sales & Repair	1 per 400 sf of gfa	5,000 sf	13	
	11	Recreational Boat Slips (Rental Boats)	Boat Use ⁵	0.6 per boat slip	32	19 ⁴	
	2	BSB 1	Office	1 per 250 sf of gfa	2,000 sf	8	
	2	Retail/Restaurant – Retail Component	Retail	1 per 200 sf of gfa	26,600 sf	133	
	2	Retail/Restaurant – Restaurant Component	Restaurant	1 per 100 sf up to 4,000 sf plus 1 per each 80 sf above 4,000 sf	61,500 sf (includes outdoor dining/dining dining)	666	
	11	Sport Fishing	Boat Use	Measured Use		125 ⁴	
	11	Charter Boat Concessions	Boat Use	1 space per 3 passengers	49	16 ⁴	
	10	Rec. Boat Slips	Boat Use	0.6 per boat slip	119	71 ⁴	
		Total				1,191	
II	11	Catalina Ferry	Boat Use	Measured Use		120 ⁴	
	3	Hotel	Hotel	1 per guest room	136 rooms	136	
	3	BSB 2	Office	1 per 250 sf of gfa	1,800 sf	7	
	3	BSB 3	Office	1 per 250 sf of gfa	1,800 sf	7	
	3	BSB 4	Office	1 per 250 sf of gfa	2,500 sf	10	
	10	Rec. Boat Slips	Boat Use	0.6 per boat slip	609	365 ⁴	
		Total				645⁴	

Table 4.4.B: Dana Point Harbor Existing Parking Requirements Summary

Parking Zone	Planning Area	Description	Land Use	Parking Requirement	Existing		
					Existing Size	Required Spaces	Provided Spaces
III	9	Rec. Boat Slips	Boat Use ⁵	0.6 per boat slip	512	307 ⁴	
	9	Charter Boat Concessions	Boat Use	1 space per 3 passengers	49	16 ⁴	
	5	OC Sailing & Events Center	Union Halls, Lodges, Clubs	1 per 75 sf of gfa	11,000 sf	147	
	5	BSB A	Office	1 per 250 sf of gfa	1,800 sf	7	
	5	BSB B	Office	1 per 250 sf of gfa	1,800 sf	7	
	5	BSB C	Office	1 per 250 sf of gfa	1,800 sf	7	
	6	Ocean Institute ³				20	
	Total					512	
IV	9 & 10	Rec. Boat Slips	Boat Use ⁵	0.6 per boat slip	1,169	701 ⁴	
	10	Commercial Boat Slips	Boat Use ⁵	2 per boat slip	15 slips	30	
	4	Harbor Patrol Building	Office	1 per 250 sf of gfa	6,000 sf	24	
	4	General Marine Commercial	Yacht Broker/Office	1 per 250 sf of gfa	10,000 sf	40	
	4	BSB D – Dana West Yacht Club	Yacht Club & Storage ²	4 per 1,000 sf	1,800 sf	7	
	4	BSB E	Office	1 per 250 sf of gfa	1,800 sf	7	
	4	BSB F	Office	1 per 250 sf of gfa	1,800 sf	7	
	4	BSB 5 – Aventura Sailing Association	Yacht Club & Storage ²	4 per 1,000 sf	2,000 sf	8	
	4	BSB 6	Office	1 per 250 sf of gfa	1,800 sf	7	
	4	BSB 7	Office	1 per 250 sf of gfa	1,800 sf	7	
	4	BSB 8	Office	1 per 250 sf of gfa	1,800 sf	7	
	4	Dana Point Yacht Club	Yacht Club & Storage ²	4 per 1,000 sf	12,400 sf	50	
	Total					895⁴	

Table 4.4.B: Dana Point Harbor Existing Parking Requirements Summary

Parking Zone	Planning Area	Description	Land Use	Parking Requirement	Existing		
					Existing Size	Required Spaces	Provided Spaces
V	6	Ocean Institute ³				110 ⁴	
	Total					110	110
	Totals					3,428⁴	3,962

¹ This does not include the car with trailer spaces provided for the boat launch ramp, or the on-street parking along a portion of Dana Point Harbor Drive and Street of the Golden Lantern.

Additionally, the Boater service Buildings parking requirement is based on the office portion of the building gross floor area.

² For comparative purposes, rates are based on City of Los Angeles Planning and Zoning Code, Section 12.21, 9/13/2000 revision, and California Department of Boating and Waterways standards.

³ Total number of spaces required, based on “Traffic and Parking Study for the OC Marine Institute Expansion” (January 27, 2000)

⁴ Information has been updated since FEIR No. 591.

⁵ Rates are based on California Department of Boating and Waterways standards.

⁶ The parking requirement is calculated on a restaurant-by-restaurant basis, not an aggregate total. The restaurant square footage includes outdoor patio/dining areas.

⁷ On-street parking is also available on Dana Point Harbor Drive (62 spaces) and Street of the Golden Lantern (65 spaces). These spaces are not included in the “Provided Spaces” column.

BSB = Boater Service Building

sf = square feet

gfa = gross floor area

4.4.3 THRESHOLDS OF SIGNIFICANCE

The impact significance criteria used for this analysis are based primarily on Appendix G of the State CEQA Guidelines and the County of Orange Local CEQA Procedures Manual (2000). The project may be considered to have a significant effect related to traffic and circulation if implementation would result in one of more of the following:

- Result in an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)
- Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)
- Result in inadequate emergency access
- Result in inadequate parking capacity
- Conflict with adopted policies, plan or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks)

4.4.4 OVERVIEW OF PROGRAM FEIR TRANSPORTATION/CIRCULATION ANALYSIS

Impacts. The Program FEIR concluded that construction activities associated with the proposed Revitalization Project would generate additional vehicle trips on adjacent roadways and impact existing parking facilities, thus affecting the level of service (LOS) at intersections and roadways and parking capacities. Operation of the Revitalization Project could generate additional trips on the adjacent roadways, thus affecting the LOS at intersections and roadways identified in the Program FEIR. The Program FEIR further concluded that operation of the Revitalization Project would also generate additional parking demand. However, the Program FEIR analysis determined that traffic and parking impacts would be reduced to a less than significant level with incorporation of the Project Design Features (PDFs), Standard Conditions of Approval (SCA), and Mitigation Measures (MMs). Measures identified in the Program FEIR and applicable to the Marina Improvement Project are listed below.

During the subsequent approval process for the Land Use Plan (LUP) component of the LCPA, several of the listed PDFs, SCAs, and MMs were clarified, and became LUP Policies within the revised Dana Point Harbor Revitalization Plan LUP. Where applicable, the wording has been revised to be consistent with the approved LUP Policy, which is indicated in parenthesis.

Project Design Features (PDFs), Standard Conditions of Approval (SCA), and Mitigation Measures (MMs)

- PDF 4.5-1** The construction phasing plan for the Commercial Core includes early construction of the parking deck and ramp, augmenting parking for Harbor visitors and boaters.
- PDF 4.5-2** A seasonal water taxi service may be incorporated throughout the Harbor to reduce average daily trips (ADTs) during peak Harbor usage days. (LUP Policy 6.2.3-11)
- PDF 4.5-4** Designated boater drop-off areas and parking shall be provided in the Commercial Core. (LUP Policy 6.2.5-11)
- SCA 4.5-1** Prior to the approval of any Coastal Development Permit or Grading Permit for Revitalization Plan Improvements, OC Dana Point Harbor shall prepare a construction-phase Parking Management Plan (PMP) that ensures public access will be retained to the extent it can be safely provided and to reduce construction congestion/conflicts. (LUP Policy 6.2.5-13)
- MM 4.5-2** OC Dana Point Harbor shall provide a construction sign program to direct Harbor visitors and boaters to available parking. (LUP Policy 8.5.3-9)
- MM 4.5-3** Access to the Marine Services Commercial areas shall be maintained during all construction phases. A Construction Management Plan shall be prepared identifying the configuration of construction staging areas, temporary access routes and parking areas and will be submitted with development permit applications. (LUP Policy 4.4.1-6)
- MM 4.5-7** OC Dana Point Harbor shall prepare a Traffic Management Plan (TMP) to include a provision for use of offsite locations for parking for peak Harbor use periods as necessary. (LUP Policy 6.2.5-14)

Level of Significance after Mitigation. No unavoidable significant impacts related to traffic and circulation impacts were identified in the Program FEIR.

4.4.5 IMPACTS AND MITIGATION

The Initial Study (IS) prepared by the County (Appendix A) determined that the project is not located in the immediate vicinity of any airport and thus would not result in a permanent change to air traffic patterns. In addition, replacement of the dock and slip facilities does not include any long-term improvements to circulation or transportation facilities and would not create hazardous conditions related to transportation design features. The project is not anticipated to conflict with any policies, plans, or programs supporting alternative transportation. In addition, no alternative transportation facilities such as bus turnouts or bicycle racks will be impacted with implementation of the proposed project. Therefore, these issues are not addressed further in this SEIR.

Less Than Significant Impacts

Marina Trip Generation. Because the proposed project may result in a reduction in the overall number of slips through the Harbor, no increase in traffic due to boater usage is anticipated. However, in order to verify these assumptions, the number of vehicle trips as they relate to the number of slips was analyzed.

As stated above, automobile traffic is currently generated by people traveling to and from various uses in the Harbor, including boating-related activities, but also other recreational uses (e.g., sightseeing and activities within the retail and commercial areas). However, because the proposed project is strictly associated with the renovation and number of slips, this analysis focuses primarily on project-related changes to automobile trips generated by boaters. The level of automobile traffic related to other uses in the Harbor is not expected to increase under the marina project conditions and is not anticipated to be affected by the change in the number of slips in the Harbor.

In order to calculate trips generated by a project site, transportation planners and engineers utilize published trip generation rate sources such as the Institute of Transportation Engineers (ITE) Trip Generation. It should be noted that ITE trip generation rates for Marina uses are not defined by the individual size of slips, but only by the number of slips/berths. It is anticipated that overall trips to and from the Marina would decrease during and after construction (operational conditions) due to the overall reduction in number of slips. The ITE Trip Generation Rates are the accepted professional methodology, and there are no existing standards or reliable studies by which to estimate the number of boat users/vehicle trips based on different slip sizes. Therefore, any analysis of impacts related to the size of the slips and/or boats is considered too speculative and unreliable to warrant further discussion, in accordance with CEQA Guidelines Section 15145.

The ITE manual contains a trip generation rate of 3.22 ADT per slip for Marina land uses for a weekend day (Saturday). However, the ITE trip generation rates for Marina land uses are defined in the ITE manual as applicable to both public and private Marina facilities, with some facilities having social and club activities, along with retail and restaurant uses. Therefore, the number of trips accounted for in the generation rates is attributable to slip usage as well as ancillary Marina uses such as retail and restaurant. The Program FEIR calculated the number of vehicle trips based on a lower ITE rate of 2.96 vehicle trips per slip, typical for weekday traffic, and concluded that the existing Marina slips generate approximately 7,373 ADT. No change in the number of slips was analyzed in the Program FEIR, and the assumed future traffic generated by the slips remained 7,373 ADT. Using the higher ITE trip generation rate of 3.22 vehicle trips per slip typical for a Saturday condition, the traffic generated based on the 2,491 slips analyzed in the Program FEIR would be 8,021 ADT.

At project completion, the proposed Marina Improvement Project assumes the total number of slips may decrease from 2,409 to 2,293 slips in the East and West Marinas, a decrease of approximately 116 slips based on the currently proposed schematic design. The number of slips in the additional Marina areas would increase by 4 (at the guest docks), for a total of 69 slips (42 guest slips, 8 Harbor Patrol Slips and 15 commercial fishing slips), resulting in an overall Harbor total of 2,362 slips (2,293 plus 69) with project implementation. In order to present the worst-case scenario and to represent the maximum of trips assigned per slip, the daily generation rate of 3.22 trips per slip, a typical rate for Saturdays, is used for this SEIR analysis. This is not, however, an accurate portrayal of trips related

solely to slips since the ITE generation rates include ancillary Marina uses such as retail and restaurant, as described above.

Based on the trip generation rate of 3.22 trips per slip and an overall project total of 2,362 slips, an estimated ADT of 7,606 vehicle trips would be generated at project completion, as shown on Table 4.4.C. Based on the higher ITE rate that estimated 8,021 ADT were actually being generated under existing conditions, the Marina Improvement Project’s ADT of 7,606 represents a reduction of 415 trips per day. The reduction in the number of slips results in fewer vehicle trips than under the conditions analyzed in the Program FEIR.

The vehicle rates used in the analysis are considered conservative since the number of traffic trips assumes that every slip in the Harbor is generating traffic on any given day. The Dana Point Harbor Boat Traffic Study (Moffat and Nichol, September 2007) estimated that approximately 18 percent of the slips are utilized on a typical summer day. Applying this factor of 18 percent (to a total of 2,362 slips), 425 boats would be in use, which would significantly reduce the number of vehicle trips under ongoing operational project conditions from 7,606 ADT to 1,369 ADT. To provide a more conservative, worst-case analysis, if 25 percent of the total boats (591 slips) were assumed to be used on any one day, the operational vehicle trips would be reduced from an estimated 7,606 ADT to 1,903 ADT.

Based on the above analysis, impacts related to vehicle traffic generated from the Marina Improvement Project are considered less than significant, and no mitigation is required.

Table 4.4 C: Traffic Volumes With Project

	Existing ADT ¹	Buildout ADT	Buildout ADT with 25% slip usage
Program FEIR	8,021	8,021	2,006
Proposed SEIR Project	7,966	7,606	1,903
Net Difference	-55	-415	-103

¹ Based on ITE trip generation rate of 3.22.
 ADT = average daily trips

Boater Vessel Traffic–Harborwide. Project impacts related to boater traffic were analyzed in the Dana Point Harbor Boat Traffic Study (Moffatt and Nichol, November 2007). The preferred project analyzed in the 2007 study included a reduced design width of the West and East Basin inner channels by up to a 20-foot (ft) encroachment (from each side) and a 52.5 ft encroachment (from each side) into both inner channels near the Island Bridge. The current preferred design includes a 20 ft encroachment on both the north and south sides of both the West and East Basins (for a total of 40 ft), with only a 20 ft encroachment at the entrances of the East and West Basins (refer to Figure 3.13, Project Description). The encroachment tapers back to 0 ft adjacent to the Island Bridge to allow vessels to more easily turn around at the bridge, if needed. The Boat Traffic Study based on the previous design concluded that there is little to no present inner channel congestion and that there will be no significant change in the congestion on a regular basis due to the proposed design. Because the current preferred design results in less overall encroachment (due to the tapered encroachment design), the Boat Traffic Study’s conclusion that there will be no significant change in the congestion on a regular basis due to the proposed design remains valid.

The boat traffic model is based on the concept of LOS, which relates the capacity of the channel to the volume of boat traffic under different conditions and is represented by a scale of service levels from A to F, with A being the best condition. The LOS of channels is analogous to the traffic modeling concept and is a direct function of usage and channel capacity. The levels are set based on factors including numbers and sizes of boats, their speed and maneuverability, and channel size and geometry.

The capacity of the inner channel in the Harbor was assessed based on the navigable width of the channel and the amount of boater traffic. The Boat Traffic Study concluded that the daily use factor on a typical summer day was approximately 18 to 25 percent of berthed vessels in use. Boat traffic was also adjusted to account for boats from the West Basin that pass under the Island Bridge as opposed to going around to the Main Channel. Volume-to-capacity (v/c) ratios were then developed based on typical usage factors. The results indicated that although project implementation would result in a slight decrease in the LOS for both basins, the amount of change is considered to be so small that it would not result in any perceptible change in operations.

Boater Vessel Traffic–Embarcadero/Dry Boat Storage Docks and Marine Services Docks. The Embarcadero/Dry Boat Storage Staging docks will be located adjacent to the future Dry Boat Storage facility in the basin area adjacent to the boat launch ramp. The Embarcadero/Dry Boat Storage Staging docks will accommodate a varying number and size of boats on a fluctuating basis. These docks will continue to provide dock space for Embarcadero Marina operations, as well as for staging boats as they are taken in and out of the storage facility. Operations related to the Embarcadero Marina are anticipated to remain similar to existing conditions, with boat rentals, sailing lessons, and operation of one hoist for boats on trailers or stored in surface spaces. With the implementation of the Dry Boat Storage facility, it is anticipated that the intensity of boating operations in this area will remain consistent with existing and historic levels. Boats will be staged at the docks by Embarcadero staff as part of the Dry Dock Storage service, which will help eliminate potential boater loading/unloading conflicts and congestion in the staging area. No significant changes in the volume or level of service in this area are anticipated as a result of the Marina Improvement Project.

A portion of the Marine Services docks (294 lf) will be redesignated with project implementation. However, this is not expected to affect operations for Marine Service operators such as the Marine Services docks because this existing dock space is currently subleased to other independent businesses, such as a jet ski rentals and other non-shipyard related uses. This portion of the dock space will be allocated for use by the Dry Boat Storage facility, which is a part of the Harbor Revitalization Project. Operational conditions are expected to remain similar to existing conditions.

Operational impacts related to boat traffic in these areas are therefore considered to be less than significant and no mitigation is required.

Boater Vessel Traffic–Temporary/Yacht Broker Docks. In order to accommodate boaters during dock and slip renovations, the project includes one set of temporary docks along the east breakwater. Once renovations to all dock areas are completed, the temporary dock may become docks for some yacht brokers who currently have docks in the East and West Basins. The temporary docks are

intended to accommodate yacht broker vessels upon project completion, and are located in an area not currently used for slips (the East Turning Basin). Any permanent placement of docks in this area would require future permits from the Army Corps as they are located within a federal Anchorage area. The Boat Traffic Study indicated that the reduced inner channels would not result in any perceptible change in operations, and therefore, it can be assumed that the dock placement into the East Turning Basin, which is a significantly larger and wider area than the inner channels, would not significantly impact boat traffic.

Boater Vessel Traffic–Construction. Proposed marina improvements would occur in 17 phases over 8 years during which vessels would be relocated to available berths in the Marina or moved to the temporary dock, as necessary. Within each area, the phases will include removal of the existing dock and piles and installation of the new dock and piles. Removal of the existing dock system consists of separating the slips in the water and floating the structures to the west side cove staging area, where landside construction equipment would remove the slip structures from the water via crane and transport the discarded material off site for proper disposal. Installation of the new dock system would be done in reverse. Piles will be removed by vibratory extraction equipment mounted to a crane operating from a barge. However, if piles break off at the mudline, they will be manually cut 2–3 ft below the mudline. The old piles will be lifted from the water using a crane and then trucked off site. The last phase would be placement of the piles and docks. The preferred method of pile installation is to predrill boreholes to facilitate pile driving. Prestressed concrete piles will then be driven into these holes and grouted with cement or sand.

During construction, boats normally berthed in areas where construction is taking place will be relocated to the temporary docks or open slips throughout the Marinas. The County estimates that the number of slips vacated in the last few years, also known as attrition, has offset the loss of slips due to project implementation. As of August 14, 2011, there has been a slip attrition of over 950 boats. As a result, the County expects that no boaters will need to be relocated from the Harbor upon project completion because the number of vacancies through attrition over the last few years exceeds the number of slips lost with the proposed plan. Therefore, boat traffic will be dispersed to a larger area during construction, reducing congestion. The on-water construction equipment required for the proposed project will generally be localized within the dock areas where construction activities are being conducted. Therefore, impacts to boater traffic during construction are anticipated to be less than significant.

4.4.5.2 Potentially Significant Impacts

Boater Vessel Traffic–East and West Basins. The following discussion regarding boater traffic in the East and West Basins includes potential impacts resulting from improvements to the East and West Marinas, the OC Sailing and Events Center, Harbor Patrol, commercial fishing, and guest and dinghy dock areas.

Renovations to the Harbor Patrol and commercial fishing docks would not result in operational changes to these dock areas because they are not being relocated, and no increase in capacity is planned. With project implementation, the existing guest slips would be relocated from the far west cove side of the West Marina to the East Marina near the Commercial Core in order to improve visitor access. A dinghy dock will also be provided near the Commercial Core and will create greater

access for boaters wishing to visit commercial uses by using their dinghies instead of their cars. This could potentially reduce boater vehicle trips within the Harbor.

Renovations to the OC Sailing and Events Center docks result in similar linear footage when compared to the existing facility. Operationally, the OC Sailing and Events Center will continue to use the docks for sailing programs. The uses at the site are not changing, and therefore, no impacts related to boating use in this area are anticipated.

Implementation of the project would result in fewer, and on average slightly longer (less than 2 ft on average), slips in the Harbor. However, the change in the average size of slips in the East and West Marinas would not change the operations within those Marinas; daily usage of boats would continue to be approximately 18 to 25 percent. In addition, reconfiguration of the docks includes a 20 ft encroachment on each side in both the East and West Marina inner channels (for a total of 40 ft), with a 20 ft encroachment at the entrances of the East and West Basins, tapering to a 0 ft encroachment near the Island Bridge (refer to Figure 3.13, Project Description). The Dana Point Harbor Boat Traffic Study analyzed the project, including inner channel narrowing, and concluded that there would be no significant change in boat congestion in the East and West Basins due to the proposed design. Even though there will be no substantial congestion created by channel narrowing, additional boat-to-boat conflicts may arise. In order to reduce any potential operational impacts related to channel narrowing, the Dana Point Harbor Boat Traffic Study recommended several measures to reduce boat-to-boat conflicts in the inner channels. Mitigation Measure 4.4-1 requires enforcement of existing rules regarding speed limits, along with continuation of recently implemented education and guidelines for human-powered craft rentals. Mitigation Measure 4.4-1 is proposed to ensure that impacts related to boat traffic in the inner basin channels will be reduced to a less than significant level.

Construction Traffic. Although the proposed Marina Improvement Project would not create additional traffic, construction traffic associated with the renovations could create short-term and intermittent traffic and circulation impacts on site. Construction would occur on Mondays through Saturdays in accordance with County standards, and staging of construction equipment and material would occur on the cove side of the West Marina. The intensity and nature of construction activity would vary over the construction period, and the effects of added truck traffic on area roadways would likewise vary. Because truck trips would be spread over the work day, the temporary impact on traffic flow would be less than significant. During project construction, construction workers would use parking spaces in the Harbor areas, which on weekdays are available in ample supply.

In addition to the 189 cubic yards of excavated material that would be removed for installation of the Americans with Disabilities Act (ADA) platforms, project implementation will require removal of all floating dock systems and pilings, as well as delivery of the new dock systems and pilings to the project site. Due to the lengthy construction period (estimated to be completed over eight years), and given that the exact construction methods or the mode of travel by which materials and workers would be transported to and from the site have not yet been established (i.e., truck vs. barge), it would be premature to quantify the number of truck trips and construction worker trips, and such quantification would likely be inaccurate. Therefore, because the impacts of construction traffic on the Harborwide circulation and parking conditions could be potentially significant, a Construction Management Plan (CMP) shall be required. The Program FEIR included a mitigation measure (MM

4.5-3) requiring the preparation of a CMP to address potential traffic conflicts during construction and to establish access locations for construction equipment separate from those used by the general public. This Mitigation Measure is applicable to the proposed project and will be carried forward and incorporated into the proposed Marina Improvement Project. Implementation of this measure (MM 4.4-2) will reduce potential construction-related traffic impacts to a less than significant level.

Due to the length of construction related to implementation of the Marina Improvement Project, it is possible that construction of the proposed project could occur at the same time as portions of the Dana Point Harbor Revitalization Project Commercial Core component. Due to the close proximity of these two projects within the same Harbor, construction traffic from the combined projects could result in a potentially significant circulation impact. Therefore, in the event that construction of these two Harbor projects occurs at the same time, implementation of Mitigation Measure 4.4-3 is proposed, requiring that the truck route and circulation effects of the two projects be addressed by one Construction Management Plan. Implementation of this measure would reduce potential construction traffic impacts to a less than significant level. It should be noted that the LCPA regulations and California Coastal Commission (CCC) suggested modifications also require a Parking Management Plan to be prepared during the Commercial Core area Coastal Development Permit approval process.

Construction Parking. The staging area for the duration of project construction will be located in the West Cove parking lot. The construction staging area will result in the loss of approximately 150 parking spaces for the duration of construction activities. The parking spaces would become available once construction activities are finished. The Program FEIR concluded that the number of parking spaces provided Harborwide with the Revitalization Plan would exceed the County's parking requirements.¹ Specifically, the construction staging area is located in the West Cove parking lot, which was identified as Parking Zone C (now known as Zone III) in the Program FEIR. The Program FEIR concluded that 443 parking spaces were required for Zone C, with 652 spaces provided under the Revitalization Plan. Based on this surplus of 209 parking spaces, the loss of approximately 150 spaces during construction of the Marina Improvement Project is considered a less than significant impact. In the revised parking analysis prepared for the CCC, Parking Zone C is now referred to as Parking Zone III. The only physical change to this boundary was the addition of the Cove Road Parking Lot to this zone. Under existing conditions, Zone III was determined to have 224 surplus spaces, based on the County and California Department of Boating and Waterways (DBW) requirements.

The construction staging area will extend all the way to the quay wall, which will require that the boardwalk be rerouted or detoured around it for the entire construction period. During each phase, there will be periods of time when the boardwalk will be detoured and parking may be restricted or impacted by the boardwalk detour. In order to reduce impacts related to parking and walkway conflicts with construction equipment, Mitigation Measure 4.4-2 has been proposed, which requires OC Dana Point Harbor to prepare a Construction Management Plan. Implementation of Mitigation Measure 4.4-2 will ensure that operational impacts related to parking during construction are reduced to a less than significant level.

¹ Dana Point Harbor Revitalization Project, Program Environmental Impact Report, Table 4.5-37, *Dana Point Harbor Proposed Project Parking*, RBF, January 2006.

Operational Long-Term Parking. The proposed Marina Improvement Project does not involve any permanent changes to the number of parking spaces located in the Harbor. The DBW parking guideline for boat slips is 0.6 parking spaces per boat slip. Similarly, the modifications to the Dana Point Harbor LUP certified by the CCC include the adoption of a parking standard of 0.6 space per boat slip and 1 space per 3 passengers for sport fishing, charter boat, and passenger ferry operations. The Program FEIR concluded that the number of parking spaces provided with the Revitalization Plan would exceed the County's parking requirements.¹ In addition, implementation of the project does not increase the number of slips in the Harbor and therefore does not create a need for additional parking spaces. Even if the "no net loss" of slips is achieved, the LUP modifications to the parking regulations include a requirement to reserve adequate land areas to provide parking for 2,409 slips (the "no net loss" policy). Further, the LUP parking regulations include a requirement to provide boater parking spaces within 300 ft of the land/dock connection or a maximum of 600 ft from the connection.

One temporary dock is planned along the eastern breakwater near the County's metered parking lot and will be accessible to boaters from Puerto Place. Once renovations are complete, the temporary dock may be used on a permanent basis as a yacht broker dock; however, any permanent use within this federal anchorage area would require approval by the United States Army Corps of Engineers. This dock is anticipated to accommodate approximately 62 boats owned by yacht brokers. Because these docks will be utilized by yacht brokers, parking for these docks will be provided in the designated boater lots near each particular yacht broker's building. If needed, customers will be shuttled to the temporary dock by boat or car by the yacht broker staff.

Mitigation Measure 4.5-7, included in the Program FEIR, requires OC Dana Point Harbor to prepare a Traffic Management Plan (TMP) to minimize operational parking conflicts during peak Harbor use periods, which would also be applicable to the Marina Improvement Project. Although the Marina Improvement Project does not result in significant operational impacts related to parking conditions, Mitigation Measure 4.4-2, as discussed above, is proposed to ensure that potential parking conflicts during construction are reduced to a less than significant level.

Mitigation Measures

The following measure would increase the level of safety and reduce potential impacts related to boat congestion in the East and West Basins to a less than significant level.

- 4.4-1** To reduce potential boat congestion in the East and West Basins, OC Dana Point Harbor (Harbor) shall, beginning at the start of construction and in the areas of construction activity, provide education and outreach to ensure that the slow speed/no wake policy is adhered to and to ensure that speeds in the Inner Channel are maintained at 4 to 5 knots in order to maintain boat traffic flow and steerage. Additionally, no construction shall be permitted to block the main navigational channels in the Harbor and should minimize the disruption or loss of existing docks by providing temporary facilities to the greatest extent feasible (refer to Implementation Plan [IP] II-3 Special Provision [SP] No. 3).

¹ Dana Point Harbor Revitalization Project, Program Environmental Impact Report, Table 4.5-37, *Dana Point Harbor Proposed Project Parking*, RBF, January 2006.

The following measures would reduce parking, public access, and circulation conflicts during construction operations to a less than significant level.

- 4.4-2** Public and boater access shall be provided to all Harbor facilities and businesses to the extent that they can be safely accessed during construction activities and reduce parking congestion/conflicts. To reduce parking, public access, and circulation conflicts during construction operations, OC Dana Point Harbor shall prepare a Construction Management Plan (CMP) that establishes access and staging locations for staging areas, temporary access routes, and parking areas that are separate from those used by the general public. The CMP shall also include the locations for shuttle drop-off areas, the relocations of public transit facilities, and provisions for valet service (in the event that construction activities do not allow for convenient parking adjacent to existing businesses).

The CMP shall be prepared and approved prior to issuance of any construction or building permits and shall include a construction sign program to direct Harbor visitors and boaters to available parking during all phases of construction (refer to FEIR No. 591, Mitigation Measures 4.5-3 and 4.1-3a, Land Use Plan [LUP] I-4.4.1-6 A, Implementation Plan [IP] II-14.6e, and IP II-3 Special Provisions [SP] No. 3).

- 4.4-3** Construction phasing for implementation of all Dana Point Harbor Revitalization Plan improvements shall minimize the disruption of vehicular and pedestrian access routes and parking availability to the maximum extent feasible. Access to the Marine Services Commercial areas shall be maintained during all construction phases. To reduce parking, public access, and circulation conflicts during construction operations, OC Dana Point Harbor shall prepare a coordinated construction truck route and parking program should the Dana Point Harbor Revitalization Plan Commercial Core construction occur at the same time as construction of the Marina Improvement Project.

In the event of temporary closures, alternative routes and clear directional signage shall be provided. Any temporary parking loss during construction shall be replaced prior to its removal and shall be located in reasonable proximity to the uses it serves to the maximum extent feasible. Temporary replacement parking spaces, located in reasonable proximity to the uses they serve, to the maximum extent feasible shall be provided prior to the removal of any existing parking spaces due to construction, in accordance with an approved Construction and Temporary Operations Plan (refer to Implementation Plan [IP] Section II-14.6e).

The coordinated program shall be approved by the Director, OC Public Works/Building Permit Services, prior to the issuance of any construction permits, and shall identify construction haul routes, the hours of construction traffic, traffic controls and detours, and off-site vehicle staging areas and address traffic control for any street closure, detour, or other disruption to traffic circulation and public transit routes.

4.4.6 CUMULATIVE IMPACTS

The proposed project would retain the existing marine and Harbor recreational uses of the project site, and no increased capacity would occur. Any changes in patterns of use are expected to be negligible as a result of project implementation. In addition, the ADT associated with the proposed project is 50 vehicle trips fewer than the project as analyzed in the Program FEIR. Therefore, the traffic levels resulting from operation of the proposed project are not anticipated to worsen as a result of the proposed project, and no cumulative operational traffic impacts would occur.

The proposed project site is an existing Harbor and the immediate area surrounding the project site is largely built out. Currently, there are several projects that would be considered within the cumulative study area for traffic impacts. The City of Dana Point has identified the following projects as projects that have been proposed or approved but are not yet fully constructed:

- The Headlands – Commercial 35,000 sf Retail/Office (CUP/CDP/SDP approved in 2007)
- The Headlands – Seaside Inn 90 Room Hotel (CDP not yet approved but included as part of HDPC approval)
- The Headlands – Custom Homes 118 SFD (CDPs approved, 25 building permits have been issued by the City)
- Dana Point Harbor Revitalization Plan (landside development)
- Doheny Hotel – 258-Room Hotel with conference room and restaurant facilities

The Headlands projects listed above were included in the cumulative analysis for the Program FEIR, and therefore, because the Marina Improvement Project is a part of the Program FEIR, the cumulative traffic impacts associated with these projects have already been considered for the proposed project and were found not to be significant.

Construction activity for portions of the proposed project and construction of the Dana Point Harbor Revitalization Plan Commercial Core or the Doheny Hotel may occur at the same time. Should this occur, Mitigation Measure 4.4-3 is included to reduce impacts to a less than significant level. Commercial Core or Doheny Hotel construction workers and equipment and haul vehicles working in the vicinity of the proposed project may utilize the same haul route. Therefore, when combined, these projects have the potential to contribute to cumulative construction-related traffic impacts. With implementation of Mitigation Measure 4.4-3 and Mitigation Measures included in the Program FEIR, as listed above, potential cumulative impacts would be less than cumulatively significant.

4.4.7 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

Implementation of Mitigation Measures 4.4-1 and 4.4-2 will ensure that construction-related traffic and boating impacts are reduced to a less than significant level. In addition, Mitigation Measure 4.4-3 and the Mitigation Measures included in the Program FEIR (should construction activities for portions of the two projects overlap) would reduce cumulative construction traffic impacts to a less than significant level. All other traffic and circulation impacts are considered less than significant. No significant unavoidable adverse impacts have been identified.

4.5 AIR QUALITY

This section discusses the potential project effects on air quality based upon the Air Quality Analysis (LSA Associates, Inc., June 2008; updated June 2010) report prepared for the proposed Marina Improvement Project. This section describes the physical setting of the project area and the regulatory framework for air quality; evaluates potential short- and long-term air quality impacts associated with the proposed project; and identifies Standard Conditions of Approval (SC) and mitigation measures recommended to address potentially significant adverse air quality impacts of the proposed project. The construction emissions calculations are provided in Appendix D.

4.5.1 EXISTING SETTING

Dana Point Harbor (Harbor) is located in southern Orange County (County), which is in the South Coast Air Basin (SCAB) and is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The air quality assessment for the proposed Project includes estimating emissions associated with short-term construction and long-term operation of the proposed Project.

Regional Air Quality

The State of California and the federal government have established health-based ambient air quality standards (AAQS) for ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter with a diameter of 10 microns or less (PM₁₀), particulate matter with a diameter of 2.5 microns or less (PM_{2.5}), and lead. In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These AAQS are designed to protect the health and welfare of the populace with a reasonable margin of safety.

The State has established episode criteria for O₃, CO, NO₂, SO₂, and PM₁₀. These criteria refer to episode levels representing periods of short-term exposure to air pollutants that actually threaten public health. Health effects are progressively more severe as pollutant levels increase from Stage One to Stage Three. The Air Quality Analysis describes the potential health effects of air quality pollutants by calculating the project's contribution of these emissions into the atmosphere.

The California AAQS (CAAQS) are more stringent than national AAQS (NAAQS). Among the pollutants for which AAQS have been identified, O₃, PM_{2.5}, and PM₁₀ are considered regional pollutants, while the other pollutants are considered to result in more localized effects.

Local and Regional Climate and Meteorology

Air quality in the SCAB is affected by both various emission sources (mobile, industry, etc.) and by atmospheric conditions, including wind speed, wind direction, temperature, and rainfall. The combination of topography, low mixing height, abundant sunshine, and emissions in the SCAB result in this area having the worst air pollution in the nation.

The climate in the SCAB is determined by its terrain and geographical location. The SCAB is a coastal plain with connecting broad valleys and low hills. The Pacific Ocean is the southwestern border of the SCAB, and high mountains surround the rest of the SCAB. The SCAB is in the semipermanent high-pressure zone of the eastern Pacific. As a result, the climate is mild and tempered by cool ocean breezes. This climatological pattern is rarely interrupted. However, periods of extremely hot weather, winter storms, and Santa Ana wind conditions do occur throughout the SCAB.

Although the SCAB has a semiarid climate, air near the land surface is generally moist because of the presence of a shallow marine layer. With very low average wind speeds, there is a limited capacity to disperse air contaminants horizontally. The dominant daily wind pattern in the SCAB is an onshore 8–12 miles per hour (mph) daytime breeze and an offshore 3–5 mph nighttime breeze. The typical wind flow pattern fluctuates only with occasional winter storms or strong northeasterly (Santa Ana) winds from the mountains and deserts northeast of the SCAB. Summer wind flow patterns represent worst-case conditions because this is the period of higher temperatures and more sunlight, which results in O₃ formation.

During spring and early summer, pollution produced during any one day is typically blown out of the SCAB through mountain passes or lifted by warm, vertical currents adjacent to mountain slopes. Air contaminants can be transported 60 miles (mi) or more from the SCAB by ocean air flow (on-shore) during the afternoons. From early fall to winter, the transport is less pronounced because of slower average wind speeds and the appearance of drainage winds earlier in the day. During stagnant wind conditions, offshore drainage winds may begin by late afternoon. Pollutants remaining in the SCAB are trapped and begin to accumulate during the night and the following morning. A low morning wind speed in pollutant source areas is an important indicator of air stagnation and the potential for buildup of primary air contaminants, affecting smog levels and concentrations that can affect human health.

Temperature normally decreases with altitude, and a reversal of this atmospheric state, where temperature increases with altitude, is called an inversion. The height from the earth to the inversion base is known as the mixing height. Persistent low inversions and cool coastal air tend to create morning fog and low stratus clouds in the SCAB. Cloudy days are less likely in the east parts of the SCAB and are about 25 percent more likely along the coast. The vertical dispersion of air pollutants in the SCAB is limited by temperature inversions in the atmosphere close to the earth's surface.

The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations. On days of no inversion or high wind speeds, ambient air pollutant concentrations are lowest. During periods of low inversions and low wind speeds, air pollutants generated in the urbanized western part of the SCAB in Los Angeles and Orange Counties are transported predominantly onshore into Riverside and San Bernardino Counties. In the winter, the greatest pollution problem is the accumulation of CO and oxides of nitrogen (NO_x) due to extremely low inversions and air stagnation during the night and early morning hours. In the summer, the longer daylight hours and the brighter sunshine combine to cause a reaction between hydrocarbons (HC) and NO_x to form photochemical smog.

Air Pollution Constituents and Attainment Status in the SCAB

The California Air Resources Board (ARB) coordinates and oversees both State and federal air pollution control programs in California. The ARB oversees activities of local air quality management agencies and maintains air quality monitoring stations throughout the State in conjunction with the EPA and local air districts. The ARB has divided the State into 15 air basins based on meteorological and topographical factors of air pollution. Data collected at these stations are used by ARB and the United States Environmental Protection Agency (EPA) to classify air basins as attainment, nonattainment, nonattainment-transitional, or unclassified, based on air quality data for the most recent 3 calendar years compared with the AAQS. Nonattainment areas are imposed with additional restrictions as required by the EPA. The air quality data are also used to monitor progress in attaining air quality standards. Table 4.5.A lists the attainment status for the criteria pollutants in the Basin.

Table 4.5.A: Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State	Federal
O ₃ : 1 hour	Nonattainment	N/A
O ₃ : 8 hour	Nonattainment	Severe-17 Nonattainment
PM ₁₀	Nonattainment	Serious Nonattainment
PM _{2.5}	Nonattainment	Nonattainment
CO	Attainment	Attainment/Maintenance
NO ₂	Attainment	Attainment/Maintenance
SO ₂	Attainment	Attainment
Lead	Attainment	Attainment
All others	Attainment/Unclassified	Attainment/Unclassified

Source: California Air Resources Board, 2010, <http://www.arb.ca.gov/desig/desig.htm>.

CO = carbon monoxide

N/A = not applicable

NO₂ = nitrogen dioxide

O₃ = ozone

PM₁₀ = particulate matter less than 10 microns in diameter

PM_{2.5} = particulate matter less than 2.5 microns in diameter

SO₂ = sulfur dioxide

The entire SCAB is designated as a nonattainment area for the State one-hour and 8-hour O₃ standards. The EPA has officially designated the status for the SCAB regarding the federal eight-hour O₃ AAQS as Severe-17, which means the SCAB has until 2021 to attain the federal eight-hour O₃ AAQS. The SCAQMD has requested that the Basin’s federal designation be changed from severe to extreme nonattainment. This change would extend the attainment deadline to 2023.

The entire SCAB has not exceeded the federal and State standards for NO₂ in the past five years with published monitoring data. The SCAB is designated a maintenance area under the federal AAQS and an attainment area under the State AAQS for NO₂.

Most of the SCAB is designated nonattainment for the federal and State PM₁₀ and PM_{2.5} AAQS. The entire SCAB is designated as attainment for State CO standards and designated as a “Severe Maintenance” area under the federal CO standards

The SCAB is in attainment with both federal and State SO₂, and lead AAQS.

Local Air Quality

The SCAQMD and the ARB maintain ambient air quality monitoring stations in the SCAB. The air quality monitoring station closest to the Harbor is the Mission Viejo Station. The air quality trends at that station are representative of the ambient air quality in the project area. The pollutants monitored at that station are CO, O₃, PM₁₀, and PM_{2.5}.¹ The closest air quality monitoring station to the project site which monitors NO₂ and SO₂ is the Costa Mesa Station. The air quality at that station is representative of the ambient air quality in the project area for those two pollutants.

The ambient air quality data in Table 4.5.B show that NO₂, SO₂, and CO levels are below the applicable State and federal AAQS at the relevant monitoring stations. The State one-hour O₃ AAQS was exceeded 5 to 9 times per year in the last three years. The federal eight-hour O₃ AAQS was exceeded 5 to 15 times per year in the last three years. The State 24-hour PM₁₀ AAQS was exceeded three times in 2007 but has not exceeded the federal 24-hour AAQS since 1999. The federal 24-hour PM_{2.5} AAQS was exceeded twice in 2007 and once in 2009 in the last three years.

4.5.2 REGULATORY SETTING

Federal Regulations and Standards

Pursuant to the federal Clean Air Act (CAA) of 1970, the EPA established NAAQS for six major criteria pollutants. Criteria pollutants are defined as those pollutants for which the federal and State governments have established AAQS, or criteria, for outdoor concentrations to protect public health. The NAAQS are listed in Table 4.5.B.

Data collected at permanent monitoring stations are used by the EPA to classify regions as attainment or nonattainment, depending on whether the regions met the requirements stated in the primary NAAQS. Nonattainment areas are imposed with additional restrictions as required by the EPA. The attainment/nonattainment status of the NAAQS for the criteria pollutants in the SCAB were shown earlier in Table 4.5.A.

The EPA has designated the Southern California Association of Governments (SCAG) as the Metropolitan Planning Organization (MPO) responsible for ensuring compliance with the requirements of the federal CAA for the SCAB.

¹ Air quality data, 2004–2006; EPA and ARB Web sites.

Table 4.5.B: Ambient Air Quality in the Project Vicinity

Pollutant	Standard	2007	2008	2009
Carbon Monoxide				
Max 1-hr concentration (ppm)		2.9	1.5	ND
No. days exceeded: State	> 20 ppm/1-hr	0	0	ND
Federal	> 35 ppm/1-hr	0	0	ND
Max 8-hr concentration (ppm)		2.2	1.1	1.0
No. days exceeded: State	9.0 ppm/8-hr	0	0	0
Federal	9 ppm/8-hr	0	0	0
Ozone				
Max 1-hr concentration (ppm)		0.108	0.118	0.121
No. days exceeded: State	> 0.09 ppm/1-hr	5	9	7
Max 8-hr concentration (ppm)		0.090	0.104	0.095
No. days exceeded: State	> 0.07 ppm/8-hr	10	25	14
Federal	> 0.075 ppm/8-hr	5	15	10
Particulates (PM₁₀)				
Max 24-hr concentration (µg/m ³)		74	42	41
No. days exceeded: State	> 50 µg/m ³ /24-hr	1	0	0
Federal	> 150 µg/m ³ /24-hr	0	0	0
Annual Arithmetic Average (µg/m ³)		23.0	22.6	ND
Exceeded: State	> 20 µg/m ³ ann. arth. avg.	Yes	Yes	ND
Particulates (PM_{2.5})				
Max 24-hr concentration (µg/m ³)		46.8	32.6	39.2
No. days exceeded: Federal	> 35 µg/m ³ /24-hr	2	0	1
Annual Arithmetic Average (µg/m ³)		11.1	8.3	ND
Exceeded: State	> 12 µg/m ³ ann. arth. avg.	No	No	ND
Federal	> 15 µg/m ³ ann. arth. avg.	No	No	ND
Nitrogen Dioxide²				
Max 1-hr concentration (ppm)		0.074	0.081	0.065
No. days exceeded: State	> 0.25 ppm/1-hr	0	0	0
Annual arithmetic average concentration (ppm)		0.013	0.013	0.013
Exceeded: Federal	> 0.053 ppm ann. arth. avg.	No	No	No
Sulfur Dioxide²				
Max 24-hr concentration (ppm)		0.004	0.003	0.004
No. days exceeded: State	> 0.04 ppm/24-hr	0	0	0
Federal	> 0.14 ppm/24-hr	0	0	0
Annual arithmetic average concentration (ppm)		0.000	0.001	0.001
Exceeded: Federal	> 0.030 ppm ann. arth. avg.	No	No	No

Sources: EPA and ARB (2010).

¹ ND: No Data. There was insufficient or no data available to determine the value.

² Monitored at the Costa Mesa-Mesa Verde Drive Air Monitoring Station.

arth: arithmetic

ppm = parts per million

µg/m³ = micrograms of pollutant per cubic meter of air

The EPA established new NAAQS for ground-level O₃ and PM_{2.5} in 1997. On May 14, 1999, the Court of Appeals for the District of Columbia Circuit issued a decision ruling that the CAA, as applied in setting the new public health standards for O₃ and particulate matter, was unconstitutional as an improper delegation of legislative authority to the EPA. On February 27, 2001, the United States Supreme Court upheld the way the government sets air quality standards under the CAA. The court unanimously rejected industry arguments that the EPA must consider financial cost as well as health benefits in writing standards. The justices also rejected arguments that the EPA took too much lawmaking power from Congress when it set tougher standards for O₃ and soot in 1997. Nevertheless, the court threw out the EPA's policy for implementing new O₃ rules, saying that the agency ignored a section of the law that restricts its authority to enforce such rules.

In April 2003, the EPA was cleared by the White House Office of Management and Budget (OMB) to implement the 8-hour ground-level O₃ standard. The EPA issued the proposed rule implementing the 8-hour O₃ standard in April 2003. The EPA completed final 8-hour nonattainment status on April 15, 2004. The EPA revoked the 1-hour O₃ standard on June 15, 2005.

The EPA issued the final PM_{2.5} implementation rule in fall 2004 and made final designations on December 15, 2004. The EPA lowered the 24-hour PM_{2.5} standard from 65 to 35 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) and revoked the annual average PM₁₀ standard in December 2006.

State Regulations and Standards

The State of California began to set California ambient air quality standards (CAAQS) in 1969 under the Mulford-Carrell Act. The CAAQS are generally more stringent than the NAAQS. In addition to the six criteria pollutants covered by the NAAQS, there are CAAQS for sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles.

The California Clean Air Act (CCAA) of 1988 provided a time frame and a planning structure to promote the attainment of the CAAQS. The CCAA required nonattainment areas in the State to prepare attainment plans which are required to achieve a minimum 5 percent annual reduction in the emissions of nonattainment pollutants unless all feasible measures have been implemented. The SCAB is currently classified as a nonattainment area for three criteria pollutants.

Regional and Local Air Quality Planning Framework

The 1976 Lewis Air Quality Management Act established the SCAQMD and other air districts throughout California. The federal CAA Amendments of 1977 required each State to adopt an implementation plan outlining pollution control measures to attain the NAAQS in nonattainment areas of the State.

The ARB coordinates and oversees the State and federal air pollution control programs in California. It oversees activities of local air quality management agencies and is responsible for incorporating air quality management plans (AQMPs) for all the air basins in the State into a State Implementation Plan (SIP) for the EPA approval. The ARB and local air districts maintain air quality monitoring stations throughout the State. Data collected at those stations are used by the ARB to classify air

basins as attainment or nonattainment with respect to each pollutant and to monitor progress in attaining the applicable AAQS.

The SCAQMD and the SCAG are responsible for formulating and implementing the AQMP for the SCAB. Every three years, the SCAQMD prepares a new AQMP with a 20-year horizon, and which updates the previous plan. The SCAQMD adopted the *2007 AQMP* on June 1, 2007. The *2007 AQMP* is described as a regional and multiagency effort (i.e., the SCAQMD Governing Board, ARB, SCAG, and EPA). State and federal planning requirements will include developing control strategies, attainment demonstration, reasonable further progress, and maintenance plans. The *2007 AQMP* also incorporates significant new demographic projections and scientific data, primarily in the form of updated population projections, updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools. The ARB approved the *2007 AQMP* on September 27, 2007, and adopted it as part of the 2007 SIP. The SCAQMD forwarded the *2007 AQMP* to the EPA for its review and approval.

4.5.3 METHODOLOGY

The SCAQMD has guidelines and requirements for the conduct air quality analyses for projects in the SCAB. The current SCAQMD guidelines, the *CEQA Air Quality Handbook* (April 1993) were adhered to in the assessment of air quality impacts for the proposed Marina Improvement Project.

The air quality assessment included estimating emissions associated with short-term construction and long-term operation of the proposed Marina Improvement Project. Criteria pollutants with regional impacts would be emitted by project-related vehicular trips, as well as by emissions associated with stationary sources used on site.

The net increase in pollutant emissions was used to assess the significance and impact on regional air quality as a result of the proposed project. This analysis also allows the local government to determine whether the proposed project will deter the region from achieving the goal of reducing pollutants in accordance with the AQMP in order to comply with the federal and State AAQS.

The SCAQMD has a localized significance threshold (LST) methodology that can be used to determine whether or not a project may result in significant adverse localized air quality impacts. LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or State AAQS and are developed based on the ambient concentrations of that pollutant for each source receptor area (SRA). The current SCAQMD guidelines, *Final Localized Significance Threshold Methodology* (June 2003), were adhered to in the assessment of the air quality impacts of the proposed project.

The LST mass rate look-up tables were used to determine whether the daily emissions for the project-related construction and operations activities could result in significant adverse localized air quality impacts. The emissions of concern from construction activities are NO_x and CO combustion emissions from construction equipment and fugitive PM₁₀ dust from site preparation activities. The primary emissions from operations activities include but are not limited to NO_x and CO combustion emissions from stationary sources and/or on-site mobile equipment. Because the project does not increase capacity, off-site mobile vehicular emissions from the project are not included in the emissions compared to the LSTs.

4.5.4 THRESHOLDS OF SIGNIFICANCE

The impact significance criteria used for this analysis are based primarily on Appendix G of the *State CEQA Guidelines* and the *County of Orange Local CEQA Procedures Manual* (2000). The Marina Improvement Project would be considered to result in a significant adverse air quality impact if it:

- Conflicts with or obstructs implementation of the applicable air quality plan
- Violates any AAQS or contributes substantially to an existing or projected air quality violation
- Results in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State AAQS (including releasing emissions, which exceed quantitative thresholds for O₃ precursors)
- Exposes sensitive receptors to substantial pollutant concentrations
- Creates objectionable odors affecting a substantial number of people

In addition to the federal and State AAQS, there are daily and quarterly emissions thresholds for construction and operation of a proposed project in the SCAB. Specifically, the thresholds described in the following sections, from the SCAQMD *CEQA Air Quality Handbook*, were used in this analysis. These emissions thresholds were established by the SCAQMD based on the attainment status of SCAB for individual criteria pollutants. Because the concentration standards were set at a level that protects public health with adequate margin of safety, these emission thresholds are regarded as conservative and would overstate an individual project's contribution to health risks.

Thresholds for Construction Emissions

The following CEQA significance thresholds for construction related air quality emissions have been established for the SCAB:

- 75 pounds per day (lbs/day) of ROC
- 100 lbs/day of NO_x
- 550 lbs/day of CO
- 150 lbs/day of PM₁₀
- 55 lbs/day of PM_{2.5}
- 150 lbs/day of sulfur oxides (SO_x)

Projects in the SCAB with construction related emissions that exceed any of these emission thresholds are considered to result in significant short-term adverse air quality impacts under the SCAQMD guidelines.

Thresholds for Operational Emissions

The daily operational air quality emissions significance thresholds for the SCAB are described below.

Emission Thresholds for Pollutants with Regional Effects. Projects with operations related air quality emissions that exceed any of the emission thresholds listed below are considered to result in significant adverse regional air quality impacts under the SCAQMD guidelines:

- 55 lbs/day of ROC
- 55 lbs/day of NO_x
- 550 lbs/day of CO
- 150 lbs/day of PM₁₀
- 55 lbs/day of PM_{2.5}
- 150 lbs/day of SO_x

Local Microscale Concentration Standards. The significance of localized project impacts under CEQA depends on whether the ambient CO levels in the vicinity of the project site are above or below the State and federal CO AAQS. If ambient CO levels are below the CO AAQS, a project is considered to have a significant adverse localized air quality impact if project-related emissions result in an exceedance of one or more of these AAQS. If the ambient levels already exceed a State or federal AAQS, project-related air quality emissions are considered significant and adverse if they increase the one-hour CO concentrations by 1.0 part per million (ppm) or more or eight-hour CO concentrations by 0.45 ppm or more. The applicable local emission concentration standards for CO are:

- California State one-hour CO standard of 20.0 ppm
- California State eight-hour CO standard of 9.0 ppm

Thresholds for Localized Significance

For the Marina Improvement Project, the appropriate SRA for LST is the Capistrano Valley area, according to the SRA/City Table on the SCAQMD LST Web site.¹ The total project site is larger than 5 acres (ac), however, it is expected that construction activities will not exceed 5 ac in any one day, so the 5 ac thresholds were used. The nearest sensitive receptor to the project construction areas is the Marina Inn which is approximately 150 feet north of the nearest area proposed for construction under the Marina Improvement Project. The following 5-ac thresholds were applied to the construction and operations phases of the project:

- 330 lbs/day of NO_x at 50 m
- 2,102 lbs/day of CO at 50 m

¹ www.aqmd.gov/ceqa/handbook/LST/LST.html.

- 37 lbs/day of PM₁₀ at 50 m
- 11 lbs/day of PM_{2.5} at 50 m

4.5.5 OVERVIEW OF PROGRAM FEIR AIR QUALITY ANALYSIS

Impacts. The Program FEIR concluded that temporary construction-related dust and vehicle emissions will occur during site preparation and Revitalization Project construction. The Program FEIR concluded that despite implementation of mitigation measures and Project Design Features, such as limitations on construction hours and adherence to SCAQMD Rules 402 and 403 (which require watering of inactive and perimeter areas, track-out requirements, etc.), impacts, although minimized, will not be at less than significant levels. As illustrated within the Program FEIR analysis, mitigation measures will reduce PM₁₀ emissions, but NO_x emissions will not be reduced to less than significant levels. Construction emissions were predicted to exceed SCAQMD thresholds for NO_x, resulting in a significant and unavoidable impact.

The Program FEIR concluded that the Revitalization Project will be consistent with the AQMP. Operation of the Revitalization Project would add an overall increase in the local and regional pollutant load. However, the Program FEIR concluded that the increase in operational air emissions as a result of the Revitalization Project will not exceed SCAQMD thresholds. Although operational impacts are not anticipated to exceed SCAQMD thresholds, mitigation measures and Project Design Features are included in the Revitalization Project to support the reduction of any long-term operational impacts. Therefore, operational impacts were anticipated to be less than significant.

Cumulatively, the Revitalization Project along with other future development could increase air emissions within the surrounding areas, thereby decreasing ambient air quality. However, the Program FEIR analysis concluded that the Revitalization Project will contribute to less than 25 percent of the anticipated emissions from projects proposed within the area, and additional mitigation measures are not necessary.

Project Design Features (PDFs), Standard Conditions of Approval (SCA), and Mitigation Measures (MMs) identified in the Program FEIR and applicable to the Marina Improvement Project are listed below. During the subsequent approval process for the Land Use Plan (LUP) component of the LCPA, several of the listed PDFs, SCAs, and MMs were clarified and became LUP Policies within the revised Dana Point Harbor Revitalization Plan LUP. Where applicable, the wording has been revised to be consistent with the approved LUP Policy, which is indicated in parenthesis.

Project Design Features (PDFs), Standard Conditions of Approval (SCA), and Mitigation Measures (MMs)

PDF 4.6-3 Reduction of vehicle trips is achieved by implementing the Transportation Management Plan, including:

- Potential seasonal water taxi service;
- Visitor boat slips and dingy docks located near restaurants and retail areas; and
- Phased construction of the Revitalization Plan Improvements will minimize the size of areas subject to disruption from construction activities.

MM 4.6-1 Prior to approval of project plans and specifications, the Director, OC DP, or his designee, in consultation with the Manager, OCPW/Environmental Planning, shall confirm that the plans and specifications stipulate that, in compliance with SCAQMD Rule 403, excessive fugitive dust emissions shall be controlled by regular watering or other dust preventive measures, as specified in the South Coast Air Quality Management District's Rules and Regulations. In addition, SCAQMD Rule 402 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off-site. Implementation of the following measures will reduce short-term fugitive dust impacts on nearby sensitive receptors:

- On-site vehicles speed shall be limited to 15 miles per hour (mph);
- All on-site roads shall be paved as soon as feasible or watered periodically or chemically stabilized;
- If dust is visibly generated that travels beyond the site boundaries, clearing, grading, earth moving, or excavation activities that are generating dust shall cease during periods of high winds (i.e., greater than 25 mph averaged over one hour) or during Stage 1 or Stage 2 episodes; and
- All material transported off site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust.

MM 4.6-2 Prior to approval of the project plans and specifications, the Director, OC DPH, or his designee, in consultation with the Manager, OCPW/ Environmental Planning, shall confirm that the plans and specifications stipulate that, in compliance with SCAQMD Rule 403, ozone precursor emissions from construction equipment vehicles shall be controlled by maintaining equipment engines in good condition and in proper tune per manufacturer's specifications using catalytic converters on gasoline-powered equipment and using reformulated low-emission diesel fuels. The County Inspector will be responsible for ensuring that contractors comply with this measure during construction.

MM 4.6-6 In order to reduce operational energy usage and reduce energy production air emissions, Harbor projects are required at a minimum to comply with Title 24 of the California Code of Regulations established by the California Energy Commission regarding energy conservation. (LUP Policy 8.9.1-11)

Level of Significance after Mitigation. Despite implementation of PDFs and MMs, the Revitalization Project was found to result in significant and unavoidable impacts regarding construction emissions (NO_x emissions).

4.5.6 IMPACTS AND MITIGATION

Less Than Significant Impacts

Fugitive Dust. Fugitive dust emissions are generally associated with land clearing, exposure, and cut-and-fill operations. Because the majority of construction operations related to the Marina

Improvement Project will be conducted on or underwater, little fugitive dust is expected to be generated by these operations. However, small amounts of fugitive dust could be generated as construction equipment or trucks travel into, out of, and on the Harbor property, or from the excavation and pile installation for the ADA gangways foundations. As shown in Table 4.5.C, the amount of particulate matter (PM₁₀ and PM_{2.5}) generated during construction will be relatively small and will not exceed the SCAQMD thresholds of significance for particulate matter. Therefore, construction of the project will result in less than significant adverse impacts related to PM₁₀ and PM_{2.5}.

Table 4.5.C: Peak Day Construction Emissions by Sub-Phase¹

Sub-Phase	CO (lbs/day)	ROC (lbs/day)	NO _x (lbs/day)	SO _x (lbs/day)	PM ₁₀ (lbs/day)	PM _{2.5} (lbs/day)	CO ₂ (lbs/day)
Removal of Existing Slips and Piles	441.8	179.9	121.4	0.5	7.7	6.7	10,733.6
Installation of New Piles	319.2	135.3	31.9	0.3	2.6	2.2	2,901.6
Installation of New Slips	340.3	140.5	70.9	0.4	4.6	4.0	6,343.5
SCAQMD Emissions Thresholds	550	75	100	150	150	55	n/a
Exceed Significance Threshold?	No	Yes	Yes	No	No	No	n/a

Source: LSA Associates, Inc. (May 2008).

¹ It is assumed that there is no overlap of these construction phases within each phase.

Odors. The heavy-duty construction equipment used in the project area during construction would potentially emit odors, primarily from diesel engine sources and pile driving. However, the odors would cease to occur after construction is completed. In addition, on-shore wind conditions at the Harbor are fairly consistent and will function to quickly disperse and dilute any odorous emissions. No other sources of objectionable odors during the construction and/or operation of the project have been identified. Therefore, the construction and operation of the project would result in less than significant adverse impacts related to odors.

Stationary and Mobile Sources. Long-term air emission impacts are associated with changes in the permanent use of a project site where those changes would substantially increase emissions from on-site stationary and/or off-site mobile emissions sources. Stationary source emissions include emissions associated with electricity consumption and natural gas usage. Mobile source emissions would result from vehicle trips associated with a proposed project. The proposed Marina Improvement Project would not result in any substantive changes in long-term on-site stationary sources as described in Section 3.0, Project Description because there are no substantial structures proposed or new uses proposed in the project. The project would also not result in changes to off-site vehicle trips as discussed in Section 4.4, Transportation and Circulation. Therefore, no long-term mobile or stationary emissions were calculated for the proposed project and the operation of the proposed project would result in a less than significant impact related to stationary and mobile source emissions.

CO Hotspots Analysis. The primary mobile source pollutant of local concern is CO, which is a direct function of vehicle idling time caused by traffic conditions. CO transport is extremely limited because CO it disperses rapidly with distance from the emissions source (such as a motor vehicle) under

normal meteorological conditions. Under certain extreme meteorological conditions, CO concentrations near a congested road or intersection may reach unhealthy levels affecting local sensitive receptors such as residents, schoolchildren, the elderly, hospital patients, etc. Typically, high CO concentrations are associated with roads or intersections operating at unacceptable levels of service or with extremely high traffic volumes. In areas with high ambient CO concentrations, modeling of CO concentrations is recommended in determining a project's effect on local CO levels. Because the proposed Marina Improvement Project does not increase or expand capacity, it would likely result in either no change or only a minor insignificant change in off-site vehicle trips, no substantial increase in CO contributions would occur in the project vicinity as a result of the proposed project. Therefore, no CO hot spots are expected as a result of the project and modeling of CO emissions associated with the proposed project is not necessary. The proposed Marina Improvement Project would result in less than significant localized impacts related to CO.

Localized Significance of Construction Emissions. The following analysis was performed consistent with the SCAQMD *Final Localized Significance Threshold Methodology*. The Marina Inn, the closest sensitive receptor, is approximately 50 m north of the nearest part of the project construction area. The LST values for 50 m were used. Table 4.5.D shows the construction-related emissions of NO_x, CO, PM₁₀, and PM_{2.5} compared to the LSTs for the Capistrano Valley Area. As shown, the calculated emissions rates for the project construction activities will be below the LSTs for NO_x, CO, PM₁₀, and PM_{2.5} at 50 m from sensitive receptors. Therefore, the construction activities for the Marina Improvement Project would result in less than significant short-term, localized, air quality impacts.

Table 4.5.D: Summary of Construction Emissions Localized Significance

Construction Phase	Emission Rates (lbs/day)			
	CO	NO _x	PM ₁₀	PM _{2.5}
Removal of Existing Slips and Piles	441.8	121.4	7.7	6.7
Installation of New Piles	319.2	31.9	2.6	2.2
Installation of New Slips	340.3	70.9	4.6	4.0
Localized Significance Threshold (at 50 m)	2,102	330	37	11
Exceed Significance?	No	No	No	No

Source: LSA Associates, Inc. (May 2008).

Consistency with the AQMP. An AQMP describes air pollution control strategies to be taken by a city, county, or region classified as a nonattainment area for specific pollutants. The main purpose of an AQMP is to bring an area into compliance with the applicable federal and State AAQS. CEQA requires that certain proposed projects be analyzed for consistency with the AQMP. For a project to be consistent with the AQMP adopted by the SCAQMD, the pollutants emitted from the project should not exceed the SCAQMD daily thresholds or cause a significant adverse impact on air quality, or the project must already have been included in the AQMP projections. However, if feasible mitigation measures are implemented and shown to reduce the impact level from significant to less than significant, a project may otherwise be deemed consistent with the AQMP. The AQMP uses the assumptions and projections of local planning agencies to determine control strategies for regional compliance status. Because the AQMP is based on local General Plans, projects that are deemed

consistent with the General Plan are found to be consistent with the AQMP. As described in Section 3.0, Project Description, the proposed Marina Improvement Project would not result in any population, jobs, or housing growth or any substantive land use changes and, therefore, would be consistent with the City of Dana Point General Plan. In addition, the proposed project is not expected to result in any increase in long-term regional air quality emissions. Therefore, the Marina Improvement Project will not conflict with the AQMP, and the project will result in no significant adverse impact related to implementation of the AQMP.

Potentially Significant Impacts

Equipment Exhaust and Related Construction Activities. Construction of the Marina Improvement Project is planned to occur in multiple phases over approximately eight years. Each of these phases would occur in multiple sub-phases, such as the removal of the existing piles and slips, the installation of new piles, and the installation of new slips. The maximum exhaust emissions generated within each of the construction sub-phases are summarized in Table 4.5.D. The *Air Quality Analysis* provides detailed listings of the project emissions during the project phases. Table 4.5.D indicates that construction equipment/vehicle emissions during slip and pile removal and installation periods for the construction of the proposed project would result in NO_x and ROC emissions that would exceed the SCAQMD-established daily emissions threshold for those pollutants. While adherence to SCAQMD rules and regulations would reduce this impact, it would remain significant and adverse because the SCAQMD daily threshold would be exceeded. No feasible mitigation measure beyond compliance with SCAQMD rules and regulations are available to offset this significant impact. Therefore, construction of the Marina Improvement Project would result in significant adverse impacts related to emissions of NO_x and ROC during construction.

Standard Conditions (SC)

SC-1 The construction of the Marina Improvement Project must comply with SCAQMD rules to reduce short-term air pollutant emissions generated during construction. SCAQMD Rule 403 requires that fugitive dust be controlled with best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, Rule 402 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off a project site. Applicable dust suppression techniques from Rule 403 are summarized below. Implementation of these dust suppression techniques would reduce the fugitive dust generation and the PM₁₀ and PM_{2.5} components of fugitive dust. Compliance with these rules would reduce the short-term project air quality impacts on sensitive receptors. Rule 403 measures applicable to the construction of the Marina Improvement Project are:

- Water active landside construction areas at least twice daily. Locations where equipment operations are to occur will be thoroughly watered prior to use.
- All trucks hauling dirt, sand, soil, or other loose materials are to be covered, or should maintain at least two feet of freeboard in accordance with the requirements of California Vehicle Code Section 23114 (freeboard means vertical space between the top of the load and top of the trailer).

- Use low-sulfur fuel for stationary construction equipment
- SC-2** The following dust suppression measures in the SCAQMD *CEQA Air Quality Handbook* would further reduce the likelihood of short-term air quality impacts:
- Sweep all streets once per day if visible soil materials are carried to adjacent streets (recommend water sweepers with reclaimed water).
 - Pave, water, or chemically stabilize all on-site roads as soon as feasible.
 - Minimize at all times the area disturbed by earthmoving or excavation operations.
- SC-3** The construction contractor will select the construction equipment used on site based on low-emission factors and high energy efficiency. The construction contractor will ensure that the construction plans include a statement that all construction equipment will be tuned and maintained in accordance with the manufacturer's specifications.
- SC-4** The construction contractor will time the construction activities so as to not interfere with peak-hour traffic and minimize obstruction of through traffic lanes adjacent to the site; if necessary, a flagperson will be retained to maintain safety adjacent to existing roads.
- SC-5** The construction contractor will support and encourage ridesharing and transit incentives for the construction crew.

4.5.7 CUMULATIVE IMPACTS

Construction of the project would contribute cumulatively to the local and regional air pollutants, together with other projects under construction. As detailed previously, the project would result in significant construction-related air quality impacts pertaining to NO_x and ROC [precursors to O₃] emissions. Thus, it is anticipated that these additional NO_x and ROC emissions would result in significant cumulative air quality impacts.

The proposed project would also contribute to adverse cumulative air quality impacts because construction activity would result in additional emissions of pollutants, which may exacerbate ambient levels currently in excess of applicable NAAQS or CAAQS for PM₁₀ and O₃ (because NO_x and ROC are precursors to O₃). The proposed project, in conjunction with other planned projects, would contribute to the existing nonattainment status. Therefore, the project-level and cumulative short-term construction impacts of the proposed project would remain significant and unavoidable.

4.5.8 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

The proposed Marina Improvement Project would result in significant unavoidable construction-related adverse air quality impacts of ROC and NO_x [precursors to O₃] emissions, even after the implementation of feasible standard conditions. While the adherence to SCAQMD rules and regulations would reduce this impact, it would remain significant and adverse because the SCAQMD daily threshold would be exceeded. No feasible mitigation measures beyond compliance with SCAQMD rules and regulations are available to offset this significant impact.

Construction activities for the Marina Improvement Project would also contribute to construction-related adverse cumulative air quality impacts because the Basin is presently in nonattainment for O₃, and the project, in conjunction with other planned projects, would contribute to the existing nonattainment status for O₃. Therefore, the cumulative construction impacts of the proposed project would remain significant.

4.6 NOISE

4.6.1 INTRODUCTION

This section evaluates the potential for short- and long-term noise impacts and mitigation measures for the Marina Improvement Project. The Dana Point Harbor facilities are owned by the County of Orange (County) and operated by OC Dana Point Harbor, a County agency. This analysis is intended to satisfy the County's requirements for a project-specific noise impact analysis by examining the impacts of the proposed project on noise-sensitive uses in the project area. The potential noise impacts of the proposed project are discussed in detail in the Noise Impact Analysis (LSA Associates, Inc., May 2008) provided in Appendix E and are summarized in this section.

4.6.2 EXISTING ENVIRONMENTAL SETTING

Fundamentals of Noise

Noise Definition. Noise impacts can be described in three categories. The first is audible impact, which refers to increases in noise levels noticeable to humans. Audible increases in noise levels generally refer to a change of 3.0 decibels (dB) or greater, because this level has been found to be barely perceptible in exterior environments. The second category, potentially audible, refers to a change in the noise level between 1.0 and 3.0 dB. This range of noise levels has been found to be noticeable only in laboratory environments. The last category is changes in noise levels of less than 1.0 dB, which are inaudible to the human ear. Only audible changes in existing ambient or background noise levels are considered potentially significant and adverse impacts of proposed projects.

Characteristics of Sound. Sound is increasing in the environment and can affect quality of life. Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, and sleep. To the human ear, sound has two specific characteristics: pitch and loudness. Pitch is generally an annoyance, while loudness can affect the ability to hear. Pitch is the number of complete vibrations, or cycles per second, of a wave resulting in the tone's range from high to low. Loudness is the strength of a sound and describes a noisy or quiet environment; it is measured by the amplitude of the sound wave. Loudness is determined by the intensity of the sound waves, combined with the reception characteristics of the human ear. Sound intensity refers to how hard the sound wave strikes an object, which in turn produces the sound's effect. This characteristic of sound can be precisely measured with instruments. The analysis of a project defines the noise environment of the project area in terms of sound intensity and its effect on adjacent noise-sensitive land uses.

Measurement of Sound. Sound intensity is measured through the A-weighted scale to correct for the relative frequency response of the human ear. That is, an A-weighted noise level de-emphasizes low and very high frequencies of sound similar to the human ear's de-emphasis of these frequencies.

Unlike linear units, such as inches or pounds, decibels are measured on a logarithmic scale representing points on a sharply rising curve.

For example, 10 dB are 10 times more intense than 1 dB, 20 dB are 100 times more intense, and 30 dB are 1,000 times more intense. In other words, 30 dB represents 1,000 times as much acoustic energy as 1 dB. For reference, a sound as soft as human breathing is approximately 10 times greater than zero decibels. The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. For example, a 10 dB increase in sound level is perceived by the human ear as a doubling of the loudness of the sound. Ambient sounds generally range from 30 A-weighted decibels (dBA) (very quiet) to 100 dBA (very loud).

Sound levels are generated from a source, and their decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. For a single-point source, sound levels decrease approximately 6 decibels for each doubling of distance from the source. This drop-off rate is appropriate for noise generated by stationary equipment. If noise is produced by a line source such as highway traffic or railroad operations, the sound decreases 3 dB for each doubling of distance in a hard site environment. Line source noise in a relatively flat environment with absorptive vegetation decreases 4.5 dB for each doubling of distance from the noise source.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. Equivalent continuous sound level (L_{eq}) is the total sound energy of time-varying noise over a sample period. The predominant rating scales for human communities in California are the L_{eq} and community noise equivalent level (CNEL) or the day-night average level (L_{dn}) based on dBA. CNEL is the time-varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and a 10 dBA weighting factor applied to noise occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale but without the adjustment for events occurring during the evening hours. CNEL and L_{dn} are within one dBA of each other and are normally exchangeable. The noise adjustments are added to the noise events occurring during the more sensitive hours. The City and County use the CNEL noise scale for long-term noise impact assessments.

Other noise rating scales of importance when assessing the annoyance factor include the maximum noise level (L_{max}), which is the highest exponential time-averaged sound level that occurs during a stated time period. The noise environments discussed in this analysis are specified in terms of maximum levels denoted by L_{max} for short-term noise impacts. L_{max} reflects peak operating conditions and addresses the annoying aspects of intermittent noise.

Another noise scale often used together with the L_{max} in noise ordinances for enforcement purposes is in terms of percentile noise levels. For example, the L_{10} noise level represents the noise level exceeded 10 percent of the time during a stated period. The L_{50} noise level represents the median noise level. Half the time the noise level exceeds this level, and half the time it is less than this level. The L_{90} noise level represents the noise level exceeded 90 percent of the time and is considered the background noise level during a monitoring period. For a relatively constant noise source, the L_{eq} and L_{50} are approximately the same.

Psychological and Physiological Effects of Noise. Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions and thereby affecting blood pressure and functions of the heart and the nervous system. In comparison, extended periods of noise exposure above 90 dBA would result in permanent cell damage. When the noise level reaches 120 dBA, a tickling sensation occurs in the human ear even with short-term exposure. This level of noise is called the threshold of feeling. As the sound reaches 140 dBA, the tickling sensation is replaced by the feeling of pain in the ear. This is called the threshold of pain. A sound level of 190 dBA will rupture the eardrum and permanently damage the inner ear. The ambient or background noise problem is widespread and generally more concentrated in urban areas than in less-developed areas. The Noise Impact Analysis (Table B, Common Sound Levels and their Noise Sources) provides a more detailed description of noise levels and their effects on humans.

Vibration. Vibration energy propagates from a source through intervening soil and rock layers, to the foundations of nearby buildings. The vibration then propagates from the foundation throughout the remainder of the structure. Building vibration may be perceived by the occupants as motion of building surfaces, rattling of items on shelves or hanging on walls, or a low-frequency rumbling noise. The rumble noise is caused by the vibrating walls, floors, and ceilings radiating sound waves. Ground-borne vibration is usually measured in terms of vibration velocity, either the root-mean-square (rms) velocity or peak particle velocity (PPV). The rms is best for characterizing human response to building vibration and PPV is used to characterize potential for damage to structures. Ground vibrations from construction activities, including those within water bodies such as pile driving for pile installation, do not often reach the levels that can damage structures, but they can achieve the audible and feelable ranges in buildings very close to the site. Ground-borne vibration from construction sources, such as the pile installation in the Marina, is usually localized to areas within approximately 100 feet (ft) from the vibration source.

Effects of Noise on Marine Mammals. The National Marine Fisheries Service (NMFS) is in the process of developing guidelines for determining sound pressure level (SPL) thresholds for acoustic harassment to marine wildlife based on the best available science. In the interim, NMFS generally considers 180 and 190 dB root mean square (rms) as the level at which cetaceans and pinnipeds, respectively, could be subjected to Level A (injurious) harassment. Level B (behavioral) harassment has the potential to occur if marine mammals are exposed to pulsed sounds (e.g., impact pile driving) at or above 160 dB rms, but below injurious thresholds. These thresholds are considered conservative. Piling and construction activities that cause noise and vibration in the marine environment generally result in marine mammals leaving the area of disturbance. Most sound energy as a result of concrete and steel impact hammer pile driving is concentrated in the low sensitivity range of hearing frequencies for most marine mammal species, with most energy concentrated below 1 kilohertz (kHz) (JASCO 2006). See Section 4.7, Biological Resources, for further discussion of noise on marine mammals.

Sensitive Land Uses in the Project Vicinity

Certain land uses are considered more sensitive to noise than others. Examples of these include residential uses, educational facilities, hospitals, childcare facilities, and senior housing. Residential, commercial, recreational, and hotel uses currently surround the project site. The residential uses adjacent to the project site, residents living on boats within the Marina and the Dana Point Marina Inn (approximately 200 ft from the closest pile-driving activities) are the closest noise-sensitive receptors in the vicinity of the project site that would potentially be adversely affected by noise from the project. As mentioned, the Marina allows people to live on boats docked within the Marina, although it is not a designated residential area. The existing boat residents are scattered throughout the Marina.

Overview of the Existing Noise Environment

The primary existing sources of noise in the project area are vehicle activities in the Marina parking lots, boat noises, and vehicular traffic.

4.6.3 METHODOLOGY

Evaluation of noise impacts associated with a proposed project typically includes the following:

- Determining the noise impacts associated with short-term construction of the proposed project on adjacent uses
- Determining the long-term noise impacts on off-site noise sensitive uses
- Determining the required Mitigation Measures to reduce short- and long-term noise impacts

4.6.4 THRESHOLDS OF SIGNIFICANCE

Based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines, the following thresholds were used to assess the significance of potential noise impacts associated with the construction and operation of the proposed project. The project may be considered to have significant effects related to noise if implementation would result in one of more of the following:

- Exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or Noise Ordinance, or applicable standards of other agencies
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project

This noise impact analysis considered both the County and the City's noise standards, including their General Plan Noise Elements and Zoning Code standards, as thresholds against which potential project noise impacts were evaluated. As described in Section 4.6.5, the County and City have the

same noise standards for sensitive land uses and the same regulations regarding noise generated from construction activities.

4.6.5 REGULATORY SETTING

County of Orange Noise Standards

Noise Element of the General Plan and Municipal Code. The Noise Element of the County of Orange General Plan and the Codified Ordinances of the County of Orange establish noise criteria to ensure that high noise levels do not adversely affect the quality of life of County residents. The noise criteria are based on land use compatibility. Table 4.6.A provides the County’s exterior and interior noise standards for sensitive land use areas. However, Section 4-6-7 of the County’s Noise Ordinance provides exemptions to the County’s noise standards for specific activities, such as construction. The Ordinance states that noise sources associated with construction, repair, remodeling, or grading of any real property are exempt from the noise standards if construction occurs between the hours of 7:00 a.m. and 8:00 p.m. on weekdays and Saturdays, but not during any time on Sundays or federal holidays.

Table 4.6.A: County of Orange Noise Standards for Residential Land Uses

Maximum Noise Level	Time Period
Exterior noise standards, L ₅₀	
50 dBA	10:00 p.m.–7:00 a.m.
55 dBA	7:00 a.m.–10:00 p.m.
Interior noise standards, L ₈	
45 dBA	10:00 p.m.–7:00 a.m.
55 dBA	7:00 a.m.–10:00 p.m.

Source: Codified Ordinances of the County of Orange, Sections 4-6-5 and 4-6-6.

dBA = a-weighted decibel

L₈ = A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 8 percent of a stated time period.

L₅₀ = A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 50 percent of a stated time period.

City of Dana Point Noise Standards

Noise Element of the General Plan and Municipal Code. The Noise Element of the General Plan (July 1991) contains noise standards. The City specifies outdoor and indoor noise limits for residential uses, hotels/motels, commercial, and other land uses. The noise standard for exterior living areas is 65 dBA CNEL. The indoor noise standard is 45 dBA CNEL, which is consistent with the standard in the California Noise Insulation Standard.

In addition, the City has adopted a quantitative Noise Control Ordinance (Municipal Code, Chapter 11.10). The Ordinance establishes maximum permissible hourly noise levels (L_{50}) for sensitive land uses in the City. Tables 4.6.B and 4.6.C list exterior and interior noise limits for residential uses.

Table 4.6.B: Exterior Noise Limits for Residential Land Uses, L_n (dBA)

Time Period	L_{50}	L_{25}	L_8	L_2	L_{max}
Night: 10:00 p.m.–7:00 a.m.	50	55	60	65	70
Day: 7:00 a.m.–10:00 p.m.	55	60	65	70	75

Source: City of Dana Point Municipal Code.

dBA = A-weighted decibel

L_2 = A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 2 percent of a stated time period.

L_8 = A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 8 percent of a stated time period.

L_{25} = A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 25 percent of a stated time period.

L_{50} = A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 50 percent of a stated time period.

L_{max} = Maximum A-weighted noise levels that are measured during a designated time interval, using fast time averaging.

L_n = percentile noise exceedance level

Table 4.6.C: Maximum Interior Sound Levels for Residential Land Uses, L_n (dBA)

Time Interval	L_8	L_2	L_{max}
Night: 10:00 p.m.–7:00 a.m.	45	50	55
Day: 7:00 a.m.–10:00 p.m.	55	60	65

Source: City of Dana Point Municipal Code.

dBA = A-weighted decibel

L_2 = A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 2 percent of a stated time period.

L_8 = A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 8 percent of a stated time period.

L_{max} = Maximum A-weighted noise levels that are measured during a designated time interval, using fast time averaging.

L_n = percentile noise exceedance level

The City’s Noise Control Ordinance also governs the time of day that construction work can be conducted. Noise sources associated with construction, repair, remodeling, or grading of any real property are exempt from the noise standards listed in Tables 4.6.B and 4.6.C, provided the construction occurs between the hours of 7:00 a.m. and 8:00 p.m. on weekdays and Saturdays, but not during any time on Sundays or federal holidays.

4.6.6 OVERVIEW OF PROGRAM FEIR NOISE ANALYSIS

Impacts. The Program FEIR concluded that grading and construction within the Revitalization Project area would result in temporary noise and/or vibration impacts on nearby noise-sensitive receptors. The Program FEIR concluded that although construction noise and vibration impacts would comply with Standard Conditions of Approval (SCA) and Mitigation Measures (MMs), impacts would be significant and unavoidable due to the duration of construction activities.

Operation of the Revitalization Project would increase vehicular activity along roadways within the Revitalization Project vicinity. The Program FEIR concluded that long-term mobile noise impacts would be less than significant for roadway segments under build-out traffic scenarios. The Program FEIR further concluded that operation of the Revitalization Project would generate on-site noise associated with commercial activities, which include loading and unloading activities, mechanical equipment operation, and activity in parking lots. The Program FEIR concluded that stationary source impacts would be reduced to less than significant levels with adherence to the County Zoning Code requirements relating to noise level standards.

Cumulatively, the Revitalization Project, along with other future development, could increase the ambient noise levels in the site vicinity. The Program FEIR concluded that these noise impacts would be significant and unavoidable.

PDFs, SCAs, and MMs identified in the Program FEIR and applicable to the Marina Improvement Project are listed below. During the subsequent approval process for the Land Use Plan (LUP) component of the LCPA, several of the listed PDFs, SCAs, and MMs were clarified and became LUP Policies within the revised Dana Point Harbor Revitalization Plan LUP. Where applicable, the wording has been revised to be consistent with the approved LUP Policy, which is indicated in parenthesis.

Project Design Features (PDFs), Standard Conditions of Approval (SCA), and Mitigation Measures (MMs)

SCA 4.9-1 Prior to approval of the project plans and specifications by the Director, OC Dana Point Harbor, or his designee, shall confirm that the plans and specifications stipulate that construction activities shall be limited to 7:00 a.m. to 8:00 p.m. on weekdays, including Saturdays, and no construction on Sundays and holidays. The County inspector will be responsible for ensuring that contractors comply with this measure during construction.

- SCA 4.9-2** Prior to the issuance of any Grading or Building Permits, OC Dana Point Harbor shall prepare or obtain an acoustical analysis report and appropriate plans which demonstrate that the noise levels generated by Harbor land uses during their operation shall be controlled in compliance with the Orange County Codified Ordinances, Division 6 (Noise Control). The report shall be prepared under the supervision of a County-certified acoustical consultant and shall describe the noise generation potential of the project during its operation and the noise Mitigation Measures, if needed, which shall be included in the plans and specifications for the project to assure compliance with Orange County Codified Ordinances, Division 6 (Noise Control). (LUP Policy 8.1.1-24)
- SCA 4.9-3** Prior to approval of project plans and specifications, the Director, OC Dana Point Harbor, shall confirm that the plans and specifications stipulate that stockpiling and vehicle staging areas shall be located as far as practical from noise-sensitive receptors during construction activities. (LUP Policy 8.1.1-25)
- SCA 4.9-4** OC Dana Point Harbor shall confirm that grading and drainage plans are reviewed with a geotechnical report and that the plans include the following notes:
- a. All construction vehicles and equipment, fixed or mobile operated within 1,000 ft of a dwelling, shall be equipped with properly operating and maintained mufflers;
 - b. All operations shall comply with the County's Noise Ordinance; and
 - c. Stockpiling and/or vehicle staging areas shall be located as far as practicable from dwellings. (LUP Policy 8.1.1-32)
- MM 4.9-2** For projects within 1,000 ft of sensitive receptors, impact equipment (e.g., jack hammers, pile drivers, and rock drills) used for construction shall be hydraulically or electrical powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used.
- MM 4.9-3** For projects within 1,000 ft sensitive receptors, if feasible, sonic or vibratory pile drivers shall be used instead of impact pile drivers (sonic pile drivers are only effective in some soils) whenever possible. If sonic or vibratory pile drivers are not feasible, acoustical enclosures shall be provided as necessary to ensure that pile-driving noise does not exceed speech interference criterion at the closest sensitive receptor. Engine and pneumatic exhaust controls on pile drivers shall be required as necessary to ensure that exhaust noise from pile driver engines is minimized to the extent feasible. Where feasible, pile holes shall be pre-drilled to reduce potential noise and vibration impacts.

Level of Significance after Mitigation. Despite compliance with SCA and MMs, the Program EIR determined that the proposed project would result in significant and unavoidable impacts regarding exposure to construction noise and cumulative noise.

4.6.7 IMPACTS AND MITIGATION MEASURES

Less Than Significant Impacts

Long-Term Noise Impacts. The proposed project includes replacement and improvements to existing Marina facilities. The project may result in a reduction in the total number of boat slips in the Marina; hence, the project is not expected to increase the number of vehicle trips on local roads or increase the number of boats using the Marina. The mix of sailboats and motor boats and the sizes and types of engines or motors utilizing the Marina facilities is determined by boating trends, not by OC DPH or the Marina operators. Projecting these boat characteristics to determine possible noise impacts is speculative and, as a result, they are not analyzed herein, in accordance with CEQA Guidelines Section 15145. The Program FEIR determined that noise impacts associated with boat slips are not anticipated to be significant. Therefore, the operation of the proposed project would not result in any long-term adverse noise impacts.

Potentially Significant Impacts

Short-Term Construction-Related Noise Impacts. Two types of short-term noise impacts would occur during project construction. The first is the increase in traffic volumes on local streets, associated with the transport of workers, equipment, and materials to and from the project site. The heavy equipment to be used during construction of the project will be moved to the site and will remain on site for the duration of each construction phase. The increase in traffic volumes on the surrounding roads due to construction traffic is expected to be small. However, there will be short-term intermittent high noise levels associated with construction-related trucks traveling to and from the project site.

The second type of short-term noise impact is related to the noise generated by heavy equipment operating in the project area. Construction of the proposed project will occur in multiple phases. Each phase of construction will consist of multiple tasks. The primary tasks will be: slip demolition and pile removal, pile installation, and slip installation. The construction equipment for the project will include backhoes, loaders, bobcats, tugboats, heavy-duty trucks, gas skiffs, cranes, generators, air compressors, drill rigs, barges, jackhammers, and pile drivers.

Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 4.6.D lists typical construction equipment noise levels recommended for noise impact assessments, based on a distance of 50 ft between the equipment and a noise receptor.

Table 4.6.D: Typical Construction Equipment Noise Levels

Type of Equipment	Range of Maximum Sound Levels Measured (dBA at 50 feet)	Suggested Maximum Sound Levels for Analysis (dBA at 50 feet)
Pile drivers, 12,000 to 18,000 ft-lb/blow	81-96	93
Rock drills	83-99	96
Jackhammers	75-85	82
Pneumatic tools	78-88	85
Pumps	74-84	80
Scrapers	83-91	87
Haul trucks	83-94	88
Cranes	79-86	82
Portable generators	71-87	80
Rollers	75-82	80
Dozers	77-90	85
Tractors	77-82	80
Front-end loaders	77-90	86
Hydraulic backhoe	81-90	86
Hydraulic excavators	81-90	86
Graders	79-89	86
Air compressors	76-89	86
Trucks	81-87	86

Source: *Noise Impact Analysis* (LSA Associates, Inc., May 2008).

Pile driving will be the noisiest activity on site, generating up to 93 dBA L_{max} at a distance of 50 ft. Other construction equipment used on site, such as loaders and backhoes, would generate up to 86 dBA L_{max} at a distance of 50 ft.

The nearest sensitive receptors are the Dana Point Marina Inn, located approximately 200 ft from the project construction area, and the live-aboards who are in various locations throughout the Marinas. These sensitive receptors would be subjected to short-term noise reaching 87 dBA L_{max} generated by project construction activities. Construction-related noise impacts from the proposed project would be potentially adverse. Construction-related short-term noise levels would be higher than existing ambient noise levels in the project area but would no longer occur when project construction is complete. Implementation of Mitigation Measure 4.6.1 would reduce the volume of construction activity to sensitive receptors and would regulate the times that construction activity would occur. In addition, implementation of Mitigation Measure 4.6-2 would relocate the live-aboards to be moved as far as feasible from the construction activities to minimize construction-related nuisance impacts. Although adhering to local restrictions related to hours of construction would normally reduce construction-related noise impacts to a less than significant level, the length of construction for the proposed project is anticipated to be up to eight years; therefore, construction-related noise impacts are deemed to be significant and unavoidable due to the duration of construction activities. Implementation of Mitigation Measures 4.6.1 and 4.6.2, requiring that construction equipment and staging areas be moved as far away from sensitive receptors as feasible, would reduce, but not entirely mitigate, the construction-related noise impacts.

Piling and construction activities that cause noise and vibration in the marine environment generally result in marine mammals leaving the area of disturbance. Most sound energy as a result of concrete and steel impact hammer pile driving is concentrated in the low sensitivity range of hearing frequencies for most marine mammal species, with most energy concentrated below 1 kHz (JASCO 2006). Further, sound propagation of even very intense sounds is generally restricted to short distances in shallow bays and estuaries, such as Dana Point Harbor. This is due to sound scattering associated with environmental features present in bays such as shallow water, high turbidity, and soft substrate. Therefore, sounds from impact hammer pile driving in the Harbor waters are likely to attenuate to background noise levels at short distances from the construction activities.

Noise levels are expected to be below those identified as harassment during construction, and therefore an application to the NMFS for an Incidental Harassment Authorization under Section 101 of the Marine Mammal Protection Act will not be necessary. The sound intensity produced, and the potential level of impact on marine mammals for the Dana Point Harbor project, are considered less than significant, as further discussed in Section 4.7, Biological Resources. Further, to ensure that pile-driving activities remain less than significant, Mitigation Measure 4.7-6 (see SEIR Section 4.7), requiring slowly ramping up pile-driving activities (referred to as a “soft start”), has been proposed. Implementation of Mitigation Measure 4.7-6 will ensure that any potential pile-driving noise impacts on marine mammals will remain at a less than significant level.

Short-Term Construction-Related Vibration Impacts. The proposed pile driving for pile installation in the Marinas would generate the primary source of vibration during construction. The closest pile-driving activities to a sensitive receptor would be approximately 200 ft from the Dana Point Marina Inn, which is the closest land-based sensitive receptor. In addition, the existing live-aboard residents are located throughout the Marina.

Using Equation 9 and Table 17 from the Caltrans Transportation and Construction-Induced Vibration Guidance Manual (Jones & Stokes, June 2004) it was estimated that the vibration level at the Dana Point Marina Inn would be 0.08 inches per second (in/sec). Although perceptible, this level would not exceed the 0.1 in/sec threshold, below which there is virtually no risk of architectural damage to normal buildings. Therefore, the proposed project would not result in any significant vibration impacts to the Dana Point Marina Inn.

The live-aboards are also in proximity to the proposed construction activities; however, the boats would not be subject to ground-borne vibrations. In addition, implementation of Mitigation Measure 4.6-2 would relocate the live-aboards to be moved as far as feasible from the construction activities to minimize construction-related nuisance impacts. Therefore, with implementation of Mitigation Measure 4.6-2, the proposed project would not result in any significant adverse vibration impacts.

Mitigation Measures

Implementation of the following mitigation measures would reduce the potential adverse project construction noise impacts to less than significant levels.

- 4.6-1** To reduce project construction noise impacts, OC Dana Point Harbor shall verify that construction hour limitations are noted on building and/or grading plans prior to issuance

of any construction or building permits. Construction shall be limited to the hours of 7:00 a.m. to 8:00 p.m., Monday through Saturday. In accordance with the County of Orange and City of Dana Point Noise Ordinances, no construction activities shall be conducted outside of these hours or on Sundays and federal holidays.

The following measures shall also be noted on building and/or grading plans and implemented to reduce potential construction noise impacts on nearby sensitive receptors:

1. The project contractor shall place all stationary construction equipment so that emitted noise is directed away from the sensitive receptors nearest the construction areas.
2. The construction contractor shall locate equipment staging in areas farthest from noise-sensitive receptors nearest the project site during all project construction (refer to FEIR No. 591, Standard Conditions of Approval [SCA] 4.9-1 and 4.9-3).

4.6-2 To reduce construction noise impacts throughout the phased construction activities of the proposed project, OC Dana Point Harbor shall coordinate with those residents living on boats within the Marina to relocate them to be moved as far as feasible from the construction activities to minimize construction-related noise nuisance impacts. In addition, OC Dana Point Harbor staff shall provide Marina boat residents with information regarding the availability of other nearby Marina facilities. Information regarding the timing and location of the construction activities shall also be made available on the Harbor website, by postings throughout the Marina, and other means as appropriate.

4.6.8 CUMULATIVE IMPACTS

Noise from construction of the proposed project and other nearby projects would be localized. Therefore, the cumulative study area for construction noise is the area immediately surrounding or between each particular project site. The only project in close proximity to the Marina Improvement Project that could potentially have cumulative noise impacts is the Dana Point Harbor Revitalization Commercial Core Project.

The Commercial Core Project associated with the Dana Point Harbor Revitalization Project could potentially be under construction at the same time as the Marina Improvement Project. That project has the potential to generate construction-related noise in the immediate area, which was considered cumulatively significant in the Program FEIR. Because construction noise for the Marina Improvement Project is also considered a significant adverse impact, the cumulative construction noise impacts for the proposed project, in conjunction with the Commercial Core Project, are considered cumulatively adverse and significant.

Ground-borne vibration impacts from equipment that would be used during Project construction are localized. The proposed project would not result in any significant vibration impacts; however, the Program FEIR concluded that vibration impacts on nearby noise-sensitive receptors would be significant and unavoidable due to the duration of construction activities. Therefore, if construction of the proposed project were to occur at the same time as construction of the Commercial Core Project, ground-borne vibration impacts would be cumulatively adverse and significant.

Long-term noise generated by on-site operations for the Marina Improvement Project would not change after implementation of the proposed project; the proposed project would not contribute to off-site cumulative noise impacts from other planned and future projects. Therefore, impacts related to operational noise would be less than cumulatively significant.

4.6.9 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

Although implementation of Mitigation Measures 4.6-1 and 4.6-2 would help reduce project-related construction noise impacts, the length of construction for the proposed project is anticipated to be up to eight years; therefore, construction-related noise impacts are deemed to be significant, unavoidable, and adverse due to the duration of construction activities. In addition, if the Commercial Core Project is under construction at the same time as the Marina Improvement Project, cumulative construction-related noise and vibration impacts would be considered significant and adverse. All other potential project impacts related to long-term operational noise are considered less than significant.

4.7 BIOLOGICAL RESOURCES

This section provides a discussion of the existing marine biological resources in the Harbor and an analysis of potential impacts from implementation of the proposed project. This section also addresses the proposed impacts to marine biological resources with consideration of local, State, and federal regulations and policies; provides recommended mitigation measures pursuant to CEQA; and discusses resource agency permits and anticipated mitigation ratios/strategies required by the resource agencies.

The marine biological resources analysis in this section is based on the following project-specific technical reports, which have been included in Appendix F to this Subsequent Environmental Impact Report (SEIR):

- Dana Point Harbor Bird Survey, Keane Consulting, April 2007
- Marine Biological Resources Technical Appendix for the Dana Point Harbor Waterside Improvement SEIR, Coastal Resources Management, Inc., January 2008 (updated June 2010)
- Marine Biological Field Survey Results, February–March and October–November 2007 Surveys, Updated February–June 2010 Surveys, Dana Point Harbor Marina Improvement Project, Draft Subsequent Environmental Impact Report, Coastal Resources Management, Inc., June 2010
- Focused Survey Report for Eelgrass (*Zostera Marina*) and Invasive Algae (*Caulerpa Toxifolia* and *Undaria Pinnatifida*), February–March 2007 Surveys, Dana Point Harbor Marina Improvement Project, Coastal Resources Management, Inc., July 2007

In addition to the project-specific reports listed above, the analysis in this section incorporates findings from the following reports:

- Dana Point Harbor Revitalization Project, Final Program Environmental Impact Report No. 591, RBF Consulting, January 31, 2006
- Biological Resource Reconnaissance Survey Report, The Chambers Group, Inc., January 2004 (updated September 2005)
- Marine Oceanographic and Biological Assessment, MBC Applied Environmental Sciences, March 2003 (updated September 2005)

4.7.1 EXISTING SETTING

The Harbor, constructed between 1966 and 1970, is located on the lee (protected) side of Dana Point Headlands within Capistrano Bay. The Harbor is entirely manmade and is protected by a 1.7-mile (mi) long and 14–18 foot (ft) high federal breakwater.

The Harbor depths vary between approximately 21 ft Mean Lower Low Water¹ (MLLW) in the Entrance Channel and Main Channel to intertidal depths in the Turning Basin, where Baby Beach provides sandy intertidal habitat. Depths within the Marina Basins are generally between -8 and -12 ft MLLW.

Physical Environment

Unconsolidated Sediments. Surficial sediments within the East and West Basins ranged between fine sands to extremely fine silts, although underlying sediments tend to be sandier. Sediments were coarsest in the West Basin near the OC Sailing and Events Center and on the south side of the bait barge along the base of the East Breakwater (the breakwater generally next to Doheny Beach and near the proposed temporary dock area). In each of these areas, sediment size decreased with depth.

Hard Substrate. Intertidal and subtidal rock quarry stone and smaller riprap is present in many areas of the Harbor and serves as protection for bulkheads and shorelines. The breakwaters and the south side of the East and West Island Marinas consist of larger quarry stone, whereas the riprap that protects the bulkheads of the Marinas in the vicinity of the OC Sailing and Events Center and the sport fishing dock consists of small-to moderate-sized riprap. Sloped cement quay walls occur around the perimeter of the Marinas and at the bridge abutments. These cement slopes were covered by a light to moderate layer of fine sediments.

Pilings and docks are attachment surfaces for plants and invertebrates. This community of organisms is commonly referred to as the “biofouling community.” These hard surfaces extend between the highest high tide line and the Harbor bottom depths, supporting intertidal and subtidal organisms. This habitat type is common throughout the Harbor.

Exposed natural reef is present within many areas of the Harbor, a remnant of the extensive reef habitat that was present prior to construction of the Harbor. Isolated rock habitat noted in the West Marina Basin included three single rock outcrops in the Island West Basin and one moderate relief rock outcrop in Cove West Basin. These outcrops were at depths between -8 and -10 ft MLLW. Other outcrops are likely present but not observed during the surveys. Outside of the Marina Basins, scattered low to medium relief reef outcrops and isolated boulders were located in the Turning Basin west of the OC Sailing and Events Center docks at depths between -3 and -8 ft MLLW; in the Main Channel and East Channel Area (Planning Area 11) at depths between -8 and -20 ft MLLW; in the East Channel seaward of the sport fishing docks; and in the area at the north end of the proposed temporary dock (north of the existing bait barge) at depths of -12 ft MLLW.

¹ The United States National Oceanic and Atmospheric Administration uses mean lower low water (MLLW), which is the average of the lowest tide recorded at a tide station each day during the recording period. MLLW is generally located above the Lowest Astronomical Tide (LAT); therefore, some tidal states may have negative heights.

Biological Environment

The Harbor intertidal habitats extend from the extreme low to extreme high water mark (-1.2 to +7.0 ft MLLW). The types of habitats in this zone include sandy intertidal, quarry stone (riprap), dock piles, and sloping cement bulkheads. Portions of or all of these shoreline types are exposed to both air and water during the tidal cycle. Habitats below the extreme low tide zone are “subtidal” and are never exposed. Project area subtidal habitats include unconsolidated, soft-bottom (sands and muds) habitats, which make up the majority of the Harbor’s benthic (bottom) environment, portions of docks, pilings, bulkheads, isolated reef outcrops, and the water column. These habitats support marine plants, invertebrates, fishes, and birds.

Intertidal Sandy Beach. Sand beach habitat is found in the West Turning Basin at Baby Beach. This sand beach is a low-energy environment that is affected primarily by wind waves and tidal action within the Harbor. The sediments consist of a combination of fine-grain sediments mixed with coarse-grained sand, imported to form and sustain the beach. The high intertidal portion of the County-maintained public beach supports few if any marine organisms because of infrequent tidal exposure and periodic cleaning and grooming. This higher elevation, however, provides resting habitat for seabirds (gulls and pelicans). The middle and low intertidal zones provide consistent tidal inundation and therefore support burrowing species of invertebrates (primarily clams, crustaceans, and polychaete worms). These organisms attract shorebirds to the beach that utilize the invertebrates as their food source. Core samples analyzed by Applied Ecological Research in 2000 included polychaete worms and snails; the algae *Enteromorpha* was found below the tide line along the beach.

Subtidal Environments. The benthic invertebrate community in the Harbor is made up of a complex of species that live on the sediment surface (epibenthic organisms) or in the soft-bottom sediments (infauna). Bottom-dwelling fish that either live in burrows (i.e., gobies), as well as species that are dependent on the bottom sediments for foraging (i.e., stingrays, sand bass, and halibut) are important members of the bottom community within bays and Harbors.

Subtidal Soft-bottom Habitat. Benthic surveys in the Harbor indicate that the infaunal community is dominated by small polychaete annelid and arthropod species, with fewer numbers of clams and nemerteans. These studies also suggest that the infaunal community makeup and composition is similar to Newport Harbor, Alamitos Bay, and Marina del Rey Harbor.

During benthic surveys conducted in 1994 and 1998, infaunal species composition and dominance was dominated by a similar group of species that included amphipods (*Grandidierella japonica* and *Corophium* sp.) and annelid worms (*Pseudopolydora paucibranchiata* and *Euchone limnicola*). High abundances at some stations of species tolerant of variable salinities, such as *P. paucibranchiata* and *G. japonica*, suggest that freshwater input from urban runoff may be considerable in some areas of the Harbor. Density of infaunal organisms in the Harbor in 1994 ranged from approximately 3,000 organisms per square meter (sq m) in sediments from the south side of the Harbor to almost 20,000 organisms per sq m near the storm drain at Baby Beach. During Southern California Bight-Wide regional benthic surveys conducted in 1998, infaunal density in the Harbor ranged from approximately 1,250 to nearly 7,000 organisms per sq m, with

the highest densities found in the Baby Beach area. As is typical in Southern California Harbors, species found during infauna sampling include both native and well-established introduced species.

A total of 87 taxa of marine plants, invertebrates, and fishes were observed during the rocky intertidal and subtidal field surveys. Marine plants contributed the highest number of taxa (33.3 percent of the total). Mollusks (octopus, snails, and clams) contributed the second highest number (20 percent of the total), followed by fish (11.5 percent), annelid worms (8.0 percent) and arthropods (5.7 percent).

Soft-Bottom Epi-Benthos. The soft-bottom epibenthic community in the Harbor during field surveys was species-poor. Eleven soft-bottom benthic algae and macro-invertebrate taxa were observed in the Marina Basins and other soft-bottom habitats in the Harbor. Sediments within the East and West Basins as well as other areas within and outside the Marina Basins were lightly coated with a layer of diatoms, and secondarily, spotty cover of the algae *Chaetomorpha aerea* and *Ulva intestinalis*. This was typical in areas of lower tidal current flows. Small beds and patches of eelgrass (*Zostera marina*) were observed in the shallow subtidal habitat offshore of Baby Beach encompassing 457 square feet of bottom habitat. No invasive algae (*Caulerpa taxifolia* or *Undaria pinnatifolia*) was present.

The most common occurring macro-invertebrate on soft sediments was the predatory snail *Navanax inermis*, which was ubiquitous throughout the Harbor soft-bottom habitats. The burrowing anemone *Pachycerianthus fimbriatus* was common within the West Marina; it was also found in many areas of both Marina Basins and in the Main Channel. The tube-building polychaete *Diopatra ornata* and the bubble snail *Haminoea vesicula* were observed where sediments were sandier in the East Channel near the southern section of the proposed East Breakwater temporary dock area. Notably, no marine invertebrates or algae were observed on the soft substrates within the Embarcadero docks or the Marine Services Basins.

Rocky Intertidal and Subtidal Habitat (Pier Pilings, Rock Riprap, Cement Bulkheads, and Natural Reefs). Artificial substrates (bulkheads, seawalls, docks, pilings, breakwaters and natural reef outcrops) in the Harbor provide surface area for sessile marine animals and plants and mobile macro invertebrates. The hardscape of these structures support mussels, barnacles, sponges, and other types of invertebrates and plants that constitute the “biofouling community,” many of which are invasive species. The undersides of boat floats and docks are commonly colonized by green algae, barnacles, mussels, limpets, polychaete worms, moss animals (ectoprocts), and sea squirts (tunicates). Bay fishes are attracted to the biofouling habitat because it a constant source of food.

Most plants and invertebrates during the survey were associated with Harbor artificial hardscape and natural reef (81 of 88 taxa). Of the various hard-bottom habitat types, 59 were associated with East and West Marina hard substrate, and 68 were present on hard substrate in the West Channel area (Planning Area 8) and East Channel on larger quarry stone and natural reefs. The most productive areas were reefs and quarry stone at the hardscape of the OC Sailing and Events Center reefs (40 taxa), Marina pilings (36 taxa), the hardscape of the East Breakwater quarry

stone and isolated reefs near the East Breakwater temporary dock (25 taxa), and the hardscape of the sport fishing dock bulkhead and riprap (25 taxa).

Marina Basin Pilings. A total of 36 taxa were observed on 14 piles scattered throughout the East Marina. While the cumulative number of taxa observed on pilings was 36 for all piles, the number of taxa on a single pile varied between 5 and 11. Species richness decreased with depth. The dominant organisms on the upper 3 ft of the pilings included a complex of green algae (*Ulva intestinalis*), a turf and filamentous red algae complex, brown algae (*Colpomenia perigrina*, *Dictyota flabellata*, and *Sargassum muticum*), hydroids (*Aglaophenia* sp.), serpulid polychaete worms, barnacles (*Balanus amphitrite* and *B. glandula*), and mussels (*Mytilus galloprovincialis*). The mid-depth piling community (-3 to -7 ft) was dominated by polychaete worms (serpulids and the calcareous tube-building *Dodecaceria fewksii*), mussels, solitary tunicates (*Styela plicata*), and ectoprocts (*Bugula neritina* and unid. encrusting ectoprocts). The bottom depth piling community (-7 to -10 ft MLLW) was dominated by tunicates, ectoprocts, and hydroids.

Basin Quay Walls. The sloping cement bulkhead around the perimeter of Cove East and West and Island East and West Basins (including the Harbor Patrol Basin) supported 18 species of algae and invertebrates. However, this habitat exhibited an extremely low percentage cover of sessile organisms and low abundances of mobile macro invertebrates. The most conspicuous species was the calcareous tube-building polychaete *Dodecaceria fewksii* that formed patchy, small colonies on the quay walls. Other common species included lined-shore crabs (*Pachygrapsus crassipes*), solitary ascidians, and scattered, juvenile mussels. A fine silt layer, approximately 1–2 centimeters (cm) deep, covered the substrate. Other than *Dodecaceria*, most of the flora and fauna were found in the depressions formed by the meeting of adjoining cement sections of quay wall.

Bridge Abutments, Island Way. Twelve taxa were represented on the north bridge abutment at depths between +3 to -10 ft MLLW. This site consisted of a species-poor assemblage of macrophytes and invertebrates due to a lack of sunlight and a coating of sediment over the concrete slope. Four macrophytes were observed: *Corallina pinnatifolia*, *Dictyota binghamiae*, *Dictyopteris undulata*, and *Colpomenia sinuosa*. The dominant invertebrates included acorn barnacles (*Balanus glandula*, *Chthamalus fissus/dalli*), bay mussels (*Mytilus edulis*), tunicates (*Styela plicata*), sponges (*Leucosolenia* sp.), and hydroids (*Aglaophenia* sp.); hydroids exhibited the highest cover.

East Breakwater Quarry Stone and Isolated Reefs (East Basin Temporary Dock). Hardscape areas (the breakwater and isolated reefs) in the area near the East Breakwater supported many plants and invertebrates in response to adequate tidal exchange and tidal currents, as well as suitable substrate. The East Breakwater provided the most extensive hard-bottom habitat. Common red macrophytes present in the low intertidal and shallow subtidal zone included articulated corallines (*Corallina chilensis*, *C. pinnatifolia*, *Amphiroa zonata*), and crustose algae (*Lithothamnion* spp., *Peyssonneliaceae/Hildenbrandiaceae*) and secondarily, *Ceramium/Polysiphonia* spp. and *Laurencia pacifica*. Several species of brown macrophytes were also

present: *Dictyota binghamiae*, *Dictyopteris undulata*, *Zonaria farlowii*, *Taonnia lennebackerae*, *Sargassum muticum*, *Halidryis dioica*, *Eisenia arborea*, and *Colpomenia sinuosa*.

The fauna included limpets (*Lottia limatula*, *L. scabra*, *Crepidula onyx*), barnacles (*Balanus glandula*, *Chthamalus fissus/dalli*), and trochiid snails (*Tegula eiseni*). The snails *Pteropurpura festiva* and *Acanthina spirata* were also present, but were not as common.

North of the bait barge, a few moderate relief (1.5–2 meters [m] high) rocky reefs were located. These reefs supported fewer macrophytes and macro-invertebrates than the subtidal fauna on the East Breakwater. Species that were observed included the red algae complex *Ceramium/Polysiphonia* spp. and *Rhodomenia californica*; brown macrophytes (*Sargassum muticum*, *Dictyopteris undulata*); slipper limpets (*Crepidula onyx*); and gorgonians (*Muricea fruticosa*).

A significant amount of trash was observed while surveying the East Breakwater biological communities. This debris was concentrated at the base of the breakwater lodged in the rocks as well as on the sediments at the base of the breakwater rocks.

OC Sailing and Events Center Reefs and Riprap. Riprap behind the docks and low relief natural reef in the Turning Basin in front of the OC Sailing and Events Center docks supported a large number of species: 40 taxa of plants and invertebrates similar in nature to those occurring in the Marina piling community and the quarry stone/natural reef habitats in the West Channel and Main Channel. Dominants included the southern sea palm algae (*Eisenia arborea*), the brown seaweed *Sargassum muticum*, coralline turf algae, and invertebrates such as sponges, colonial polychaete worms, lobsters (*Panulirus interruptus*), snails (*Kelletia kelletii*), limpets (*Lottia digitalis*), slipper limpets (*Crepidula onyx*), and mussels (*Mytilus galloprovincialis*).

On the south side of the OC Sailing and Events Center, riprap lined the cement bulkhead. The most commonly found red algal forms included articulated corallines (*Corallina pinnatifolia*, *Amphiroa zonata*), coarsely branched red algae (*Gelidium purpurascens*), and crustose corallines (*Lithothamnion* spp.); small, red turf algae (*Ceramium* and *Polysiphonia* spp.) was less common but present. The dominant brown macrophytes were *Dictyota binghamiae*, *Dictyopteris undulata*, and *Sargassum muticum*. Barnacles (*Balanus glandula*, *Chthamalus fissus/dalli*), lobster (*Panulirus interruptus*), slipper limpets (*Crepidula onyx*), and tunicates (*Styela plicata*) were the most common-occurring invertebrates.

Sport Fishing Dock Riprap. The variable-sized riprap in front of the sport fishing docks supported a moderately diverse community of intertidal and subtidal plants and invertebrates typical of both the inner Marina and the outer channels of the Harbor. The most common types of plants were filamentous red algal taxa, coralline turf algae, and macrophytes, particularly *Sargassum muticum* and *Dictyota flabellata*. The most conspicuous macro-invertebrates were limpets (*Collisella* and *Lottia* spp.), mussels (*Mytilus galloprovincialis*), sea fans (*Muricea californiensis* and *M. fruticosa*), lobsters (*Panulirus interruptus*), and colonies of the cup coral *Astrangia lajollensis*.

Biological Species

Plankton. Plankton consists of algae (phytoplankton) and animals (zooplankton) small enough to be suspended in the water column and drift through tidal and oceanic currents. The phytoplankton community off the California coast primarily consists of diatoms, dinoflagellates, silicoflagellates, and coccolithophores, while the zooplankton are those animals that spend part (meroplankton) or all (holoplankton) of their life cycle as plankton. Fish eggs and larvae (ichthyoplankton) are an important component of the zooplankton community. With the exception of a few fish species (e.g., the embiotocidae or surfperches that bear live young), most fish that occur in Southern California are present as larvae or eggs in the plankton community. Plankton abundances and distributions are directly tied to water temperature, nutrients, upwelling, and current movements, and for zooplankton, the amount of phytoplankton food resources. The planktonic community in the Harbor is expected to be composed of the same types of organisms common to the nearshore coastal environment offshore of Dana Point since the plankton are drawn into the Harbor through tidal and wind-driven processes and there is not a significant estuarine influence in the Harbor.

Fishes. The types of fishes that commonly occur in protected Marinas and Harbors of Southern California are a combination of species that are associated with both soft-bottom habitat and hardscape of pilings, docks, cement bulkheads, and breakwaters.

Soft-Bottom. Few fishes were observed on or above the soft-bottom habitat during the dive and remote video surveys. Of the two species observed, only the round sting ray (*Urolophus halleri*) was common. Other unidentified flat fish were seen, but could not be identified. However, there are several other species of fish that occur in other bays and Harbors in Southern California that are likely to be present in the Harbor. These include gobies (*Clevelandia ios*) and flatfish (California halibut, *Paralichthys californicus*; diamond turbot, *Hypsopsetta guttulata*).

Hard-Bottom. Nine species of fish and one unidentified juvenile were observed in the vicinity of hard-bottom habitat during the dive and remote video surveys. The most common fishes observed included garibaldi (*Hypsypops rubicundus*), kelp bass (*Paralabrax clathratus*), opaleye (*Girella nigricans*), pile surfperch (*Damalichthys vacca*), blacksmith (*Chromis punctipinnus*), señorita (*Oxyjulis californica*), and kelpfish (*Heterostichus rostratus*). Most fish were seen in the vicinity of the OC Sailing and Events Center docks, the sport fishing docks, the West Channel, and East Breakwater proposed temporary dock area.

Water-Column. Water-column species such as topsmelt (*Atherinops affinis*), northern anchovy (*Engraulis mordax*), black surfperch (*Embiotoca jacksoni*), shiner surfperch (*Cymatogaster aggregata*), walleye surfperch (*Hyperprosopon argenteum*), white croaker (*Genyonemus lineatus*), queenfish (*Seriphus politus*) and white surfperch (*Phanerodon furcatus*) are also common within southern California marinas and may be expected to be present in Dana Point Harbor.

Marine Mammals. One of the most important areas of high concentrations of marine mammals in Southern California is the waters within a 10 mi radius between San Clemente and Dana Point. These

waters are known for high seasonal concentrations of common dolphin (*Delphinus delphis*) and the nearshore migratory pathway of California gray whales (*Eschrichtius robustus*), which was delisted as an endangered species in June 1994.

Several species of marine mammals inhabit the local waters. These include two pinnipeds (California sea lions [*Zalophus californicus*] and Harbor seals [*Phoca vitulina*]) and 12 species of cetaceans (whales). Four of the whales are baleen (filter-feeding) whales, and eight species are odontocetes (toothed whales). The California gray whale, bottlenose dolphin (*Tursiops truncatus*), common dolphin (*Delphinus delphis*), and Pacific white-sided dolphin (*Lagenorhynchus obliquidens*) are the most commonly occurring species in the waters offshore of the Harbor.

Whales and dolphins are uncommon visitors to Dana Point Harbor. Recently however, a young, emaciated, gray whale entangled in fishing gear swam into Dana Point Harbor and remained for a few days in mid-May 2010. The net was removed by a team of biologists, and the whale swam out of the harbor. It died offshore of Doheny Beach a few days later. California sea lions and Harbor seals are more frequently observed within the Harbor waters, with sea lions also hauling out on the breakwater. The Harbor is not considered a breeding habitat for pinnipeds but it is a secondary foraging area.

Water-Associated Birds. Shorebirds, waterfowl, and seabirds occur along the shoreline throughout the year, but concentrations are usually highest during the fall to spring period when seasonal migrants winter over along the Southern California shoreline. Common shorebirds include willet (*Catoptrophorus semipalmatus*), whimbrel (*Numenius phaeopus*), marbled godwit (*Limosa fedoa*), and sanderling (*Calidris alba*). The western grebe (*Aechmophorus occidentalis*), various species of cormorants (*Phalacrocorax* spp.) and surf scoter (*Melanitta perspicillata*) are among the water fowl that occupy the nearshore waters of the Harbor. Sea birds and larger marsh birds such as California brown pelican (*Pelecanus occidentalis*), terns (*Sterna* spp.), western and ring-billed gulls (*Larus occidentalis* and *L. delawarensis* *Larus* spp.), great blue herons (*Ardea herodias*), black-crowned night herons (*Nycticorax nycticorax*), and snowy egrets (*Egretta thula*) are expected to either occur in the waters and on the shoreline in the immediate area of Dana Point, or potentially within the Harbor as foraging and/or resting habitat.

Bird surveys conducted in March 2007 (Keane Biological Consulting, 2007) and March 2003 (MBC Applied Environmental Sciences in: RBF and MBC Applied Environmental Sciences, 2003) indicated that approximately one-half of the species observed were marine water-associated birds. Herons, egrets, and gulls, and pelicans were the most common species observed during both surveys. Other common water-associated bird species present included surf scoter (*Melanitta perspicillata*) and cormorants (*Phalacrocorax* spp). Although not observed, dabbling and wading ducks can also be found in the Harbor. During spring and summer, California least terns (*Sterna antillarum browni*), Forster's terns (*Sterna forsteri*), elegant terns (*Sterna elegans*), Caspian terns (*Sterna caspia*) and black skimmer (*Rynchops niger*) may be seen in local waters, including the Harbor.

Breeding and Nesting Species of Water Birds in the Harbor. Four bird species were identified as confirmed breeders in the Harbor area during the March 2007 bird survey (black-crowned night-heron, American crow, house finch, and house sparrow), with an additional 10 species considered likely to breed in the Harbor area (snowy egret, Anna's hummingbird, Allen's hummingbird, black

phoebe, barn swallow, bushtit, European starling, common yellowthroat, hooded oriole, and lesser goldfinch) An additional 10 species (great blue heron, rock pigeon, Nuttall's woodpecker, Cassin's kingbird, western scrub-jay, northern mockingbird, California towhee, common raven, orange-crowned warbler, Brewer's blackbird) could potentially nest in the harbor study area because this area lies within their ranges and potentially suitable nesting habitat exists there; however, the likelihood of nesting is considered to be less than 50 percent (Keane Biological Consulting 2007). Of all of these species, one water bird (black-crowned night heron) was observed nesting. Both snowy egrets and great blue herons were determined to be likely nesters near the Harbor.

Sensitive Species

Eelgrass (*Zostera Marina*). Eelgrass is a marine-flowering plant that grows in soft sediments in coastal bays and estuaries and occasionally offshore to depths of 50 ft. Eelgrass canopy (consisting of shoots and leaves) enhances the abundance and the diversity of otherwise barren sediments. Many species of invertebrates (i.e., clams, crabs, and worms) live either on eelgrass or within the soft sediments that cover the root and rhizome mass system. Eelgrass is a nursery habitat for many juvenile fishes, including species of commercial and/or sports fish value (California halibut and barred sand bass). They are also foraging centers for seabirds such as the endangered California least tern that seek out juvenile topsmelt that are attracted to the eelgrass cover. Lastly, eelgrass is an important contributor to the detrital (decaying organic) food web of bays as the decaying plant material is consumed by many benthic invertebrates (such as polychaete worms) and reduced to primary nutrients by bacteria.

Studies conducted between 2005 and 2010 have documented the expansion of an eelgrass bed seaward of Baby Beach in the western section of Dana Point Harbor. Most recently, small-to-large patches of eelgrass were located 160 to 412 feet west of the existing bulkhead at the OC Sailing and Event Center during surveys conducted by MBC Applied Environmental Sciences (2008 and 2009) and CRM (Coastal Resources Management, Inc. 2010) (Figure 4.7-1 Eelgrass Locations – OC Sailing and Event Center Docks).

Chambers Group, Inc. located a single, three-turion plant at the eastern end of Baby Beach in 2005 during surveys for the Dana Point Harbor Maintenance Dredging Project. MBC Applied Environmental Sciences conducted eelgrass and invasive algae surveys for the Dana Point Harbor Maintenance Dredging and Pipeline Corridor Project in August 2008. A total of 14.5 sq m of eelgrass was located seaward of Baby Beach in 2008, and 70 sq m of eelgrass were located seaward of Baby Beach in 2009. Eelgrass turion density ranged between approximately 48 to 56 turions per square meter during the February 2009 survey. None of the eelgrass was impacted by the County dredging project.

Coastal Resources Management, Inc. (2010) did not locate eelgrass within Dana Point Harbor during the February/March 2007 or the October/November 2007 reconnaissance surveys of Baby Beach. On June 8th, 2010, CRM updated the earlier Dana Point Harbor marine biological surveys in the vicinity of Baby Beach and the Sailing Center Docks along the eastern one-third of Baby Beach at depths between -3 and -12 ft MLLW. CRM reported the presence of 457.3 square feet (42.5 sq m) of eelgrass within the survey area at depths between -2.5 and -4.5 ft MLLW in a mixture of silt and scattered boulders. None of this eelgrass was reported by MBC during the 2008 and 2009 surveys. Eelgrass density was extremely low, ranging between 4 and 10 turions per square meter. In addition,

turion density was extremely low. These observations suggest that eelgrass recently expanded during the 2009–2010 growing season and will likely continue to increase in cover, and increase in density.

CRM could not relocate the eelgrass patch that MBC located in the Dry Boat Storage area docks during the 2010 survey. This location appeared to be located underneath jet ski platforms at the time of the survey.

Surfgrass (*Phyllospadix* spp.). Surfgrass is a sensitive marine resource that occurs in rocky shoreline and rocky subtidal habitats at depths to approximately 20 ft. Its sensitivity is related to its use by invertebrates and fishes as nursery habitat and its susceptibility to long-term damage because it is a very slow-growing species. Revegetation occurs very slowly through initial seeding and eventually through the spreading of roots and rhizomes over surfaces of rocks. Surfgrass is considered to be Essential Fish Habitat by the National Marine Fisheries Service (NMFS). Juvenile olive rockfish (*Sebastes serranoides*), which is a Fisheries Management Plan Groundfish species, utilizes surfgrass beds as nursery habitat. Surfgrass is also an extremely important nursery habitat for juvenile lobsters. Surfgrass is a dominant feature of the Dana Point Marine Life Refuge and Niguel State Marine Park intertidal and subtidal habitat. Its presence on the inside of the Harbor's breakwater or within the Marina is likely limited because of the lack of wave action and other related requirements. No surfgrass was observed within the Harbor project area during the 2007 field surveys.

Abalone.

Abalone (*Haliotis sorenseni*). The white abalone is one of eight species of abalone that is known from California. Its listing as a federally endangered species in May 2001 is the result of a population reduction related to overfishing. White abalone is reported to be most abundant between 25–30 m (80–100 ft) depths, making it the deepest-occurring abalone species in California. The white abalone depth range is generally believed to be between 60–200 ft deep (18–60 m), with most occurring at depths greater than 75 ft on reef in exposed areas. However, white abalones have been verified at depths as shallow as 28 ft (8.5 m).¹ It is unlikely to occur anywhere in the Harbor because of a lack of suitable rocky habitat and depth.

Black Abalone (*Haliotis cracherodii*). In 1998, the NMFS added black abalone to the candidate species list for possible listing under the federal Endangered Species Act (ESA). Black abalones usually inhabit surf-battered rocks and crevices from the intertidal zone to shallow subtidal zone down to 20 ft (6 m). It is a long-lived species, attaining an age of 25 years or more. Now a rare species, the black abalone was abundant in California until the mid-1980s. This species is potentially present within the Dana Point Marine Life Refuge and on the outer side of the Harbor breakwater, but in highly reduced numbers. It does not occur within the Harbor.

¹ Based on surveys conducted by Coastal Resources Management, Inc. in April and March 2002 in the vicinity of El Capitan State Beach, California

Red Abalone (*Haliotis rufescens*). Red abalone is listed as a species of special concern by the NMFS. In Southern California, it is exclusively subtidal, restricted to areas of upwelling along the mainland and the northwestern Channel Islands. It does not occur within the Harbor area.

Green Abalone (*Haliotis fulgens*). Green abalone is listed as a species of special concern by the NMFS. It prefers shallow water from the low tide zone down to 25 ft (8 m). Now rare, the green abalone was once a common species in Southern California. It does not occur within the Harbor area.

Pink Abalone (*Haliotis corrugata*). This NMFS species of special concern occurs at a depth range from the lower intertidal zone to almost 200 ft (60 m), but most are found from 20 to 80 ft (6 to 24 m). It has the broadest distribution of the Southern California abalones. In the early 1950s, pink abalone comprised the largest segment of the abalone fishery, approximately 75 percent. By the early 1980s, the commercial pink abalone fishery had expanded throughout its range, and the landings dwindled to virtually nothing. Surveys at San Clemente, Santa Catalina, and Santa Barbara Islands in 1996 and 1997 indicated that there were few abalone remaining. It does not occur within the Harbor area.

Fishes.

California Grunion (*Leuresthes tenuis*). This fish species is not a formally listed species, but is considered sensitive because of its beach-spawning activity and potential impacts from beach disturbances such as beach cleaning and beach nourishment. It uses the high intertidal sandy beach habitat of many Southern California beaches as spawning habitat. Grunion lay their eggs in the wet beach sands during the highest spring tides between late February or early March to as late as early September. Dana Strands beach is a grunion-spawning habitat that has been used by grunion on a regular basis. Doheny (Capistrano Beach) is also a historical spawning ground for this particular species. It does not occur within the Harbor area.

Steelhead Trout (*Onchorynchus mykiss*). Steelhead trout are a federally endangered and State species of special concern. The steelhead trout is an anadromous sea-going rainbow trout that lives approximately 2–4 years of its life (but this period varies greatly) in the open ocean prior to returning to the stream where it was spawned. It is dependent on small, clear-flowing (but not rapid) streams with gravel beds to complete its spawning cycle. The area must also have protective cover and an adequate food source. Steelhead populations are declining because of impacts on habitat such as dams, turbidity, and other habitat incursions. A steelhead trout was caught in the Harbor as recently as December 30, 2002. However, it is unlikely that this species would naturally occur in the Harbor.

Tidewater Goby (*Eucyclogobius newberryi*). The tidewater goby is a federally listed endangered species that has been expatriated from many Southern California creek mouths. It is currently found in shallow marine areas and lower reaches of streams between San Diego northward to

Humboldt County waters, where salinity is less than 10 parts per thousand (ppt). Habitat conducive to tidewater gobies is absent from the Harbor.

California Halibut (*Paralichthys californicus*). Although it does not have a formal special status, the California halibut is considered a sensitive species by resource agencies because of its commercial value and a continued regionwide reduction of its nursery habitat in bays and wetlands. California halibut spawn at sea, and its larval stages are planktonic. After several months, larval fish settle to the bottom and migrate into shallow coastal waters. Young-of-the-Year fish (YOTY) prefer shallow waters between approximately -1.5 ft and -3.5 ft MLLW, whereas juveniles prefer deeper channel bottoms to a maximum depth of approximately -15 ft MLLW. After spending nearly nine months in coastal embayments, juveniles move out into the open coastal environment. The species uses inshore waters of bays, Harbors, and estuaries as a nursery habitat. Halibut may occasionally be found particularly in the outer channels of the Harbor, but are much more common in the open coastal environment. Their occurrence within the Harbor is rare.

Reptiles.

Sea Turtles. Several species of federally listed threatened and endangered sea turtles could potentially occur in the nearshore open water habitats surrounding the Harbor. There are no known nesting beaches for these species in the United States, but they have been observed off the coast of Southern California (California State Lands Commission 1998). These include the endangered leatherback sea turtle (*Dermochelys coriacea*), the threatened green sea turtle (*Chelonia mydas*), loggerhead sea turtle (*Caretta caretta*), and olive ridley sea turtle (*Lepidochelys olivacea*). Sightings are extremely rare, and it is unlikely that they would be affected by project activities. The green sea turtle, federally listed as endangered, has been sighted offshore of the Harbor; however, the nearest place they are frequently seen is in and near the mouth of the San Gabriel River and Alamitos Bay. The presence of this species in the Harbor would be considered uncommon to rare, as it is more common in tropical and subtropical waters.

Marine Mammals.

California Gray Whale (*Eschrichtius robustus*). Two distinct populations of gray whales occur in the North Pacific Ocean, a western stock and an eastern stock. The eastern stock occurs along the eastern Pacific coastline and is known as the California gray whale. In June 1994, the eastern Pacific population was removed from the Federal Endangered Species List, due to recovery of population numbers to near the estimated sustainable population size.

The California gray whale migrates through the Southern California Bight (SCB) twice each year, traveling between its feeding grounds in Alaska and its breeding grounds in Baja California. The southern migration through the SCB occurs from December through February, with pregnant females moving through the area first. The northward migration begins in February and lasts through May, peaking in March. Solitary animals generally lead the northbound migration with cow-calf pairs following 1 to 2 months later. Gray whales migrate within 125 mi (200 kilometers [km]) of the shoreline and many are sighted within 9 mi (15 km) of shore. On the northbound

migration, cow-calf pairs are believed to more closely follow the shoreline rather than the offshore route. Gray whales are observed commonly in the nearshore waters of the project area, but rarely do individual whales enter the Harbor. As stated above, an ailing gray whale entered the Harbor in May 2010; the whale eventually left the Harbor but died onshore at Doheny State Beach a few days later.

Water-Associated Bird Species. A bird survey focusing on nesting species was conducted by Keane Biological Consulting (2007). This section focuses on marine-associated sensitive species of birds, including observations from that survey, and a 2003 survey conducted by MBC Applied Environmental Sciences.

California Gull (*Larus californicus*). The California gull is a Species of Special Concern. It nests in alkali and freshwater lacustrine habitats east of the Sierra Nevada, and not locally. It is abundant in the project area during its nonbreeding season (August–March). This species would roost on the breakwater and docks of the Harbor during the nonbreeding season.

Double-Crested Cormorant (*Phalacrocorax auritus*). A Species of Special Concern, this species is vulnerable to reduced nesting success from persistent pesticides in the water. This species is the most widespread of all cormorants in North America, but in California, it is the least abundant of the various species of cormorants and uncommon in Southern California. In California, it nests offshore on rocks, islands, abandoned wharves, and power poles, and most of the breeding colony sites are in central to northern California. They can be found in nearshore waters and roost on the breakwater and docks of the Harbor. Cormorants are diving birds that catch and eat fish.

California brown pelican (*Pelicanus occidentalis californicus*). The California brown pelican is federally and State-listed as an endangered species. It is observed primarily in the open ocean and beaches but is also common in estuaries, tidal rivers, rocky coasts, breakwaters, and islands. Breeding locations along the west coast of California are limited to the Channel Islands. During the late 1960s and early 1970s, the brown pelican population suffered a widespread and dramatic decline linked to eggshell thinning due to dichloro-diphenyl-trichloroethane (DDT), first noted in 1962, which resulted in listing the subspecies as endangered. The population is now recovering well. Brown pelicans do not breed on the mainland but are frequent inhabitants of Southern California estuaries and Harbors. The Harbor breakwater provides roosting habitat for pelicans, and the Dana Wharf region and bait barge attract large numbers of pelicans. However, no nesting habitat for pelicans is present on the California mainland or in the Harbor.

California least tern (*Sterna antillarum browni*). The California least tern is federally and State-listed as endangered. A migratory species, it nests from April through August along the coast of California from San Francisco south to Baja California. It presumably winters in Central America or northern South America, although the specific location of its wintering range is unknown. In 2006, the California least tern breeding population was estimated at over 7,000 pairs, more than a tenfold increase from estimated numbers when it was listed in the early 1970s. Least terns breed on sparsely

vegetated sandy beaches, salt flats, and dredge spoil in colonies of a few to several hundred nesting pairs. This species relies on sight for foraging and usually requires relatively clear water to locate its preferred baitfish food sources, northern anchovy (*Engraulis mordax*), topsmelt (*Atherinops affinis*), and jacksmelt (*Atherinopsis californicus*). There is some field evidence to suggest that least terns would forage in turbid waters to which fish are attracted. The majority of foraging occurs in open ocean. California least terns are expected to forage occasionally among the docks of the project site, particularly during years when offshore prey (small baitfish) is limited in availability.

There are no nesting sites in the Harbor or the immediate vicinity of the Harbor. The nearest nesting site is located approximately 20 mi south of the Harbor at Red Beach on Camp Pendleton Marine Corps Base. In 2006, there were 27 least tern nests with 16 fledglings. The nearest breeding site to the northwest of Dana Point is in Upper Newport Bay. In 2006, only 18 of 61 eggs (36 nests) hatched, and only 2 of those chicks survived to fledging. In 2007 to date, there have been 35 nests built, but hatching success appears to be much higher than in 2006, with a minimum of approximately 20 fledglings. Other nesting sites for this species are located at the Santa Ana River mouth, Bolsa Chica, and in the Port of Los Angeles.

Western Snowy Plover (*Charadrius alexandrinus nivosus*). The western snowy plover is a federally and State-listed threatened shorebird that nests on sand spits, dune-backed beaches, river/creek mouth beaches, and on salt pans in lagoons and estuaries. Its current breeding range extends between southern Washington to Baja California. Breeding occurs from early March to late September. Individuals of the wintering population can be expected to be present along south Orange County beaches and forage along the shoreline between November and February.

Small numbers of migrant or wintering snowy plovers are occasionally reported from the nearby San Mateo Creek area, but no nesting has been documented at the Harbor. Their occurrence in the Harbor is limited by the small amount of available sandy beach and mudflat. Snowy plovers prefer the same type of nesting habitat as least terns, so little potential exists for them to nest at the beaches of the Harbor.

Great Blue Heron. The great blue heron has no listing status, and although it is a common wading bird in Southern California estuaries, its nesting sites in California are uncommon. It is one of the most widespread and adaptable wading birds in North America. The range of the great blue heron extends from Southeast Alaska and north British Columbia to south Quebec and south to Florida, Texas, Baja California, and Central America, at least to Belize and Guatemala. Along the Pacific coast, its range extends from southeast Alaska to Mexico, and they are known to be common in coastal California. They can be found in shallow estuary systems and fresh and saline emergent wetlands all year throughout most of the State. Great blue herons usually arrive on breeding grounds by early February. Courtship and nest-building begin shortly thereafter, and eggs are laid in late February or March. They usually nest in colonies, sometimes with five or more pairs, but often with fewer. This species is sensitive to human disturbances and probably to pesticides and herbicides in nesting and foraging areas. Great blue herons have been observed to nest in and near the Harbor area.

Sensitive Habitats

Reef Habitat. Subtidal reefs are considered Essential Fish Habitat for groundfish species. Kelp forests associated with reefs provide protection and cover for many marine invertebrates and fishes. Kelp (*Macrocystis pyrifera*) grows on rock and cobble habitat offshore of the Harbor (outside of the project area) northwest through Corona del Mar at depths between 20 and 45 ft. California Department of Fish and Game (CDFG) Kelp Bed No. 9 extends between Emerald Bay and the Harbor. Kelp canopy has historically persisted in two regions of Orange County; between Heisler Park and Cactus Point in Laguna Beach and between Mussel Cove (South Laguna) and Dana Point, including the waters offshore of Dana Strand and the Dana Headlands. Kelp beds located between the Harbor breakwater and San Mateo Creek are located at distances between approximately 1,600 and 5,000 ft from shore and are identified as CDFG Kelp Bed No. 8.

Giant Kelp. Kelp grows on the western breakwater of the Harbor, the hard substrate of the South East Regional Reclamation Authority (SERRA) outfall downcoast of the Harbor at depths less than 40 ft, intermittently for approximately 1 mi south of the outfall on low relief cobble and boulder, and immediately downcoast of Capistrano Beach County Park at distances between 600 and 1,500 ft offshore. Inshore kelp beds are patchy and not always present due to their shallow nature and greater susceptibility to damage from storms. Hard-bottom features and kelp beds are more common farther offshore at depths between 40 and 55 ft between Doheny Beach Marine Life Refuge and San Mateo Point. Inside the Harbor, giant kelp is very sparse.

Protected Marine Areas

The 1999 Marine Life Protection Act (MLPA) mandated that the State of California design and manage an improved network of marine protected areas (MPAs) to protect marine life and habitats, marine ecosystems, and marine natural heritage. Marine protected areas include marine reserves, marine parks and marine conservation areas. Upcoast and outside of the Harbor, intertidal and subtidal habitats currently receive local and State environmental protection status as part of *Niguel State Marine Conservation Area* and the *Dana Point State Marine Conservation Area* located at the base of the Headlands.¹ The Niguel State Marine Park boundaries extend 1,200 ft offshore and 2.1 mi along the shoreline. It encompasses an area of 315.2 acres (ac). Dana Strands Beach and the waters offshore of the beach are located within the boundaries of this State Marine Conservation Area. The Dana Point State Marine Conservation Area boundaries extend 0.7 mi offshore and 1,200 ft of shoreline between the headlands and the Harbor. This covers an area of 124.8 ac.

Downcoast of the Harbor, Doheny Beach State Marine Conservation Area is also an underwater park. This area overlaps with the Doheny Beach State Marine Park. The Marine Park extends 600 ft offshore, whereas the State Marine Conservation Area extends 1,500 ft offshore. Most of the shoreline is sandy habitat, although there is some rocky intertidal habitat at the northern edge of the Marine Park. Offshore, the seafloor is a mixture of both sand bottom and low-to-high relief reef. Lagoon wetland habitat is located at the mouth of San Juan Creek. The County of Orange-maintained Capistrano Beach County Park is located at the southern end of Doheny Beach State Marine Park.

¹ A map indicating the location of these protected marine areas is included in Appendix F to this SEIR.

Proposed Protected Marine Areas

Intertidal and subtidal habitats that were previously listed as State of California Marine Ecological Reserves and Marine Life Refuge have been reclassified. This re-classification was the result of a state-wide simplification of existing state-protected areas into six classifications, and replaced 18 classifications that were previously used to categorize state Marine Managed Areas (MMAs). Marine Protected Areas (MPAs) are a subset of MMAs and include conservation areas, marine reserves, state marine parks, and state marine conservation areas. The MLPA requires that the Department of Fish and Game (Department) prepare and present to the Fish and Game Commission (Commission) a master plan that will guide the adoption and implementation of a Marine Life Protection Program, which includes a statewide network of MPAs.

On April 13, 2007, the California Fish and Game Commission (CFGC) adopted regulations to create a new suite of MPAs designed for the Central Coast of California, the first region considered for the State. This move effectively launched the state's Marine Life Protection Act (MLPA) Program. Southern California MPAs (Point Conception to the Mexican Border) and Northern California MPAs are currently undergoing reviews.

For Southern California, a MPA proposal was unanimously adopted on November 10, 2009 by the MLPA Blue Ribbon Task Force (BRTF) as the MLPA South Coast Integrated Preferred Alternative (IPA) MPA Proposal to be recommended to the CFGC. The IPA recommends 50 MPAs in state waters in the MLPA South Coast Study Region, which extends from Point Conception in Santa Barbara County to the California/Mexico border in San Diego County.

The proposed MPAs in the vicinity of Dana Point Harbor include the Crystal Cove State Marine Conservation Area, the Laguna Marine Life Reserve, and the Dana Point State Marine Conservation Area.

Fishery Management Plan Species

The proposed project area is located in an area designated as Essential Fish Habitat (ESH) in the Coastal Pelagics Fishery Management Plan (FMP) and the Pacific Groundfish FMP. The Coastal Pelagics FMP includes four finfish (Pacific sardine, chub mackerel, northern anchovy, and jack mackerel) as well as market squid. The Pacific Groundfish FMP includes 83 species, many of which are rockfish.

Coastal Pelagic FMP. Coastal Pelagic FMP species that are likely to be present within and outside of the Harbor include northern anchovy (*Engraulis mordax*) and Pacific sardine. Outside the Harbor, jack mackerel and chub mackerel are known to occur; these, however, would only be present within the Harbor on rare occasions. Of these species, the northern anchovy is the most likely species to be within the Harbor area.

The northern anchovy central subpopulation ranges from approximately San Francisco, California, to Punta Baja, Baja California. The bulk of the central subpopulation is located in the SCB, a 20,000

square-nautical-mile area bounded by Point Conception in the north and Point Descanso, Mexico (approximately 40 mi south of the United States-Mexico border) in the south. Northern anchovy in the central subpopulation are typically found in waters that range from 12° Centigrade (°C) [56.3° Fahrenheit (°F)] to 21.5°C (70.7°F). All life stages are found in the surface waters of the Exclusive Economic Zones¹ (EEZ). Eggs and larvae are found near the surface, generally at depths of less than 50 m and in the same areas as spawning adults. Anchovy eggs are most abundant at approximately 14°C (57.2°F).

Northern anchovy comprise a significant portion of nearshore otter trawl catches, contribute moderately to the nearshore fish biomass of the nearshore area of San Pedro Bay, and account for approximately 80 percent of all fish caught within 3 km of the coast in the SCB. Along the coast of northern Orange County and Long Beach to Los Angeles Harbors, this species ranked highest in abundance during 6 of the 11 monitoring surveys between 1972 and 1997 offshore of the San Gabriel River and was never ranked lower than the 5th most abundant species. The northern anchovy is also the most abundant species in Los Angeles Harbor, representing over 80 percent of the fish caught, and larvae of the species are also a common component of the ichthyoplankton. In Los Angeles Harbor, northern anchovy appear to prefer deeper waters of the Harbor. There is a commercial bait fishery for northern anchovy offshore of the Harbor, and a commercial bait barge is located within the Harbor. Larvae of northern anchovy are also part of the Dana Point ichthyofauna and ichthyoplankton community.

Pacific Groundfish FMP. The Pacific Groundfish FMP species that are likely present within the Harbor or immediately outside the Harbor rocky habitats include the California scorpion fish (*Scorpaena guttata*) that is associated with rocky habitats on the breakwaters, and potentially, juvenile olive rockfish (*Sebastes serranoides*). While both may be associated with rocky habitats along the breakwaters and to a lesser extent the quarry stone lining the Island Marina shoreline in the outer Main Channel of the Harbor, populations of these species are expected to be low.

California scorpion fish are benthic and found intertidally as deep as 183 m (600 ft). They are commonly found in both sandy and rocky areas in association with rocky reefs, often lodged in crevices. Although it is commonly a solitary species, it aggregates near prominent features and can be associated with anthropogenic features, including pipes and wrecks. Juveniles settle on the rocky bottom. Very young scorpion fish live in shallow water hidden away in habitats with dense algae and bottom-encrusting organisms. The Dana Point breakwaters and the quarry stone protecting the Marinas are likely habitat for this species.

Olive rockfish occurs from surface/intertidal waters to 174 m (571 ft) deep, but most commonly it occurs in waters less than 30 m (98 ft). Adult olive rockfish are a midwater fish, almost always lining over hard, high relief (such as reefs, wrecks, oil platforms or pipes). The YOTY and adults are primarily found hovering off the bottom. Sometimes olive rockfish are observed well off the bottom, in or near kelp or over rocky reefs. Olive rockfish prefer clear-water areas of dense kelp and are rarely caught or seen over sandy substrate. Olive rockfish distribution is fairly even over all rocky substrata, although significant selection is exhibited toward low rock substratum. The larval stage of olive

¹ Seazone over which a state has special rights over the exploration and use of marine resources. It stretches from the seaward edge of the state's territorial sea out to 200 nautical miles from its coast.

rockfish is planktonic. When YOTY olive rockfish settle out of the plankton, they are most commonly found in and around kelp beds, oil platforms, surfgrass, and other structures at depths as shallow as 3 m (9.8 ft). Young olive rockfish also are found under drifting kelp mats. In Los Angeles Harbor, olive rockfish have been found largely as juveniles associated with the kelp growing along the inner edge of the federal breakwater. The inside and edges of the Dana Point Harbor breakwaters are likely habitat for this species.

Habitats of Particular Concern

Eelgrass (*Zostera marina*) is identified as a Habitat Area of Particular Concern (HAPC) for ESH groundfish species. Eelgrass meadows form a basis of primary production that supports ecologically and economically important species. Eelgrass is an important habitat for invertebrates which use eelgrass beds as a source of food and attachment. Marine fishes seek the shelter of the beds for protection, and forage on invertebrates that colonize the eelgrass blades and sediments in and around eelgrass vegetation. The vegetation also serves a nursery function for many juvenile fishes, including species of commercial and/or sports fish value (California halibut and barred sand bass) and federal FMP groundfish species (i.e., lingcod (*Ophiodon elongatus*), and Bocaccio rockfish (*Sebastes paucispinis*)).

As discussed above, eelgrass is found in Dana Point Harbor, although it is not abundant and its density is low. Its distribution is primarily limited to the region near Baby Beach. A single patch was also located in the boat basin north of the launch ramp in 2009 (MBC Applied) but it was not relocated during CRM project surveys conducted in 2010.

Zostera japonica. *Zostera japonica* is a dwarf eelgrass native to Asia and threatens to upset the natural balance of California's wetlands. It has been found in Humboldt Bay but has not been found in Dana Point Harbor. This species of eelgrass does not grow in Dana Point Harbor and will not be impacted during construction or operational activities associated with the proposed project.

Invasive Algae

Caulerpa Taxifolia. *Caulerpa* has a potential to cause ecosystem-level impacts on California's bays and nearshore systems due to its extreme ability to outcompete other algae and seagrasses. *Caulerpa taxifolia* grows as a dense smothering blanket, covering and killing all native aquatic vegetation in its path when introduced in a nonnative marine habitat. Fish, invertebrates, marine mammals, and sea birds that are dependent on native marine vegetation are displaced or die off from the areas where they once thrived. It is a tropical-subtropical species that is used in aquariums and was introduced into Southern California in 2000 (Agua Hedionda Lagoon and Huntington Harbour) by way of individuals likely dumping their aquaria waters into storm drains or directly into the lagoons. While outbreaks have been contained, the State Water Resources Control Board (SWRCB), through the NMFS and the CDFG, requires that projects that have the potential to spread this species through dredging, and bottom-disturbing activities conduct preconstruction surveys to determine whether this species is present using standard agency-approved protocols and by NMFS/CDFG Certified Field Surveyors.

Caulerpa was not observed during focused surveys conducted within the regions proposed for waterside improvements. CRM surveyed 6.88 ac of a potential 29 ac of bottom habitat and inspected dock piles and floats. The amount of habitat covered during the survey averaged 23.4 percent, ranging from 13.9 percent in the East and West Marina Basins to over 100 percent coverage at the OC Sailing and Events Center and the Harbor Patrol Basin. Diver-specific surveys in the vicinity of Baby Beach covered between 58 and 65 percent of the total bottom habitat; this effort reflected a concentrated survey effort in a region where there was a greater probability of locating either eelgrass or *Caulerpa*, since a few patches of eelgrass were located there in April 2005 and February 2009. However, *Caulerpa* was not present in the Harbor during previous surveys (Chambers Group, Inc., 2005, 2006 and MBC Applied Environmental Sciences, 2009).

Undaria Pinnatifida. *Undaria pinnatifida* is a golden brown kelp native to the Japan Sea. It has been introduced in Australia, New Zealand, and Europe and has now spread to the California coastline. It has been found in Santa Barbara Harbor, Long Beach Harbor, Anaheim Bay, San Diego Bay, and offshore of Catalina Island. In Japan it is known as wakame and is extensively cultivated as a fresh and dried food plant. However, it has the potential to become a major pest in our coastal waters. *Undaria* grows to between 3–7 ft (1–2 m) tall and is found in sheltered Harbor waters on rocks, breakwaters, and marine debris from the low-tide mark to 50 ft (15 m). A mature plant has a distinctive, spiraled (frilly), spore-producing structure at its base. It also has an obvious central stem to 4 inches (in) (10 cm) wide that extends for the length of the plant. The blade may be up to 3.1 ft (1 m) wide and extends from the tip of the plant for half the length of the plant.

Undaria was not observed during dive surveys or remote video surveys in the Harbor between February 2007 and June 2010.

4.7.2 REGULATORY SETTING

United States Army Corps of Engineers

Section 404 of the Clean Water Act. Pursuant to Section 404 of the Clean Water Act (CWA), the United States Army Corps of Engineers (Corps) regulates the discharge of dredged and/or fill material into waters of the United States (U.S.). The term “waters of the U.S.” is defined at 33 CFR Part 328 and includes (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, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce*, (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*. Wetlands are defined at 33 CFR 328.3(b) as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support...a prevalence of vegetation typically adapted for life in saturated soil conditions.”

Section 10 of the Rivers and Harbors Act. Section 10 of the Rivers and Harbors Act requires authorization from the Corps for the creation of any obstruction to the navigable capacity of any of the waters of the United States. Corps approval is necessary to build or commence the building of any

wharf, pier, dolphin, boom, weir, breakwater, bulkhead, jetty, or other structures in any port, roadstead, haven, Harbor, canal, navigable river, or other water of the U.S. In addition, Corps approval is necessary to excavate or fill, or in any manner to alter or modify the course, location, condition, or capacity of any port, roadstead, haven, Harbor, canal, lake, Harbor of refuge, or enclosure within the limits of any breakwater, or of the channel of any navigable water of the U.S.

United States Fish and Wildlife Service (USFWS)

Pursuant to Section 7 of the ESA, any federal agency undertaking a federal action (including issuance of permits) that may affect a species listed as threatened or endangered under the ESA must consult with USFWS. Pursuant to Section 9 of the ESA, the “take” of a species listed as threatened or endangered is prohibited.

National Marine Fisheries Service

The National Oceanic and Atmospheric Administration Marine Fisheries Services (NOAA Fisheries) receives its ocean stewardship responsibilities under many federal laws, including the Magnuson Stevens Fishery Conservation and Management Act. Most important are the ESA, which protects species determined to be threatened or endangered; the Marine Mammal Protection Act (MMPA), which regulates interactions with marine mammals; the Lacey Act, which prohibits fish or wildlife transactions and activities that violate State, federal, Native American tribal, or foreign laws; the Fish and Wildlife Coordination Act, which authorizes NOAA Fisheries to collect fisheries data on environmental decisions that affect living marine resources; and the federal Power Act, which allows NOAA Fisheries to minimize effects of dam operations on anadromous fish, such as prescribing fish passageways that bypass dams. Many other statutes, international conventions, and treaties also guide NOAA Fisheries activities.

California Department of Fish and Game

Pursuant to Division 2, Chapter 6, Sections 1600-1603 of the California Fish and Game Code, the CDFG regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. CDFG defines a “stream” (including creeks and rivers) as “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation.” Thus, CDFG jurisdictional limits closely mirror those of the Corps. Exceptions are CDFG’s exclusion of wetlands that are not associated with a river, stream, or lake; addition of artificial stock ponds and irrigation ditches constructed on uplands; and addition of riparian habitat supported by a river, stream, or lake, regardless of the riparian area’s federal wetland status.

California Coastal Commission (CCC)

The California Coastal Act (Coastal Act) (California Public Resources Code Division 20, Section 30240) restricts land uses within or adjacent to environmentally sensitive habitat areas (ESHAs). The Coastal Act Section 30107.5 defines an ESHA as:

... any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.

Included within this definition are wetlands, estuaries, streams, riparian habitats, lakes, and portions of open coastal waters that meet the rare or valuable habitat criteria. The CCC regulates the diking, filling, and dredging of wetlands within the Coastal Zone. The Coastal Act Section 30121 defines “wetlands” as land “*which may be covered periodically or permanently with shallow water.*” The Harbor and any proposed changes to the waterside facilities are regulated and reviewed by the CCC.

Regional Water Quality Control Board (RWQCB)

Waters subject to the provisions of Section 404 of the CWA also require Water Quality Certification from the RWQCB pursuant to Section 401 of the CWA. Waters that do not fall under the jurisdiction of the RWQCB pursuant to Section 401 of the CWA may require authorization through application for waste discharge requirements (WDRs) or through waiver of WDRs, pursuant to the Porter-Cologne Water Quality Control Act (California Water Code, Division 7).

4.7.3 METHODOLOGY

The potential impacts listed below were analyzed using results from project-specific marine biological assessments, field surveys, and previous biological assessments prepared for the Harbor Program EIR, as described above.

4.7.4 THRESHOLDS OF SIGNIFICANCE

The impact significance criteria used for this analysis are based primarily on Appendix G of the State CEQA Guidelines and the County of Orange Local CEQA Procedures Manual (2000). The project may be considered to have a significant effect related to biological resources if implementation would result in one or more of the following;

- 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 CDFG or USFWS.
- Substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFG or USFWS.
- Substantial adverse effect on 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.
- 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.

- Conflict with any local policies or ordinances protecting biological resources such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan; Natural Community Conservation Plan; or other approved local, regional, or State habitat conservation plan.

4.7.5 OVERVIEW OF PROGRAM FEIR BIOLOGICAL RESOURCES ANALYSIS

Impacts. The Program FEIR concluded that the Revitalization Project would impact species identified as special-status and marine biological resources. Program FEIR analysis concluded that these impacts would be less than significant with implementation of Project Design Features (PDF), Standard Conditions of Approval (SCA), and Mitigation Measures (MM). The Program FEIR further concluded that no riparian or wetland habitat exists within the Harbor or off-site areas, and therefore, the Revitalization Project would not result in impacts to riparian or wetland habitat. Cumulatively, the Revitalization Project along with other future development would not result in significant cumulative biological impacts. PDFs, SCA, and MM identified in the Program FEIR and applicable to the Marina Improvement Project are listed below. It should be noted that the conditions of MM 4.7-5, as included below, have been satisfied with the marine biological surveys conducted for the Marina Improvement Project.

During the subsequent approval process for the Land Use Plan (LUP) component of the LCPA, several of the listed PDFs, SCAs, and MMs were clarified and became LUP Policies within the revised Dana Point Harbor Revitalization Plan LUP. Where applicable, the wording has been revised to be consistent with the approved LUP Policy, which is indicated in parenthesis.

Project Design Features (PDF), Standard Conditions (SCA), and Mitigation Measures (MM)

MM 4.7-2 If an active nest of any bird species listed pursuant to the federal or California Endangered Species Act, California bird species of special concern or a wading bird (heron or egrets) as well as owls or raptors is found, construction activities within 300 feet (500 feet from any identified raptor nest) shall not exceed noise levels of 65 dB peak until the nest(s) is vacated and juveniles have fledged and there is no evidence of a second attempt at nesting. Surveys for the above bird species during their breeding season shall be conducted by a qualified biologist prior to commencement of construction. (LUP Policy 7.1.2-4)

MM 4.7-3 The following measures shall be utilized to protect nesting habitat of the raptors (red tailed hawk, Cooper's hawk, osprey, etc):

- If work is scheduled to be performed during the breeding season of any raptor (February 1 through August 15), a preconstruction survey within 500 ft of the site for raptor nests shall be performed by a qualified biologist to document the presence/absence of all nesting raptors; and

- If active raptor nests are found, a buffer of 500 ft in diameter should be established around the nest and no construction activity shall occur within that buffer until the young have fledged.

MM 4.7-4 In order to minimize indirect impacts on biological resources that may be related to noise and construction activity, the OC Dana Point Harbor shall implement the following Best Management Practices (BMPs) prior to or during construction activities.

- Limit construction and all project activities to a well-defined area; and
- Construction limits shall be fenced or flagged adjacent to preserved trees and/or sensitive habitats to avoid direct impacts.

MM 4.7-5 Future waterside improvements to the east and west of the breakwaters (Planning Areas 8, 11 & 12) shall be reconstructed within the seaward footprint of the existing structures except as necessary to provide for public safety or public access. Construction activities taking place below the mean higher high water (MHHW) mark shall prepare a focused marine biological survey to determine if sensitive species are present. (LUP Policy 7.2.1-15)

MM 4.7-6 OC Dana Point Harbor shall require that standard BMPs be utilized in order to ensure impacts to water quality or the marine environment are minimized and include:

- Erosion to be controlled by landscaping (leave existing vegetation in place where possible), paving and drainage structures;
- Perimeter barriers, such as berms or sand bags around all construction sites to catch run-off;
- Tracking controls, such as rumble strips and gravel strips will be used to minimize dirt being tracked into and out of the project site;
- Harbor basin inlets shall be protected by placing sediment barriers, such as wire mesh and gravel filter to intercept debris and soil runoff; and
- Appropriate housekeeping activities to minimize the potential for pollutants from material storage or construction activities. (LUP Policy 7.2.1-16)

Level of Significance after Mitigation. No unavoidable significant impacts related to Biological Resources were identified in the Program FEIR.

4.7.6 IMPACTS AND MITIGATION

The following analysis is based on the Marine Biological Surveys conducted by CRM for the proposed project. These technical reports, included as in Appendix F, assumed a loss of 116 slips for the Marina Improvement Project. The calculated amounts of square foot coverage associated with the

docks and piles are therefore based on a slip loss of 116. However, as described throughout this SEIR, changes to the Harbor LUP certified by the CCC resulted in several changes to the plan as proposed, including a policy for a “no net loss” or maximum of 155 slip-loss policy for boat slips. Because the loss of 116 slips is within the range of slip loss as approved by the CCC, the following analysis remains valid.

LESS THAN SIGNIFICANT CONSTRUCTION IMPACTS

Soft- and Hard-Bottom Associated Benthic Communities. The removal of 1,306 piles and subsequent placement with approximately 969 support piles for the new dock systems in the Harbor will result in minor disturbances to soft-bottom benthic invertebrates within a zone of disturbance around the piles to be removed related to sediment resuspension and sediment disturbances from machinery. This impact will be a less than significant impact on soft-bottom infauna. Once disturbances cease, larvae will settle on the sediments and begin the process of recolonization.

The removal of docks and dock pilings within the Marina Basins, the OC Sailing and Events Center, the sport fishing dock, Embarcadero/Dry Boat Storage Staging dock, and the Marine Services dock will result in an initial loss of biofouling (pile-dwelling) associated flora and fauna on each of the 1,306 piles. Because the Marina Improvement Project will occur over several phases over an approximately 8 year period, losses will be site-specific and will not occur throughout the Harbor at the same time. Piles will be removed by vibratory extraction equipment mounted to a crane operating from a barge. However, if piles break off at the mudline, they will be manually cut 2–3 ft below the mudline. The old piles will be lifted from the water using a crane and then trucked off site. The last phase would be placement of the piles. The preferred method of pile installation is to predrill boreholes to facilitate pile driving. Prestressed concrete piles will then be driven into these holes and grouted with cement or sand. Some of the biofouling cover will be dislodged during the pile removal process, creating a zone of organic debris on the Harbor bottom in the immediate vicinity of the docks. Most of the biofouling organisms would be removed and transported off site to a proper disposal area, eliminating a significant localized impact related to an accumulation of decaying organic material on the Harbor seafloor. The removal of the pilings is unlikely to result in the release of a significant amount of contaminants; most contaminants present on the pilings would be bound up within the tissues of the organisms being removed. None of the species that would be removed are considered sensitive or unique.

Construction of piling and dock systems for the OC Sailing and Events Center and the sport fishing dock would potentially impact hard-bottom macroflora and fauna living on or among the subtidal hardscape within these areas. Losses would be associated with the direct effects of pile driving and secondary turbidity plumes. Mortality of individual plants and invertebrates might occur. These initial losses would be offset since additional pile substrata and surface area would be added. Plants and invertebrates would begin to colonize the new hard substrate upon completion of construction. Mobile *macroinvertebrates* (i.e., octopus and lobsters) would likely move out of the impact zone. The losses of plants and invertebrates from pile driving would not result in any population level impacts to *macrobiota* within the surrounding region. Therefore, construction of the docks and the addition of the piles is considered to have a short-term less than significant impact on hard bottom-associated plants and invertebrates within these areas of the Harbor.

The majority of habitat potentially affected by the construction of the proposed temporary docks/yacht broker docks near the eastern breakwater is sand to silty bottom in the lee of the East Breakwater. Remnants of low-reef outcrops may be present but these are mostly buried and exhibit low biological productivity. The loss of biomass would be offset by the addition of piles that would function as additional hard bottom habitat for invertebrates and algae. Therefore, construction of the docks and the addition of the piles is considered to have a short-term less than significant impact on associated plants and invertebrates in this area of the Harbor.

Water Column Biota – Plankton and Fishes. The project area water column habitat supports plankton and fish community members that are common to the bays and Harbors of Southern California. Living in bays and Harbors with constant sources of turbidity from runoff and other sources have acclimated these species to some degree with the turbid conditions that might arise from pile removal and replacement. In addition, fishes have the ability to swim away from disturbances such as noise, vibrations, and excess turbidity, while plankton move with the current and do not remain in one location for an extended period of time. These behavioral mechanisms help preclude construction impacts from occurring on water column organisms.

Construction activities would cause a temporary reduction in submarine light levels and a very localized, short-term reduction of plankton productivity due to increased turbidity. Because plankton drift with the current and turbidity is expected to be localized, there would be only short-term, less than significant construction impacts to the plankton community.

There would be no direct loss of open water (schooling) fishes from pile removal and replacement. Water column fishes would avoid the immediate work area due to either increased turbidity or a potential increase in underwater pressure and noise levels from work equipment. However, the removal of pilings may also attract some fish to biofouling debris that is removed from piles that settles on the Harbor floor. No mortality of bottom-dwelling species such as gobies is anticipated due to the mobile nature of fishes.

Secondary impacts of increased water turbidity on fishes would be a short-term, less than significant construction impact. Greater than ambient suspended sediment load related to higher turbidity may temporarily reduce the ability of both visual foraging fishes to feed (i.e., surfperch and halibut) and planktivores (i.e., topsmelt, anchovy, juvenile surfperch, and juvenile sciaenids). Because the proposed project would proceed incrementally over months-to-years, fish living within the Marina Basins would be able to move to nearby areas without any negative impacts to their habitat or food sources. The Marina Improvement Project would result in less square foot coverage of water surfaces than under existing conditions, and therefore, no secondary impacts associated with building materials or surface water coverage is expected.

Water column dissolved oxygen concentrations would potentially decrease due to the resuspension of organically enriched sediments. Additionally, the resuspension of potentially toxic levels of copper and DDT could potentially increase, particularly in areas near storm drains. These impacts would physiologically stress the fish in the area and result in their movement out of the local area. Because fish would likely move away from the immediate zone of turbidity, their exposure to elevated levels of contaminants is expected to be minimal. Turbidity would return to ambient levels upon cessation of pile removal and replacement through tidal flushing and circulation, and fish populations would

return to the area. Based on the reasons discussed above, potential impacts arising from pile and dock removal and construction activity in the Harbor would result in less than significant, localized, temporary impacts to the plankton and fish.

Sensitive Species.

Surfgrass. Surfgrass does not occur within the confines of the Harbor; thus, it would not be impacted by construction activities.

Abalone. White, red, green, and black abalones have an extremely low to zero potential to be present within any of the Marina Improvement Project construction zones. Their distribution is limited to areas outside of the Harbor on the seaward side of the Marina breakwaters and in offshore rocky habitats. Consequently, Harbor Marina construction activities are not expected to impact these sensitive species.

Tidewater Goby. Tidewater gobies are not known to occur within the Harbor; therefore, no construction-related impacts would occur to this species or its habitat.

Steelhead Trout. Although there are rare occasions when individual steelhead trout may be present, there are no known populations of this species in the Harbor. Therefore, construction-related impacts on steelhead trout are not expected to occur.

California Halibut. Juvenile halibut likely occur within some areas of the Harbor. During pile installation, any juveniles in the immediate area of construction would swim away from the immediate impacted zone. No mortality or short-term stresses on this species are anticipated as a result of construction activities.

Water-Associated Bird Species. The special-status marine birds most likely to occur in the vicinity of the project area include brown pelican, double-crested cormorant, western snowy plover, California gull, elegant tern, and occasionally, California least tern and common loon. All of these species feed on fish and may, on occasion, forage in Dana Point Harbor. No breeding colonies for any of the sensitive species of seabirds exist in the project area.

Pile-driving activities could potentially result in impacts to sensitive bird species related to an increase in localized turbidity plumes and a reduction in foraging habitat. These species rely on sight foraging behavior to catch their prey. In addition, their fish and invertebrate prey base may move out of the turbidity plumes caused by construction activities. However, because pile-driving activities are within localized areas, other areas of the Harbor would be available as foraging habitat for these species. Therefore, potential impacts related to pile-driving activities on sensitive bird species are considered less than significant.

Seabirds roosting on docks and jetty areas near the bait barge in the vicinity of the proposed Yacht Broker/Temporary Dock could be impacted by construction activities. However, seabirds would respond by moving to other nearby roosting habitat, which is available throughout the harbor. This modification of seabird behavior would not have any population level impacts on seabirds. Therefore, the construction impacts are considered to be less than significant.

Marine Mammals. All marine mammals are protected by the Federal Marine Mammal Protection Act of 1972 (MMPA). The MMPA prohibits the intentional taking, import, or export of marine mammals without a permit. Several of the species that occur within the SCB are also protected under the Federal Endangered Species Act of 1973 (ESA). A species that is listed as threatened or endangered under the ESA is categorized as depleted under the MMPA. Unintentional take of a depleted species is allowed by permit only if the activity is determined to have a negligible impact. Intentional take of a depleted species is only allowed under a scientific research permit.

Marine mammals are not anticipated to be in the immediate areas where pile removal and replacement would occur in the Harbor and would not suffer any direct mortality resulting from pile removal or pile replacement. Therefore, removal and replacement of docks and piles in the harbor is expected to have a less than significant impact on marine mammals.

Sensitive Habitat.

Reef Habitat. Scattered low-to-moderate relief rocky reef habitat is still present within the confines of the protected Harbor. While biological diversity of these reefs is less compared to reefs outside the Harbor due to sedimentation, less wave exposure, and exposure to higher levels of contaminants, the limited amount of the Harbor reef habitat still supports many types of plants, invertebrates, and fishes. The scattered outcrops found in the East and West Marina basins, west of the Sailing Center, and in the East Channel in general proximity to the proposed Temporary Dock are characterized by low-diversity biological communities.

Pile driving has a potential to damage isolated reef outcrops and result in some short-term, localized disturbances. Because it is not known exactly where these reefs occur, sonar surveys would be necessary prior to construction of the temporary docks to pinpoint reef habitat and assess the amount and quality of reef habitat and associated biological resources. Most likely, pile driving and turbidity would result in the disturbances of a small percentage of exposed natural reef in these areas. Since there is an abundance of rocky habitat throughout the Harbor, it is anticipated that the impacts from the construction of the temporary docks would be less than significant on rocky subtidal habitat and biota.

Giant Kelp. Individual giant kelp (*Macrocystis pyrifera*) plants may be present on either remnant natural reefs or quarry stone protecting the Marinas, but are located outside of the proposed construction areas. Short-term turbidity increases from pile emplacement activities in the construction zone will not impact local giant kelp populations within the general Dana Point Harbor region. Consequently, the pile driving will have a not impact giant kelp populations.

Marine Protected Areas. No Marine Protected Areas occur in the Harbor; therefore, no short-term construction-related impacts to such areas would occur.

Fishery Management Plan Species. Project activities that could potentially affect identified Coastal Pelagic FMP species (northern anchovy) and Pacific Groundfish FMP species (scorpion fish and juvenile olive rockfish) include increased water turbidity caused by the demolition and replacement of docks and bulkheads, increased underwater pressure and noise due to pile driving and pile removal, and direct mortality from habitat destruction. These impacts could potentially result in (1) the movement of schooling anchovies away from the impact zones to more suitable offshore habitat, and (2) an increase in the suspended sediment load that could potentially introduce this species to harmful levels of contaminants and clog their gill apparatus, resulting in a reduced ability to breathe and/or feed. This is particularly true for northern anchovy, which is a filter feeder that uses the gills to filter plankton. Groundfish species are likely to be extremely rare in the project area. However, should they be present, the potential for direct mortality of juveniles or adults of these species is minimal. Any impacts resulting from project turbidity would cause these species to avoid construction zones, resulting in a less than significant impact.

Based on the life histories and distribution of these species, most of the populations would be distributed in offshore areas rather than the confines of the Harbor, and therefore the potential for short-term construction-related impacts to FMP species is expected to be less than significant.

Invasive Species.

Zostera japonica. *Zostera japonica* does not grow in Dana Point Harbor and will not be impacted during construction or operational activities associated with the proposed project.

Undaria pinnatifida. *Undaria pinnatifida* is not currently growing within the Harbor and is therefore not anticipated to be impacted during construction or operational activities associated with the proposed project. It should be noted that at this time there are no defined eradication processes for this species by the NMFS or the CDFG.

LESS THAN SIGNIFICANT OPERATIONAL IMPACTS

The net amount of dock surface areas and pile surface areas throughout the Harbor is expected to decrease by approximately 32,990 square feet (sf) due to reconfiguration of the dock systems and during the estimated eight years of construction. In the event that temporary docks were to remain as yacht broker docks, the amount of surface area decrease from existing conditions would be 15,248 sf. A decrease in dock surface area will result in a long-term, beneficial impact to open water habitat. This will increase waterbird (and endangered species) and seabird foraging habitat and reduce shading effects on harbor waters. In the long-term, there will be a net overall benefit to the marine ecosystem related to a decrease in dock surface area.

Dock renovations would result in beneficial impacts to water column and benthic soft-bottom habitats within the East and West Marina Basins (including the commercial fishing docks and the Harbor Patrol docks), where a net increase of 0.75 ac of unshaded, open water habitat would become available. These beneficial changes would be permanent during the life of the project.

No additional shading is anticipated for the Marine Services dock area, but there would be a slight beneficial increase in soft-bottom habitat due to pile removal. An increase in dock area at the Embarcadero/Dry Boat Storage Staging docks would decrease the amount of open water habitat. These changes would be permanent during the life of the project and are considered less than significant.

Soft-Bottom Benthos. Although the total number of piles will decrease, the reduction in surface area of the piles is only expected to decrease by approximately 1 sf. This will have neither adverse nor beneficial long-term effects on soft bottom-associated organisms.

Hard Substrate Pilings, Docks, and Riprap,

Docks and Pilings. The proposed project will result in a net decrease of biofouling organisms because of a decrease in dock surface area (0.75 acres) and 1 sf of piling habitat. This will not result in a regional or local loss of any invertebrate or algae species. However, some areas of the Harbor would be affected more than others, with the highest reduction occurring within the Marina Basins. Localized reduction of biofouling biomass in the West and East Marinas would not result in a regional population-level decline of intertidal or subtidal hard substrate-associated algae or invertebrates. Once new piles are reinstalled in the Marinas, they will be recolonized by similar types of organisms that were initially removed. The process of recolonization would begin immediately upon the structures being placed in the water, but reestablishment of mature biofouling communities would take several years. Therefore, the reduction of piling habitat and dock habitat is considered a less than significant adverse impact to local biofouling species.

Dock Surface Areas. For the entire project, there would be a potential net shading decrease of marine habitat by approximately 32,990 sf. By region, the greatest decline in shading related to dock structures would occur in the East and West Marina Basins.

The Dry Boat Storage building was approved as part of the landside project and the certified Program FEIR. The structure will be supported on piles and will extend out over portions of the Embarcadero/Dry Boat Storage Staging docks. The portions of the structure extending over the water, the docking system, and the operations at the waterside boat staging area are discussed in this SEIR. Although the Dry Boat Storage building extends over the water and would have some potential shading impact, the building design includes a large door on the south end extending over the water, which will allow natural light into the overhang area when it is open. In addition, the siding on the lower portions of the wall that overhangs the water is proposed to be translucent panels in order to allow natural light into the same overhang area. For these reasons, the building would not significantly contribute to shading impacts in this area.

Water Column Organisms. Project improvements will have a long-term, beneficial effect on water column habitat and associated plankton and fish populations. An additional approximately 32,990 sf of open water habitat will experience direct sunlight as a consequent of the reconfiguration of the dock systems. This will occur incrementally following completion of the first phase of dock reconstruction and will continue through a period of several years. In the event that temporary docks were to remain as yacht broker docks, the amount of surface area decrease from existing conditions would be approximately 15,248 sf. Consequently, there will be a greater surface area of unshaded open water that will locally increase primary plankton production. Additionally, the increase in open water habitat will have a beneficial impact on fishes and foraging seabirds.

Sensitive Species.

Surfgrass. No long-term impacts to surfgrass will occur as a result of the proposed project.

Abalone. No long-term impacts to abalone will occur as a result of the proposed project.

Tidewater Goby. No long-term impacts to the tidewater goby will occur as a result of the proposed project.

Steelhead Trout. No long-term adverse related impacts would occur on this species or its habitat as a result of the proposed project. However, assuming this species' inland critical aquatic habitat is restored in the future to levels that would enhance the population of local steelhead trout, better water quality within Dana Point Harbor could potentially create a condition that might allow greater numbers of steelhead trout to transit through the Harbor.

California Halibut. No long-term adverse related impacts would occur on this species or its habitat as a result of the proposed project.

Green Sea Turtles. No long-term impacts to green sea turtles will occur as a result of the proposed project. The proposed project components will have no effect on sea turtle abundance or distribution.

Seabirds. Seabirds would be beneficially impacted by the overall increase of open-water foraging habitat that would occur with project implementation within the Harbor. Additionally, there will be an increase of open water foraging habitat for the endangered least tern and the California brown pelican. The long-term improvements within the Harbor will not result in the mortality of any species of endangered or other sensitive species of seabirds.

A decrease in the amount of open-water habitat in the vicinity of the Yacht Broker/Temporary Dock in the East Channel would not affect the ability of seabirds to forage in the outer harbor channels. Schooling fishes (including baitfish used by seabirds) would likely aggregate in other areas of the channel.

Therefore, foraging terns, gulls, and pelicans would follow their food sources. This modification of foraging behaviors would not result in any significant, adverse impacts on seabirds.

Marine Mammals. No long-term impacts to marine mammals will occur as a result of the proposed project.

Sensitive Habitats.

Kelp Beds. No long-term impacts on kelp beds will occur as a result of the proposed project.

Fishery Management Plan Species. No long-term adverse impacts to either coastal pelagic or groundfish FMP species will occur as a result of the proposed project. Because there will be an increase in the amount of unobstructed open water habitat within the Harbor, this could potentially result in long-term beneficial effect on northern anchovy, which would have a greater amount of open water habitat within which to school.

Invasive Species. *Caulerpa* algae is not currently present in the Harbor; therefore, the potential for the spread of this species over the long-term operation of the project is not expected.

Undaria pinnatifida is not currently growing within the Harbor; therefore, potential impacts related to this species and long-term operation of the project are considered less than significant.

Zostera japonica does not occur within Dana Point Harbor and will not be impacted by the project.

Temporary Dock Removal. The proposed project plans call for a temporary dock system near the East Breakwater, with the possibility that this dock system would remain in place permanently as a yacht broker dock. In the event that the regulatory agencies do not approve the docks to be located permanently in this location, the temporary dock system would be removed. The impacts on marine resources due to the removal of these temporary docks would be similar in type and significance to construction-related impacts for the project construction phases related to work vessels. However, the impacts related to the temporary dock removal would be relatively small as compared to the overall project construction impacts. Following the removal of the temporary docks, open water and subtidal rock and sediment habitat would result in a return of unshaded marine habitat conditions in the area of the temporary docks next to the East Breakwater. The amount of habitat that would benefit from less shading would increase from approximately 3,262 sf (during project construction simultaneously with the operation of the temporary docks) to approximately 25,990 sf (0.6 ac) following removal of the temporary docks. In the event that temporary docks were retained as yacht broker docks, the amount of area benefiting from less shading would be approximately 15,248 sf. This action would also return important biological value to water column habitat for fish, foraging seabirds, and macro-algal communities associated with the hard-bottom habitat. Removal of the temporary docks, therefore, would result in a return to status quo biological values in the outer portions of the Harbor.

POTENTIALLY SIGNIFICANT CONSTRUCTION IMPACTS

Water Quality/Turbidity Impacts. Pile replacement activities would also have a potential to release detectable levels of sediment-bound contaminants into the water column that would be redistributed through the tidally induced movement of the turbidity plume. Organically enriched sediments resuspended into the water column during pile replacement would also cause a slight decrease in dissolved oxygen levels. Tidal currents would slowly dissipate the oxygen-poor water mass and replenish ambient oxygen levels within one to several tidal exchanges. Potential water quality and turbidity impacts to specific areas of the project are discussed below.

Marina Basins, Embarcadero/Dry Boat Storage Staging Docks, and Marine Services Docks.

Existing piles will be removed or cut off at the waterline, and new ones placed into predrilled holes in rock substrate. These activities could increase the levels of water turbidity as each phase of the project is being conducted. Higher turbidity is expected to be limited to the specific area of dock improvements, and the turbidity plume would dissipate as a function of tidal exchange within the Marinas. While the impact is expected to be short-term and have a less than significant impact on water quality within each specific phase, the project will be conducted over a period of several years. Turbidity levels for each specific phase may be above ambient conditions for an extended period. Therefore, Mitigation Measure 4.7-1, requiring best management practices (BMPs) and measures to limit the spread of the turbidity plume outside the work, is proposed.

Sediment testing for the Dana Point Harbor Dredge Material Evaluation (Kinnetic Laboratories and Moffatt & Nichol, 2007) indicated that fine sediments in one particular zone near the 60 in storm drain in the East Basin contain elevated levels of copper and total DDTs compared to other sites tested. Consequently, pile removal and replacement in the vicinity of this one zone may result in the resuspension of material that could degrade water quality. This has a potential to result in a potentially short-term adverse significant impact to water quality within the East Basin. Implementation of Mitigation Measure 4.7-1, requiring measures to minimize turbidity and disturbance of contaminants, would reduce the level of impact to less than significant levels.

Implementation of Mitigation Measure 4.7-1 would reduce water turbidity impacts in the Marina Basins, Embarcadero/Dry Boat Storage Staging dock, and Marine Services dock areas to a less than significant level.

Yacht Broker/Temporary Docks and Sport Fishing Docks. Turbidity associated with pile driving and/or boring activity in the vicinity of hard-bottom habitat and reefs (Yacht broker/Temporary dock area sport fishing docks) would result in a short-term reduction of light and an increase of suspended material in areas that are high in macrophyte productivity. Bottom sediments would also be disturbed during construction activities and could potentially impact marine resources. However, due to moderate tidal current activity and wind-wave exposure in these areas of the Harbor, any turbidity created by these activities should only remain for a short period of time and would be dispersed out of the Harbor over the course of daily tidal changes. Implementation of Mitigation Measure 4.7-1, as discussed above, would reduce water turbidity impacts in these areas of the Harbor to a less than significant level.

OC Sailing and Events Center Docks. Construction activities could increase turbidity in the vicinity of the OC Sailing and event Center docks. As stated above, bottom sediments could be disturbed during construction activities and could potentially impact marine resources. However, due to moderate tidal current activity and wind-wave exposure in these areas of the Harbor, any turbidity created by these activities should only remain for a short period of time and would be dispersed out of the Harbor over the course of daily tidal changes. Implementation of Mitigation Measure 4.7-1, as discussed above, would reduce water turbidity impacts in these areas of the Harbor to a less than significant level.

Eelgrass surveys conducted in the vicinity of the proposed dock improvements (Coastal Resources Management, Inc. 2010) indicate that as of June 2010, one or two small patches of low-density eelgrass (approximately 3 sq m) may be affected by turbidity generated from pile-driving activity near the proposed OC Sailing and Event Center docks. The locations of these eelgrass patches are illustrated in Figure 4.7-1. Pile driving will not result in the direct loss of eelgrass based upon the results of 2009 and 2010 field surveys, and potential impacts at present are related to secondary turbidity effects.

Although turbidity plumes would dissipate and disperse out of the area over the course of daily tidal changes, some suspended sediment may settle on eelgrass blades. The loss or reduction of eelgrass cover and density as a result of increased turbidity would be a local but significant impact to the existing eelgrass bed in the vicinity of Baby Beach. In addition, there is a potential for more eelgrass expanding into the proposed dock footprint into areas where pile driving will occur in the next several years. Therefore, Mitigation Measure 4.7-2, requiring pre- and post-construction surveys in accordance with the provisions of the Southern California Eelgrass Mitigation Policy (SCEMP, NFMS, 1991 as amended), is proposed. Based upon these surveys, a determination will be made if impacts to eelgrass are anticipated; a mitigation plan to offset such eelgrass habitat losses will be developed if surveys determine that eelgrass losses would occur.¹

Oil and Fuel Discharges–Harborwide. Accidental oil or fuel spills that could potentially occur during project construction activities could result in significant effects on water quality, and depending on the severity of the spill, affect the fish and wildlife of the Harbor. Such events are likely to be localized spills of lighter, refined diesel fuels, gasoline, and lubricating oils that are highly toxic to marine life. The potential for the occurrence of petroleum product leaks or spills would be low, but the potential for significant, long-term effects on marine resources would be moderate to high. Mitigation Measure 4.7-1, requiring BMPs and measures to control water quality impacts, is intended to avoid water quality degradation and reduce the potential for adverse impacts on water quality and marine resources to a less than significant level.

¹ The total area of potential impact to eelgrass appears to be well under 10 m² which is the criteria in the SCEMP to allow an exemption to be requested by the project applicant, provided suitable out-of-kind mitigation is proposed.

Sensitive Habitats.

Reef Habitat. Reefs in the West Channel are outside the footprint of the proposed OC Sailing and Events Center docks. However, there are scattered reef outcrops in the East Channel in the vicinity of the proposed Temporary Dock. These scattered reefs are characterized by low-diversity biological communities and are highly impacted, very low relief, and covered in silt.

If reef habitat is present, pile installation has a potential to damage isolated reef outcrops and associated macro-invertebrates and macro algae (i.e., gorgonians, snails, and urchins, and kelp). Because it is not generally known exactly where these reefs are with respect to pile locations, sidescan sonar surveys will be necessary prior to the construction of the temporary docks to pinpoint reef habitat and assess the amount and quality of reef habitat and associated biological resources. Due to the low diversity biological community associated with these already impacted reefs in the East Channel, it is anticipated that the impacts from the construction of the temporary dock will result in less than significant impacts on rocky subtidal habitat and biota. However, Mitigation Measure 4.7-4, requiring pre-construction biological surveys and preparation of a Marine Biological Impact Reduction Plan (MBIRP), will ensure that construction impacts to sensitive resources are reduced to a less than significant level.

Sensitive Species.

Eelgrass. Eelgrass surveys conducted in the vicinity of the proposed OC Sailing and Event Center docks (Coastal Resources Management, Inc. 2010) indicate that as of June 2010, one or two small patches of low-density eelgrass may be affected by turbidity generated from pile-driving activity. However, there is a potential for more eelgrass expanding into the proposed dock footprint where pile driving would occur in the next several years. As discussed above, Mitigation Measure 4.7-2, requiring pre- and post-construction surveys in accordance with the provisions of the SCEMP (NFMS, 1991 as amended) is proposed. Based upon these surveys, a determination will be made if impacts to eelgrass are anticipated; a mitigation plan to offset such eelgrass habitat losses will be developed if surveys determine that eelgrass losses would occur¹. In addition, Mitigation Measure 4.7-3, which requires a qualified marine biologist to mark the positions of eelgrass beds prior to the initiation of any construction and to assist the construction crew in avoiding unnecessary damage to eelgrass, is proposed. Implementation of these measures will ensure that potential construction impacts to eelgrass are reduced to a less than significant level.

Sea Turtles. The green sea turtle, federally listed as endangered, has been sighted offshore of the Harbor, but it's occurrence would be considered rare. There are no warm water discharges that might attract them to the Harbor, nor is there available seagrass habitat for foraging. Although an occasional green sea turtle may enter the Harbor at the time of Marina improvements, the potential for adverse impacts to an individual is low. Marina reconstruction, the construction and (possible) removal of the temporary dock systems, and vessel movements within the Harbor

¹ The total area of potential impact to eelgrass appears to be well under 10 m² which is the criteria in the SCEMP to allow an exemption to be requested by the project applicant, provided suitable out-of-kind mitigation is proposed.

could induce behavioral modification to this species that would result in a change in swimming behavior to avoid excessive noise, turbidity, or the vessel movements. No green sea turtle mortality would be expected to occur as a result of the waterside construction activities, nor would the project cause any decline in green sea turtle populations. However, if a sea turtle is present in the Marina Improvement Project area during construction activities, Mitigation Measure 4.7-4, outlining measures to be taken by construction crews, would reduce these potential construction impacts to a less than significant level.

Listed or Otherwise Sensitive Bird Species. The special-status marine birds most likely to occur in the vicinity of the project area include brown pelican, double-crested cormorant, western snowy plover, California gull, elegant tern, and occasionally, California least tern and common loon. All of these species feed on fish and may, on occasion, forage in the Harbor. No breeding colonies for any of the sensitive species of seabirds exist in the project area.

Pile-driving activity could potentially result in less than significant impacts to sensitive bird species related to an increase in localized turbidity plumes and a reduction in foraging habitat. These species rely on sight foraging behavior to catch their prey. In addition, their fish and invertebrate prey base may move out of the turbidity plumes caused by construction activities. Because pile-driving activities are within localized areas, other areas of the Harbor would be available as foraging habitat for these species.

Seabird roosting habitat on docks and near the bait barge would be temporarily affected, and individual birds that congregate near the bait barge would move to surrounding habitat. These impacts are considered to be less than significant. Seabird roosting habitat on the breakwaters would not be affected by the Marina Improvement Project.

A decrease in the amount of open water habitat in the vicinity of the yacht broker/temporary docks would have a less than significant impact on the ability of seabirds to forage in the outer Harbor channel. The docks are located near to the shoreline over primarily rocky shoreline and rocky to sandy bottom habitat. Schooling fishes, including baitfish used by seabirds, would likely concentrate nearer to the center of the channels over deeper water habitat. Therefore, species such as terns, gulls, and pelicans would likely avoid the docks during foraging activity; however, gulls, pelicans, and (potentially) cormorants would use the temporary docks as roosting sites.

Construction activities may disturb marine birds, especially nesting birds, if present during such activities. However, construction will extend over eight years and will disturb small areas of the Harbor at any one time, leaving available other open water areas for this species. Therefore, due to the phased construction plans and the ability for the marine birds to use other nearby Harbor areas, potential impacts to nonnesting marine birds are considered less than significant.

Construction activities associated with the proposed project may result in some temporary disruptions to the roosting activities of great blue herons in the project vicinity. The great blue herons present in the project area are currently coexisting with Marina users and are accustomed to human intrusion and noise. In addition, there are many trees within the vicinity that could provide alternative nesting and roosting habitat. In addition, the proposed Marina Improvement Project does not include the removal of any landside trees or vegetation. However, the Program

FEIR included MM 4.7-2, referred to above, which was intended to protect the nesting habitat of the black-crowned night herons and snowy egrets and is applicable to the Marina Improvement Project. Implementation of Program FEIR MM 4.7-2, restated as Mitigation Measure 4.7-5 below, will ensure that potential impacts to the nesting habitat of these species are reduced to a less than significant level.

Marine Mammals. Vessel traffic coming in and going out of Dana Point Harbor (barges, tugs, work vessels) would be transiting to and from offshore waters where California sea lion, Pacific harbor seal, California gray whale, bottlenose dolphin, and other marine mammals are found. Transiting vessels have a low potential to collide with marine mammals, expose these resource groups to contaminants, or interfere with foraging activity. Marine mammals are generally capable of avoiding boat traffic, especially at the speeds the vessels will likely be transiting at. Marine mammals in the local waters have also likely habituated to vessel traffic since large fishing vessels, excursion vessels, and work vessels commonly transit in-and-out of Dana Point Harbor. Vessel operators are also trained to recognize the presence of marine mammals which reduces the potential for adverse impacts. In the event a pinniped or cetacean is injured or killed as consequence of a collision, the impact would be a locally significant impact, but it would not result in a population-level impact. Therefore, the potential for collision impacts to marine mammals is considered unlikely and less than significant. However, to ensure that impacts related to collisions with marine mammals remain less than significant, and that any potential vessel collision is properly reported, Mitigation Measure 4.7-4 requires the vessel operator and OC DPH to immediately notify the NFMS (Southwest Division) and to submit a written, follow up report within 24 hours of the incident.

Marine mammals are capable of hearing over long distances, and even though they may not be in immediate vicinity, there is a low potential for marine mammals to be affected by pile-driving activity. The duration of such noise would be intermittent and the work at each site would be in different locations and at different times.

The project includes the removal of 1,306 14-inch diameter pilings to be replaced by approximately 969 concrete piles. The use of concrete piles is an environmentally superior method- acoustically speaking- to the use of steel piles since because it produces less noise from individual pile strikes. However, pile extraction and pile driving will still result in the production of some underwater noise and vibrations within Dana Point Harbor that marine mammals may be capable of sensing. Overall however, the Biological Assessment concluded that moving sound sources from vessels and aircraft seem to be more disturbing than stationary sources such as drilling rigs and drill ships. The initiation of these pile driving could potentially result in a minor startle response from nearby marine mammals and they would be expected to either move away from, or avoid the immediate vicinity. A minor startled response by a marine mammal (most likely a sea lion) would include swimming away from the source of the noise, from either the physical presence of the piling equipment or the sound/vibration detected by the animal that was produced from such activities.

No deleterious impacts would result from a minor startled response. Over time, marine mammals would acclimate to the noise. Most pile driving would occur within the East and West Marina Basins, where marine mammals are least likely to be present. Although marine mammals would likely be able to “sense” pile-driving noise, the magnitude and intensity of the source sounds are unlikely to result in

any significant changes in behavior. Such types of sounds and their intensity levels are common throughout the range in which these marine mammals live.

Pile driving in the air and water could cause seal lions to temporarily move farther away from these activities, although the sea lions are anticipated to adapt to noise. Breeding would not be affected because sea lions do not breed in Dana Point Harbor. The Biological Assessment prepared for this project (Appendix F) contains further references related to the effects of noise on marine mammals relative to pile driving.

Few, if any, individual sea lions or marine mammals would be expected to be present within the Dana Point Harbor during pile extraction or pile-driving activities. Any sea lions or other marine mammals present would not be harmed, because they would likely either move out of range of sound produced by pile driving, or they would adapt to expected sound intensities. The effect would be of short duration for each pile. Noise levels are expected to be below that identified as harassment during construction, and therefore an application to the NMFS for an Incidental Harassment Authorization, under Section 101 of the Marine Mammal Protection Act will not be necessary. The sound intensity produced, and the potential level of impact on marine mammals for the Dana Point Harbor project is considered less than significant. However, to ensure that pile-driving activities remain less than significant, Mitigation Measure 4.7-6, requiring slowly ramping up pile-driving activities (referred to as a “soft start”) has been proposed. Implementation of Mitigation Measure 4.7-6 will ensure that any potential pile-driving noise impacts on marine mammals will remain at a less than significant level.

Invasive Species.

Caulerpa taxifolia. Because *Caulerpa* is not present within the Harbor, the potential spread of this species during project construction activities is not expected. However, as outlined in Mitigation Measure 4.7-2, a *Caulerpa* algae survey will be conducted according to the NMFS Control Protocol prior to construction. If this species is found, OC Dana Point Harbor, NMFS, and CDFG will be notified within 24 hours of completion of the survey. In the event that *Caulerpa* is detected, disturbance shall not be conducted until such time as the infestation has been isolated, treated, or the risk of spread from the proposed disturbing activity is eliminated in accordance with the NMFS *Caulerpa* Control Protocol (Version 3, adopted March 12, 2007 [NMFS 2007]).

POTENTIALLY SIGNIFICANT OPERATIONAL IMPACTS

Water Turbidity Impacts.

Marina Operations. Water quality within the Harbor will be coordinated by OC DPH to ensure compliance with ordinances, laws, and guidelines related to discharges, vessel maintenance, and Marina maintenance. Periodic and/or uncontrolled discharges of various pollutants, oils, greases, and wastes would potentially create significant long-term adverse effects on water quality with subsequent adverse impacts on local marine life.

The two Marinas in Dana Point Harbor are certified as Clean Marinas, as defined and administered by the Clean Marinas Program. The purpose of the program is to use BMPs in order to prevent or reduce pollution in the coastal waters. The program requires Certified Marinas to follow guidelines for Marina activities, including but not limited to emergencies, topside boat

maintenance and cleaning, and underwater boat hull cleaning. The Dana Point Harbor Marinas rules and policies prohibit certain activities that could contribute to poor water quality. This includes prohibiting rebuilding, hull painting, and other major repairs, as well as restrictions for sanding, painting, and the use of chemicals on a boat while the boat is berthed at the Marina. Owners and contractors are required to follow policies that specify proper methods of in-water boat maintenance and require contractors to be registered and carry identification for any in-water services or maintenance services. These methods, required in order to retain the Clean Marina Certification, ensure that Dana Point's coastal waters can maintain optimum populations of marine organisms and protect human health.

To prevent long-term impacts on local water quality and marine life, adherence to the policies and procedures required for Clean Marina Certification should be continued. This program provides tenants and boaters with reasonable BMPs, safety guidelines, information on pump-out facility use, regulations, education, and steps to take in response to trash and debris disposal, accidental spills, leakages, and fires to reduce the potential for water quality degradation. Continued compliance with the Clean Marinas Program, as required in Mitigation Measure 4.7-7, will assist in reducing potential long-term water quality-related impacts to marine life to a less than significant level.

Dock Renovation, Dry Boat Storage Staging, and Other Operational Changes.

Operationally, renovated and/or replaced Marina Service docks and related dock infrastructure are proposed to better serve visitors, boaters, and existing Harbor uses.

The overall increase in linear dock space in the Marine Services and Embarcadero/Dry Boat Storage Staging dock areas has the potential to intensify the use of these areas. Increased use in these areas has the potential to adversely affect water quality and impact marine biological resources. However, the planned uses will not significantly change from the existing and ongoing public access, marine repair, and Embarcadero dock uses. Adherence to the policies and procedures required for Clean Marina Certification, as required in Mitigation Measure 4.7-7, would reduce any impacts to marine biological resources to a less than significant level.

Temporary Dock Operations. Although the temporary docks will be in place for displaced boats only during the project construction phases, the length of project implementation over eight years could result in impacts to marine life related to water quality. In addition, if the temporary docks were to remain in place as yacht broker docks, the impacts associated with these docks would be permanent. Accidental dumping of trash, debris, hazardous materials, and organic wastes from vessels or from visitors to the temporary dock areas could degrade water quality, habitat values, and marine life in a region of the Harbor that supports many types of marine life. This would result in a significant, localized impact on the quality of the bottom habitats. Implementation of Mitigation Measure 4.7-7, requiring compliance with rules and regulations contained in the Clean Marinas Program, would reduce this water quality impact to a less than significant level.

Dock and Pile Surface Area Changes. Permanent dock installation at the OC Sailing and Events Center would create additional shading over approximately 5,796 sf of open water habitat and some

soft-bottom and natural reef areas. This would result in a long-term, adverse decrease in the amount of unobstructed habitat in this area of the Harbor and immediately inside the West Basin. These changes would be permanent during the life of the Marina Improvement Project. The proposed configuration of the new headwalk at the sport fishing docks creates an additional dock surface area that would shade an additional approximately 2,699 sf of riprap habitat, resulting in a long-term adverse shading impact.

Because the shading impacts in the OC Sailing and Events Center and sport fishing docks areas would be permanent during the life of the project, and because there is no feasible mitigation to reduce shading impacts with the current project design, shading impacts at the OC Sailing and Events Center and sport fishing dock are considered significant and adverse.

Sensitive Species.

Eelgrass. The proposed project has a potential to impact eelgrass in the vicinity of the proposed OC Sailing and Events Center Docks as a result of shading from either dock structures or small boats tied up to the dock. The level of impact and the mitigation required for any disturbance to eelgrass will be determined during pre- and-post construction surveys for the project, as required in Mitigation Measures 4.7-2 and 4.7-3. Should it be determined that a loss of eelgrass has occurred, appropriate measures in accordance with the SCEMP (NMFS 1991, as amended) will be required to offset any observed eelgrass losses.

Sensitive Habitats.

Reefs and Kelp Beds. The installation of the temporary docks adjacent to the East Breakwater would create a long-term adverse shading effect on water column habitat and a combination of hard-bottom quarry stone/natural reef habitat and soft-bottom habitat. Approximately 69 sf of seafloor habitat (a combination of rock and sand) will be drilled to place piles.

The length of time that habitats and organisms would be affected by shading is potentially up to eight years. During this time, there will be temporary losses of habitat value and function and direct adverse impacts on plants and animals associated with the water column and substrate and soft-bottom habitats. Although the operation of these docks is considered “temporary,” up to eight years of dock shadow effect shade may reduce the value of these habitats for marine life.

Shading effects and subsequent decreased light penetration could potentially create a reduction (to an unknown degree) during construction in the productivity, diversity, and composition of macro-algae (understory kelp, red and brown turf algae) on the natural reef outcrops that might be underneath the boat docks. Expected habitat changes would include an increase of coralline and encrusting red/brown algae; encrusting and upright ectoprocts, sponges, and tunicates that would replace the macro-algae; and a potential reduction and/or change in the numbers and types of fishes associated with macro-algal canopy. These changes would result in a significant, temporary impact on marine resources that could last for up to 8 years, or the duration of construction activities. Because the temporary docks will be present for up to 8 years during construction, and because there is no feasible mitigation to reduce shading impacts with the current project design,

shading impacts in the temporary dock area are considered a significant and unavoidable adverse construction-related impact.

Following completion of the project and removal of the temporary dock system, rocky intertidal and subtidal quarry stone and natural reef habitat will be exposed to preproject unshaded light conditions that will lead to a reestablishment of macrophytes, understory species of algae, and macrofauna typical of rocky habitats. The process of recolonization will take several years, having to respond to long-term temporal reductions in light levels. The return to pre-project biological conditions is not a beneficial impact; it is a return to status quo conditions.

Due to the length of time that these habitats will have been subjected to reduction in light conditions, and because the recolonization of the rocky intertidal and subtidal habitats cannot be guaranteed, impacts to these habitats are considered a significant and unavoidable adverse impact, similar to the construction impacts to these resources. Further, should the temporary docks remain in place as permanent yacht broker docks, these impacts would be permanent and would be considered a significant and unavoidable adverse operational impact.

Mitigation Measures

The following measure would reduce impacts to marine resources resulting from turbidity and accidental spills during construction activities to a less than significant level.

- 4.7-1** Prior to issuance of any construction permits, the Director, OC Dana Point Harbor, shall review and approve a Marina Construction Management Plan and confirm that the following construction best management practices (BMPs) are included to minimize turbidity plumes and possible contaminants released into the water column during construction activity:
- No construction materials, equipment, debris, or waste shall be placed or stored where it may be subject to tidal erosion and dispersion. Construction materials shall not be stored in contact with the soil.
 - Hazardous waste and oil spill contingency plans and spill response equipment shall be kept on site or near the Harbor during Marina construction. The Construction Contractor shall have adequate equipment available to contain such spills immediately.
 - Any construction debris shall be removed from the site. All trash shall be disposed of in the proper trash receptacles at the end of each construction day.
 - Floating booms shall be used to contain debris discharged, and any debris discharged, including construction debris from the sea floor, shall be removed no later than the end of each day. A postconstruction bottom survey shall be conducted to ensure that all material has been successfully removed from construction areas.
 - Where feasible, silt curtains shall be deployed around work barges and the pile removal and placement operations in order to minimize the spread of turbid waters outside the project area.
 - Barges and work vessels shall be operated in a manner to ensure that sensitive resources within the Harbor are not impacted through grounding, propeller damage, or other

activities that may disturb the sea floor. Such measures shall include speed restrictions, establishment of off-limit areas, and use of shallow draft vessels.

The following measures would reduce potential impacts related to the presence of eelgrass or *Caulerpa* to a less than significant level.

- 4.7-2** To reduce impacts related to potential disturbance to the shallow water marine substrate, OC Dana Point Harbor shall confirm that preconstruction and postconstruction eelgrass and *Caulerpa* monitoring surveys are conducted in accordance with the most currently approved National Marine Fisheries Service (NMFS) Control Protocol and the Southern California Eelgrass Mitigation Policy (SCEMP) as adopted by the NMFS, in consultation with the California Department of Fish and Game. The survey shall be conducted during the active growth period (typically March through October) when possible. The preconstruction survey reports shall be completed within 30 days prior to construction activities, and the postconstruction survey reports shall be completed within 30 days of completion of each phase of the project and shall be submitted to the California Coastal Commission and the United States Army Corps of Engineers. The survey shall provide recommendations to avoid areas of eelgrass if determined to be present and/or provide recommendations for appropriate mitigation.

In the event that *Caulerpa* is detected, disturbance shall not be conducted until such time as the infestation has been isolated, treated, or the risk of spread from the proposed disturbing activity is eliminated in accordance with the NMFS *Caulerpa* Control Protocol (NMFS 2007).

An eelgrass mitigation plan shall be developed based upon the results of preconstruction and postconstruction surveys. The plan shall require that direct losses, if any, to eelgrass vegetation shall be mitigated at a ratio of 1.2:1 (mitigation to impact), and potential eelgrass habitat shall be mitigated at a ratio of 1:1 according to requirements of the SCEMP. As detailed in the SCEMP, the actual amount of eelgrass to be mitigated shall depend on preconstruction and postconstruction surveys (refer to IP II-3 SP24).

- 4.7-3** To reduce potential impacts related to the presence of eelgrass, OC Dana Point Harbor shall hire a qualified marine biologist who shall implement the following measures during construction activities near Baby Beach and the OC Sailing and Events Center:
- A qualified marine biologist shall mark the positions of eelgrass beds with buoys prior to the initiation of any construction to minimize damage to eelgrass beds outside the construction zone. Impacts to eelgrass beds shall be avoided where practical and feasible. To assist the construction crew in avoiding unnecessary damage to eelgrass, the project marine biologist shall meet with construction crews prior to construction to review areas of eelgrass to avoid and to review proper construction techniques.
 - Barges and work vessels shall be operated in a manner to ensure that eelgrass beds are not impacted through grounding, propeller damage, or other activities that may disturb the sea floor. Such measures shall include speed restrictions, establishment of off-limit areas, and use of shallow draft vessels

The following measure would reduce potential construction impacts to sensitive habitats and endangered species to a less than significant level.

4.7-4 To reduce potential construction impacts to sensitive habitats and endangered species, OC Dana Point Harbor shall hire a qualified marine biologist who shall conduct a pre-construction marine biological survey to identify sensitive marine biological resources (i.e., eelgrass, reefs and kelp beds, and seabirds). This survey shall be used to prepare a Marine Biological Impact Reduction Plan (MBIRP) to map sensitive biological resources and minimize construction impacts to marine resources. The marine biologist shall also meet with the construction crews prior to the issuance of any construction permits or any construction activities to review sensitive areas to avoid and to review proper construction techniques. The Marine Biologist shall:

- Brief construction and work vessel crews on the potential for sea turtles to be present and provide crews with the identification characteristics of sea turtles since they may occasionally be mistaken for seals or sea lions.
- Prepare an incident report of any green sea turtle activity in the project area and inform the construction manager to have the crew aware of the potential for additional sightings. The report shall be provided within 24 hours to the California Department of Fish and Game and the National Marine Fisheries Service.
- A biological monitor shall be present on site during the start-up of each construction phase and periodically throughout construction activities to monitor the presence of endangered species (seabirds, marine mammals, and sea turtles). In the event that an endangered species is sighted within 100 meters (m) of the construction zone, all construction activity shall be temporarily stopped until the animal is safely outside the outer perimeter of construction. The on-site biological monitor shall have the authority to halt construction operation and shall determine when construction operations can proceed.
- In the event a marine mammal is injured or killed as a consequence of a vessel collision, the vessel operator and OC Dana Point Harbor shall immediately notify the National Marine Fisheries Service (Southwest Division) and shall submit a written follow-up report within 24 hours of the incident.
- Monitor the construction process on a regular basis to ensure that all water quality Best Management Practices (BMPs) are implemented and to assist the project engineer in avoiding and minimizing environmental effects to Harbor marine biological resources.

The following measure would reduce impacts to sensitive or protected birds to a less than significant level.

4.7-5 Prior to issuance of any demolition or construction permits, OC Dana Point Harbor shall ensure that the following provisions are incorporated into the final project plans for the purpose of protecting migratory and sensitive nesting birds (blue herons, snowy egrets, the black crowned night heron, owls and raptors) within the study area during construction:

- If construction activities are performed during the breeding and nesting season (January through September), a preconstruction survey within 500 feet (ft) of the site for nests shall be performed by a qualified biologist at least 15 days prior to construction to document the presence/absence of all these species;
- If an active nest of any bird species listed pursuant to the federal or California Endangered Species Act, California bird species of special concern or a wading bird (herons or egrets), as well as owls or raptors, is found, construction activities within 300 ft (500 ft from any identified raptor nest) shall not exceed noise levels of 65-decibel (dB) peak until the nest is vacated and juveniles have fledged and there is no longer evidence of a second attempt at nesting.
- The qualified biologist shall monitor active nest sites on a weekly basis. If the biologist notes that all young have fledged from the nest, then the noise restriction near the nest is no longer required.

The following measure would reduce potential pile-driving noise impacts to marine mammals to a less than significant impact.

4.7-6 To ensure that potential pile-driving noise impacts to marine mammals remain less than significant, OC Dana Point Harbor shall ensure that the following provisions are incorporated into the final project plans for the proposed project:

- The contractor shall use sound abatement techniques to reduce noise and vibrations from pile-driving activities. Recommended sound abatement techniques shall include, but are not limited to, vibration or hydraulic insertion techniques, drilled or augured holes for cast-in-place piles, bubble curtain technology, and sound aprons if feasible for the project.
- At the initiation of each pile-driving event and after breaks of more than 15 minutes, the pile driving shall employ a “soft-start” in which the hammer is operated at less than full capacity (i.e., approximately 40–60 percent energy levels) with no less than a 1-minute interval between each strike for a 5-minute period. The operation of the hammer at 40–60 percent energy level during the soft start of pile driving is expected to result in similar levels of noise reduction (40–60 percent) underwater.

The following measure would reduce potential long-term water quality-related impacts to marine life to a less than significant level.

4.7-7 To reduce potential long-term water quality-related impacts to marine life, OC Dana Point Harbor shall, prior to occupancy of any new dock or slip facilities, provide boater education material to tenants as part of lease materials, and to reduce the potential for water quality and degradation of Dana Point Harbor marine resources by boaters. In addition, OC Dana Point Harbor shall provide the following to boaters:

- A copy of all applicable regulations regarding vessel discharges of wastes, antifouling paint use, and refuse management (including handling of hazardous wastes);

- Information regarding procedures for notifying appropriate authorities regarding spills of hazardous materials, containment measures, and applicable penalties for violations;
- A regular cleaning schedule of the Marina dock facilities and vacuum sweeping of the parking lots;
- Adequate signage to identify the location off pump-out stations and hours of operation;
- A regular inspection and maintenance schedule for the pump-out facility;
- Educational information about the pump out station to tenant boaters;
- A list of existing local, State, and federal regulations that will be enforced pertaining to marine sanitation devices and the illegal discharge of boat sewage; and;
- A list of other local pump-out locations shall be made available to boaters.

4.7.7 CUMULATIVE IMPACTS

The study area for cumulative impacts to biological resources is the areas that could be affected by the proposed project and the areas affected by other projects whose activities could directly or indirectly affect the marine environment in the Harbor. As discussed above, impacts related to biological resources are confined to the marine resources within the Harbor. The projects included in the cumulative list are projects are primarily inland developments that would not impact the aquatic biological resources in the Harbor. Because impacts to the Harbor's biological resources would be negligible as a result of these projects, potential impacts will not contribute to potential cumulative impacts on marine resources.

Shading impacts to marine biological resources due to new and additional dock coverage of water surfaces are considered significant and adverse for the temporary docks along the Eastern breakwater. Because the temporary docks will be present for up to eight years, or the duration of construction activities, and because there is no feasible mitigation to reduce shading impacts with the current project design, shading impacts in the temporary dock area are considered a significant and unavoidable adverse construction-related impact, but not a permanent impact of the project once the docks are removed. However, if the temporary dock were to remain in place as a yacht broker dock, the shading impacts associated with this dock would be permanent and would be considered a significant and unavoidable adverse impact.

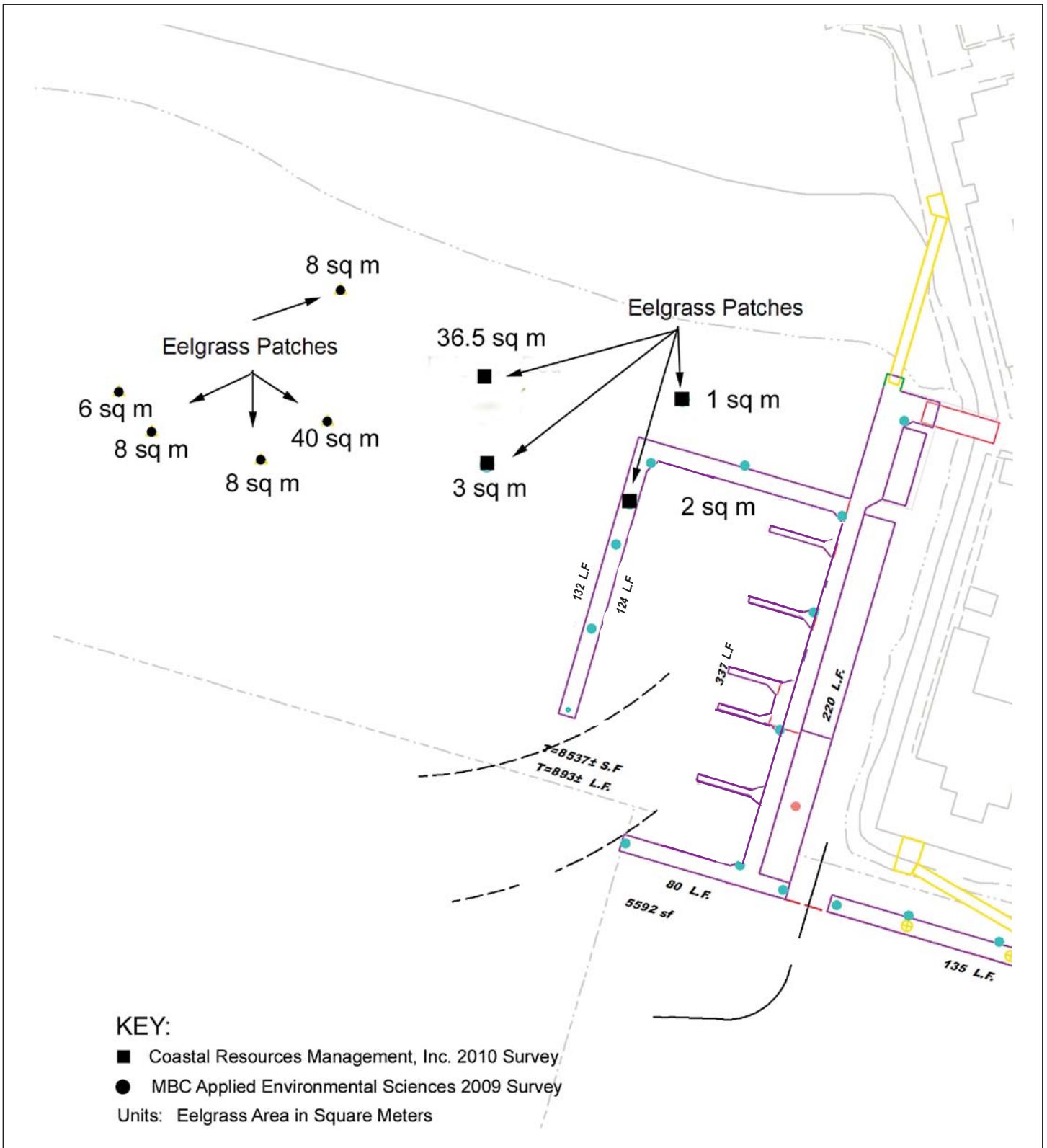
The proposed project does not increase the overall operational square footage of dock space, and therefore, the project's cumulative contribution to marine shading impacts is not considered cumulatively significant.

All other biological impacts would be reduced to less than significant levels with implementation of the proposed mitigation and adherence to the Mitigation Measures contained in the Program EIR and incorporated into the Marina Improvement Project.

4.7.8 SIGNIFICANT UNAVOIDABLE IMPACTS

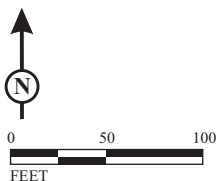
Shading impacts in the temporary dock area are considered a significant and unavoidable adverse construction-related impact, but not a permanent impact of the project. Once construction has been completed and the temporary docks have been removed, shading impacts will no longer occur. However, if the temporary docks were to remain in place as yacht broker docks, and because there is no feasible mitigation to reduce such impacts, the shading impacts associated with these docks would be considered a permanent significant and unavoidable adverse impact.

With implementation of the stated Mitigation Measures, all of the other potentially adverse significant impacts to Biological Resources are reduced to less than significant levels.



LSA

FIGURE 4.7-1



Dana Point Harbor Marina Improvement Project
Eelgrass Locations - OC Sailing and Event Center Docks

4.8 AESTHETICS

This section provides a discussion of the aesthetic resources within the Dana Point Harbor Marina Improvement Project area, and the project's effects on these resources and views. This section describes the existing landform and aesthetic character of the project area and describes views of the project site from the surrounding area and on-site vantage points. The potential visual changes resulting from implementation of the proposed project are addressed with consideration of local, State, and federal regulations and policies. This section also provides recommended mitigation measures pursuant to the California Environmental Quality Act (CEQA).

4.8.1 EXISTING SETTING

Project Location

The Harbor is bordered by the Pacific Ocean to the south; Dana Headlands and Old Cove Marine Preserve to the west; Doheny State Beach to the east; and a variety of commercial, residential, and recreational land uses on the north.

The Harbor consists of the East and West Marinas, and includes County-operated park, picnic and beach areas adjacent to the waterside areas of the Marina. The Harbor is located in the vicinity of regionally recognized natural features and/or recreation areas, as described below.

Surrounding Area Visual Character and Views of the Project Area

North. The majority of the area north of the Harbor consists of coastal bluffs. A small center containing retail and restaurant uses is located at the northwest corner of the Dana Point Harbor Drive/Street of the Golden Lantern intersection. Lantern Bay Park, which is located north of the Harbor, consists of a large grassy open space area available for active and passive recreational uses. Heritage Park is located west of the shopping center and includes a terraced lawn providing picnicking and additional passive recreational opportunities. The existing Harbor facilities are visible from the coastal bluffs above; however, mature trees partially obstruct views of the Harbor area. The Pacific Ocean, located beyond the Harbor, is visible from the coastal bluffs. Views southward from the Street of the Golden Lantern are of mature landscaping to the east and west, partially obstructing the Harbor facilities and commercial buildings located within the Commercial Day Use area. Farther west, views of the marine services area and the associated Harbor facilities are visible from Pacific Coast Highway (PCH).

East. Doheny State Beach is a wide sandy public beach, extending eastward from the Harbor's eastern jetty. Views of the project area from Doheny State Beach include the eastern jetty and a portion of the southern jetty, the shipyard, surface boat storage, and surface auto parking areas. The County operates a beach park with metered parking between the State Park and the jetty. Views into the Harbor from Doheny Beach are limited due to intervening vegetation, the jetty and structures.

South. The Pacific Ocean is located south of the project area. Views of the project area from boats traveling on the Pacific Ocean include the eastern jetty and southern jetty. Portions of the rooftops of the two-story structures located within East and West Island are also visible from the ocean.

West. Restaurants, multifamily and single-family residences, and hotels are located to the northwest and north of the site, on the top of the bluffs overlooking the Harbor area. While existing Harbor facilities are visible from these coastal bluffs, mature trees partially obstruct views of the Harbor. Further west on a coastal bluff is the Dana Point Headlands, a 121 ac property currently under construction and proposed for mixed-use development. The Pacific Ocean and the distant horizon, located beyond the Harbor, are visible from the coastal bluffs.

Harborwide Visual Character

The Harbor Marinas are characterized by open and expansive views of the horizon, bluffs, jetty, the island bridge within the Marina, the sky, and dense urban development in the surrounding area. The Harbor may be visually divided into landside and waterside attributes of the East and West Marinas. The existing Harbor area is fully developed, being comprised of buildings of varying height, surface parking areas, meandering walkways, large open space grass areas with picnicking facilities, native and nonnative vegetation, rock and concrete jetties, seawalls and breakwaters, and boat slips and docks.

Project Site Visual Character

The project site is an existing fully developed Marina; surrounding areas are completely built out and are characterized by recreational and marine commercial land use types. The Marina is configured into four quadrants, as delineated by landside (typically referred to as the cove side) facilities on the north and an artificially created island to the south, both of which are bisected by an access bridge. A rock breakwater to the south provides wave protection from the Pacific Ocean. In both the West and East Marinas, the primary natural feature is water. This artificially calm water zone exemplifies nature transformed by human activity and is the area's most important visual feature. Other elements that contribute to the visual setting include the boats, sailboat masts, piers, docks, boat slips, gates, seawalls, access roads, surface parking lots, sidewalks, grassy and planted areas, and additional buildings outside the project area in the landside commercial areas including restroom facilities, a hotel, retail shops, boat dealers, offices, and restaurants.

The project site is characterized by boats berthed in the Marinas and gangways leading down to the concrete boat docks below. The West and East Marinas consist of a combination of single-berth and side-tie dock space providing berthing to approximately 2,409 small craft.

The Marinas are fully sheltered from the open ocean by the 8,000 linear feet (lf) of the West Breakwater. The shoreline interface of Dana Point Harbor is protected by a combination of vertical bulkhead and side slope protection. The basin side slopes are protected within the mooring basins by

a grid of concrete panels set on grade. Areas outside of the mooring basins are armored with stone riprap.

Scenic Corridors and Roadways

Within the project vicinity, the County of Orange General Plan identifies the Street of the Golden Lantern as a landscape corridor and PCH as a viewscape corridor. In addition, scenic resource areas and roadways are identified around Dana Point Harbor and include: the shore, Dana Point Harbor Drive, Dana Drive, Island Way, Street of the Golden Lantern, and portions of PCH located south of the Harbor.

Light and Glare

Sources of light and glare located in the project vicinity include the commercial uses in the Harbor and the restaurant, hotel, and residential uses located on the bluffs overlooking the site to the north and west. Light sources include street and security lighting in addition to interior building lighting. Glare is generated from reflective surfaces on buildings and residential uses. Vehicles also generate small amounts of light and glare from car headlights.

The existing uses in the Marina produce light and glare typical of a small-craft Harbor, with relatively limited high-intensity lighting. Existing on-site light sources include security lighting and flood lighting at the boat docks. Light fixtures throughout the Marina include bulkhead lights with large unshielded lamps located at the seawalls along the channels. Glare generation in the Harbor is predominantly a nighttime event as there are few metallic (i.e., reflective) surfaces on existing facilities. With the exception of the Ocean Institute, there are no buildings that have large glass or polished surfaces. On-board boat lighting and the water surface of the Harbor waters and Pacific Ocean beyond provide additional sources of light and glare.

As stated in the Dana Point Harbor Revitalization EIR, to regulate the level and intensity of lighting uses in the Harbor, five lighting zones have been proposed with illumination characteristics from very dark to high. The waterside Marina is designated as Lighting Zone 2, which is characterized by dark illumination with a maximum 55 wattage. This lighting will utilize directional lighting techniques and low wattage bulbs (without compromising safety and security) that direct light downward and minimize light spillover. All outdoor lighting fixtures would be installed in conformance with the approved LCP policies and requirements and County of Orange Lighting Standards.

Trees

All of the trees within Dana Point Harbor, including the native trees, were planted as landscaped ornamental trees. Of the approximately 525 eucalyptus (*Eucalyptus* sp.) trees, a nonnative species, approximately 175 are large with good ecological or aesthetic value; the remaining trees are small or leggy, with little canopy cover. Approximately 40 native California sycamore (*Plantus racemosa*) trees are located east of Island Way. The sycamore trees throughout the Harbor are typically large and healthy. Also located throughout the Harbor are approximately 25 pines (*Pinus* sp.) that are generally less than 20 feet (ft) in height. Additionally, there are Norfolk Island pines (*Araucaria heterophylla*) located near the OC Sailing and Events Center. Other common trees included Coral trees (*Erythrina*

sp.), Bay Fig (*Ficus macrophylla*), and various species of palm. None of the above-identified trees are proposed to be removed as part of the proposed Marina Improvement Project.

Scenic Viewpoints/Viewsheds

PCH and Dana Point Harbor Drive offer limited long-range to mid-range (1–4 miles [mi]) scenic views of the Harbor and ocean, which are currently obstructed by existing landscaping and Harbor buildings. The project site is visible from a number of publicly accessible points that offer short-range views (less than 1 mi), including sidewalks along the Harbor, bridge sidewalks on the Island, and several Harbor facilities located around the Marinas. From nearby locations, the most prominent visual attributes of the project site are the Harbor and Pacific waters, boats, and masts of boats berthed in the Marinas.

Eight viewpoints were selected to represent the existing views of the project site. Views were captured from within the Harbor and areas adjacent to the Harbor. Existing views of the project site from surrounding areas and on-site locations are described below. The location of each viewpoint is shown on Figure 4.8-1, and existing views of the project site are shown on Figures 4.8-2–4.8-5.

Key View 1: View of the Harbor Facilities from Cove Road. Key View 1 (Figure 4.8-2) faces east and presents a typical panoramic view of both West and East Marinas from Dana Point Headlands. The Harbor's maritime setting is characterized by boats berthed in the Marina behind a breakwater. In both the West and East Marinas, the primary natural feature is water. This artificially calm water zone exemplifies nature transformed by human activity and is the area's most important visual feature. Other elements that contribute to the visual setting include Baby Beach, the riprap seawall on West Island, access roads, surface parking lots, grassy and planted areas, and additional buildings outside of the project boundaries. The Harbor is visually divided into four quadrants, separated east and west by the Island Way Bridge and north and south by the Harbor's inner channel. The commercial areas surrounding the project site are somewhat masked by the large ornamental trees located throughout the Harbor.

Key View 2: View of the West Marina from the West Cove Boardwalk. Key View 2 (Figure 4.8-2) faces south from West Cove and presents a typical view of boats berthed in West Marina. The primary visual features within this view include the water, berthed boats, and tall masts. Other elements that contribute to the visual setting include docks, pilings, and seawalls, and in some locations, the gangways, gates, adjacent restroom facilities, surface parking lots, sidewalks, and grassy and planted landscaped areas. The boats in the West Marina are configured in a north-south direction. Direct views of the ocean, ocean breakwater, or the ocean horizon are limited within the foreground of the Marinas.

Key View 3: View of the East Marina from the East Cove Boardwalk. Key View 3 (Figure 4.8-3) faces south from East Cove and presents a typical view of boats berthed in East Marina. Similar to West Marina, the primary visual features within this view includes the water, berthed boats, and tall masts; however, the main differences from West Marina are the east-west configuration of the boats and the denser appearance of the berthed boats.

Key View 4: View of the OC Sailing and Events Center. Key View 4 (Figure 4.8-4) faces east from the pier and presents a typical view of the Orange County Sailing and Events Center docks. The primary visual feature includes OC Sailing and Events Center buildings outside of the project area and OC Sailing and Events Center docks within the project area. Baby Beach, located north of the OC Sailing and Events Center, is also visible from this viewpoint.

Key View 5: View of the Harbor Patrol Docks facing West. Key View 5 (Figure 4.8-4) faces west from the end of East Island and presents a typical view of the Harbor Patrol facilities. Similar to the rest of the boats in East Basin, the Harbor Patrol boats are oriented in an east-west configuration. The Harbor Patrol docks appear less dense than the surrounding docks, having larger areas of open water surrounding them.

Key View 6: View of Marine Services Docks. Key View 6 (Figure 4.8-5) faces northeast near the boat launch toward the marine services docks. This view shows boats of varying sizes berthed in both east-west and north-south configurations. The primary visual features are the water, boats and masts, and the marine services buildings outside the project area.

Key View 7: View of the East Turning Basin and East Breakwater. Key View 7 (Figure 4.8-5) faces northeast from the end of East Island toward the east breakwater and includes views of the fuel dock and bait barge. The primary visual feature includes the open water and east breakwater. Other elements that contribute to the visual setting include the hills and residences in the distant background.

4.8.2 REGULATORY SETTING

California Coastal Act

The project site is located entirely within the Coastal Zone and is subject to regulation under the California Coastal Act of 1976 (CCA). The Harbor is under the land use planning and regulatory jurisdiction of the City of Dana Point (landside areas) and the California Coastal Commission (CCC) (waterside areas).

The policies included in Article 6 of the California Coastal Act (CCA) are intended to protect the scenic beauty of the coastal landscape as a resource of public importance. The following Coastal Act policy is relevant to the Dana Point Harbor Revitalization Plan in terms of scenic and visual resources:

Coastal Act §30251 provides, in part: *The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and where feasible, to restore and enhance visual quality in visually degraded areas.*

Dana Point Harbor Revitalization Plan and District Regulations

Implementation of the Dana Point Harbor Revitalization Plan required a series of subsequent approvals by the City of Dana Point and the CCC to modify existing regulatory documents, including the City's LCP. The Revitalization Plan and District Regulations therefore required an LCP Amendment (LCPA). The LCPA includes a Land Use Plan (LUP) component and an Implementation Plan (IP) component, which together establish zoning regulations and other implementing actions required for ongoing implementation of improvements and management of Dana Point Harbor pursuant to procedures set forth in the Coastal Act. The LUP component of the LCPA for the proposed Dana Point Harbor Revitalization Project was approved with suggested modifications by the CCC on October 8, 2009. The IP component was approved with suggested modifications by the CCC on January 12, 2011.

The Dana Point Harbor Revitalization Plan and the proposed Marina Improvement Project are consistent with the goals and provisions of the Coastal Act. The Plan identifies its compatibility with Section 30251 of the Coastal Act related to aesthetic resources, as identified above.

Dana Point Harbor Revitalization Plan and District Regulations provide the following Scenic and Visual Resource Policies applicable to the Marina Improvement Project:

- 8.4.1-1** Protect and enhance public views to and along the coast through open space designations and innovative design techniques. (Coastal Act Section 30251)
- 8.4.1-2** Ensure development within designated and proposed scenic corridors are compatible with scenic enhancement and preservation and shall not significantly impact public views through these corridors. (Coastal Act Section 30251)
- 8.4.1-3** Site and architectural design shall respond to the natural landform whenever possible to minimize grading and visual impact. (Coastal Act Section 30251)
- 8.4.1-9** All exterior lighting will be designed and located to avoid intrusive effects on the adjacent uses atop the bluffs and Doheny State Beach. New light fixtures will be designed to direct light on-site, away from other areas and where feasible (not interfering with public safety), minimize impacts to nesting birds or other sensitive biological resource areas within the boundaries of the LCP. (Coastal Act Section 30251)

County of Orange

General Plan. According to the Orange County General Plan, the County coast is recognized as offering a variety of coastal forms from sandy beaches, tidelands, and marine refuges to scenic viewpoints and Harbors. Therefore, the County acknowledges the importance of provision, enhancement, and protection of scenic vista points from publicly accessible places.

The Transportation Element of the County's General Plan contains three components: Circulation Plan, Bikeways Plan, and the Scenic Highways Plan. The Scenic Highways Component of the General Plan identifies the County's scenic highway routes. The primary purpose of the Scenic Highways Component is to define the policy guidelines pertaining to implementation of the Scenic Highways Plan. The Scenic Highways Plan attempts to incorporate safety, utility, economy, and aesthetics into the planning, design, and construction of scenic highways. The following goals, objectives, and policies pertain to the project vicinity:

Goal 1: Preserve and enhance unique or special aesthetic and visual resources through regulation of development within the scenic corridor.

Objective 1.4 Preserve established Scenic Highways in order to protect the existing scenic qualities of these corridors.

Zoning Code. The County of Orange Zoning Code includes standards for the use of night lighting to maintain adequate security of public areas and to minimize glare to surrounding properties by shielding sources of light and directing light in a downward fashion. All lighting fixtures selected to replace existing lighting will be in conformance with all applicable County of Orange requirements.

City of Dana Point

The City of Dana Point General Plan Conservation/Open Space Element includes goals and policies to protect significant views and public access to the ocean and Harbor. The following goal and policies are applicable to the proposed Marina Improvement Project:

Goal 6: Encourage open space areas to preserve natural resources.

Policy 6.2: Protect and preserve the public views of the Dana Point Harbor. (Coastal Visual Resources Section 30251)

Policy 6.4: Preserve and protect the scenic and visual quality of the coastal areas as a resource of public importance as depicted in figure COS-5 "Scenic Overlooks from Public Lands", of this Element. Permitted development shall be sited and designed to protect public views from identified scenic overlooks on public lands to and along the ocean and scenic coastal areas, to minimize the alteration of natural landforms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. (Coastal Act Section 30251)

The Circulation Element of the City's General Plan identifies PCH as a designated urbanscape corridor. In addition, Dana Point Harbor Drive is identified and is considered to be a scenic corridor.

4.8.3 METHODOLOGY

To assist in the assessment of potential visual impacts associated with implementation of the proposed project, existing viewsheds, visual resources, and existing viewer groups were identified and characterized above. The potential visual changes resulting from project implementation were identified based on field reconnaissance, photographs taken from on- and off-site vantage points, and aerial photographs.

4.8.4 THRESHOLDS OF SIGNIFICANCE

Whether or not a project has an aesthetic impact is not quantifiable; therefore, a qualitative analysis is provided. The impact significance criteria used for this analysis are based on the Initial Study Checklist contained in Appendix G of the State CEQA Guidelines for aesthetics. The proposed project is deemed to have a potentially significant aesthetic impact if implementation of the project would:

- Have a substantial adverse effect a scenic vista;
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- Substantially degrade the existing visual character or quality of the site and its surroundings; or
- Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area.

4.8.5 OVERVIEW OF PROGRAM FEIR AESTHETICS ANALYSIS

Impacts. The Program FEIR concluded that grading and construction activities associated with the Revitalization Project would temporarily affect the existing visual character and quality of the project site and its surroundings. However, analysis concluded that construction impacts are considered less than significant with implementation of the recommended Mitigation Measures. The Program FEIR concluded that the long-term operation of the Revitalization Project would affect views of the Harbor from surrounding roadways, parks, and State beaches; may create a new source of light and glare, which will adversely affect day and/or nighttime views in the area; and may obstruct scenic resources along State or local scenic highways. The Program FEIR concluded that impacts to scenic resources along State or local scenic highways and light and glare impacts were less than significant with implementation of Project Design Features (PDFs), Standard Conditions of Approval (SCA), and Mitigation Measures (MMs). However, the impacts to views of the Harbor from surrounding roadways, parks, and State Beaches were found to be significant and unavoidable even with implementation of PDFs and SCA.

Cumulatively, the Revitalization Project, along with landside Commercial Core projects and other future development, may result in alterations to the aesthetic character and quality of the project area. The Program FEIR concluded that cumulative aesthetic impacts would be less than significant.

PDFs, SCAs, and MMs identified in the Program FEIR and applicable to the Marina Improvement Project are listed below. During the subsequent approval process for the Land Use Plan (LUP) component of the LCPA, several of the listed PDFs, SCAs, and MMs were clarified and became LUP Policies within the revised Dana Point Harbor Revitalization Plan LUP. Where applicable, the wording has been revised to be consistent with the approved LUP Policy, which is indicated in parenthesis.

Project Design Features (PDFs), Standard Conditions of Approval (SCA), and Mitigation Measures (MMs)

- PDF 4.2-9** The design and layout of the future developments shall be consistent with the approved Land Use Plan and preserve views of the bluff area. (LUP Policy 8.2.1-7)
- PDF 4.2-19** All exterior lighting will be designed and located to avoid intrusive effects on the adjacent uses atop the bluffs and Doheny State Beach. New light fixtures will be designed to direct light on-site, away from other areas and where feasible (not interfering with public safety), minimize impacts to nesting birds or other sensitive biological resource areas within the boundaries of the LCP. (LUP Policy 8.4.1-9)
- MM 4.2-4** Prior to the issuance of a building permit, an Exterior Lighting Plan (including outdoor recreation areas) for all proposed improvements shall be prepared. The lighting plan shall indicate the location, type, and wattage of all light fixtures and include catalog sheets for each fixture. The Lighting Plan shall demonstrate that all exterior lighting has been designed and located so that all direct rays are confined to the property. The Lighting Plan shall be subject to review and approval by OC Dana Point Harbor.

Level of Significance after Mitigation. The Program FEIR concluded that despite compliance with SC and MM, the Revitalization Project would result in significant and unavoidable impacts to views of the Harbor from surrounding roadways, parks, and State beaches.

4.8.6 IMPACTS AND MITIGATION

Potentially Significant Impacts

Degradation of the Existing Scenic Vistas, Visual Character, or Quality of the Site and its Surroundings.

The project site is located within Dana Point Harbor, which contains several vantage points for scenic views of the Harbor and ocean. In addition, there are numerous vantage points from the coastal terrace and other high points along the coastline, which are identified as significant public view resources in the City's General Plan. The proposed project has the potential to temporarily alter the views to the West and East Marinas. The purpose of the docks and slip improvements is to improve access, provide safer boating for the users of the Marina (Americans with Disabilities Act [ADA] compliance), meet State design criteria, and accommodate changing demands and trends in boater needs. The project site is an existing Harbor and already serves as a boating facility for local and regional boaters. Therefore, the proposed project would not substantially alter the maritime character of the Harbor.

The proposed project consists of a number of improvements to the West and East Marinas that have the potential to impact the visual character or quality of the site. These improvements include new gates and gangways, new lighting, new docks and pilings, and the temporary dock near the east breakwater. Each of the dock areas with significant improvements were shown in Figures 4.8-2–4.8-5. Changes to these views are described below.

Key View 1: View of the Harbor Facilities from Cove Road. Key View 1 faces east and presents a typical panoramic view of both East and West Marinas from Dana Point Headlands. This type of similar view can be found from other nearby locations on the bluffs. Viewers from this vantage point would be able to see many of the construction activities throughout the Marina. The construction activities would impact the existing public views from lookout points in the vicinity of the Harbor. Large construction equipment such as cranes would easily be visible from this location. In addition, distant views would include the temporary docks located near the east breakwater that would occupy space that is currently open water. Upon project completion, the temporary docks may become docks for some yacht brokers who currently have docks in the East and West Basins, subject to separate agency approvals. However, the temporary/yacht broker docks would be consistent with the maritime character of the Marinas and would not substantially change or degrade the visual character or quality of the site. Implementation of Program FEIR PDF 4.2-4 and 4.2-7 and Mitigation Measures 4.8-1 and 4.8-2 would help to reduce the visual impact associated with construction equipment. Implementation of the PDFs and Mitigation Measures would reduce impacts associated with construction to less than significant levels.

After construction is complete, the boat docks in the Marina would be reoriented into the new configurations, as outlined in the Project Description, Figure 3-4. The viewer might notice the change in boat orientation and the additional docks in the East Marina; however, these distant views would not be substantially different from existing conditions and would not be a significant effect of the project.

Key Views 2 and 3: View of the West and East Marina from the Cove Sidewalk. Key Views 2 and 3 face south from the Cove and present a typical view of boats berthed in the West and East

Marinas. Impacts to these views were combined because the impacts in both Marinas would be similar. Reconfiguration of the Marina slips and docks will be conducted within nearly the same footprint as the existing Harbor; therefore, no substantial long-term changes to the viewshed would occur. The viewshed within the Marinas would remain nearly the same. The proposed project may result in the improvement in the visual quality and character of site as it renovates the deteriorating Marina and replaces it with aesthetically pleasant, new facilities.

Boats are a component of the existing views at the Marina, and would not substantially change the visibility of boats within the project area.

The proposed project would also alter the orientation of slips in the West Marina from a north-south configuration to an east-west configuration, similar to the existing condition in the East Marina. Therefore, dock layout would exhibit a more regular and uniform configuration between the two Marinas. This slip orientation would provide views of the broadside of some boats in West Marina, as opposed to views of the narrower bows or sterns. The reconfiguration of these slips would not substantially degrade or obstruct any scenic view, nor significantly alter the existing maritime character of the Marina.

Implementation of the proposed project includes installation of new gates and gangways. The existing Marinas currently do not have gangways that comply with ADA requirements. The proposed ADA compliant gangways would be 80 ft long. Two ADA gangways would be located in East Marina, two in the West Marina, two at the OC Sailing and Event Center docks, and one each at the Embarcadero/Dry Boat Storage Staging docks, the Sport Fishing docks, the guest slips/dinghy docks, and the temporary/yacht broker docks. However, the increased size of the gangways would be consistent with the overall maritime character of the Marinas and would not result in a significant impact on the aesthetic character of the Marinas.

Replacement of the East and West Marinas would result in encroachment into the inner channel. Both the East and West Marinas would result in a 20 ft encroachment on both the north and the south sides (for a total of 40 ft), with only a 20 ft encroachment at the entrances of the East and West Basins. The encroachment tapers back to 0 ft adjacent to the island bridge in order to allow vessels to more easily turn around at the bridge if needed (refer to Figure 3.13, Project Description). While this will reduce the open water between the cove and island side, the visual impact associated with the encroachment would be negligible. Viewers most sensitive to this change would be the boaters; however, this change is consistent with the existing maritime character of the Harbor. The visual impact associated with the encroachment into the inner channel would be less than significant.

Construction activities would temporarily change the physical character and quality of the Marinas. The construction phase would affect views from several vantage points from within the Marina, including Harbor restaurants. The views from the site will be limited and encroached upon due to the use of construction equipment. These visual impacts would be temporary and would cease upon project completion. Implementation of Program FEIR PDF 4.2-4 and 4.2-7 and Mitigation Measures 4.8-1 and 4.8-2 would help to reduce the visual impact associated with construction equipment. Implementation of the PDF and Mitigation Measures would reduce impacts associated with construction to less than significant levels.

Key View 4: View of the OC Sailing and Events Center Docks. Key View 4 faces east from the pier and presents a typical view of the OC Sailing and Events Center docks. The proposed project would add only 3 lf to the existing docks. Therefore, the surface area of the dock facilities in this area would not significantly increase. Viewers would see the encroachment of the docks into the west basin near Baby Beach because the docks would extend to the west of the seawall in this view. An ADA-compliant gangway would be located at the end of the OC Sailing and Events Center buildings to provide access to the docks located on the west side of the OC Sailing and Events Center buildings. The proposed changes on the west side of the OC Sailing and Events Center buildings would not intensify the density and the overall character and quality of the area would be generally similar to existing conditions. Therefore, impacts associated with the improvements in the OC Sailing and Events Center area would be less than significant, and no mitigation is needed.

Key View 5: View of the Harbor Patrol Docks. Key View 5 faces west from the end of East Island and presents a typical view of the Harbor Patrol facilities. Visual impacts to the Harbor Patrol docks would not significantly change. The proposed project plans indicate that one long dock near the channel will be renovated as a platform dock area. The platform design meets the Harbor Patrol's needs for emergency boat access and provides more deck space for potential emergency situations. The number of slips for the Harbor Patrol remains the same as under existing conditions at eight slips plus two emergency side-ties. The density in this area will not increase and will continue to be consistent with the overall maritime character of the Harbor. Therefore, impacts in this area are considered less than significant, and no mitigation is needed.

Key View 6: View of the Marine Services Docks. Key View 6 faces northeast near the boat launch toward the Marine Services docks and a portion of the future Dry Boat Storage Staging docks. The proposed project would add approximately 534 lf to the Embarcadero/Dry Boat Storage Staging docks in this area and would reduce the dock space currently allocated for marine services by approximately 294 lf; therefore, the surface area of the combined dock facilities would increase by approximately 240 lf. In addition to the docks, the Dry Boat Storage building, which was a part of the landside improvements addressed in the certified Program FEIR, will be supported on piles and will extend out over portions of the new docks. The Embarcadero/Dry Boat Storage Staging docks will continue to provide dock space for Embarcadero Marina operations, as well as for staging boats as they are taken in and out of the storage building.

Because the surface area of the dock facilities in this combined area would increase, the overall area may appear visually denser than existing conditions, but would still be consistent with the overall maritime character of the Harbor. Therefore, impacts in this area are considered less than significant, and no mitigation is needed.

Key View 7: View of the Fuel Dock near the East Breakwater. Key View 7 shows the east breakwater, where the temporary and possible yacht broker docks will be located. The visibility of the boats in this area would be a new visual element and would require relocation of the bait barge a short distance to the northeast. As stated previously, conversion of the temporary docks any permanent dock use would be subject to separate agency approvals.

The temporary/yacht broker docks would be visible from multiple areas throughout the Harbor. The addition of the temporary docks would not result in an adverse visual effect because the temporary docks would be visually consistent with the maritime character of the Harbor and would not significantly obstruct views. The potential continued use of the temporary docks as yacht broker docks would alter the visual character near the Harbor entrance by permanently placing boats in an area that is currently open water. In addition, the yacht broker docks could restrict the foreground view of the hillside in the distance, as viewed from the water, and result in a visibly more dense area than exists today. Whether the placement of permanent docks in open water is an adverse visual impact is a subjective opinion and varies from person to person. However, as stated above, the placement of these docks would be consistent with the overall maritime character and uses of the Harbor.

Damage to Scenic Resources, including Trees, Rock Outcroppings, and Historic Buildings within a State Scenic Highway. PCH, which is a designated State Scenic Highway, is located north of the proposed project site. However, there are no scenic resources such as trees, rock outcroppings, or historic buildings in the immediate project area. The proposed project is an improvement of the waterside Marina and does not anticipate removal of any vegetation, including mature stands of trees within the viewshed of a State Scenic Highway. Therefore, no impacts to a State Scenic Highway are anticipated, and no mitigation is required.

Dana Point Harbor Drive, located adjacent to the Marina facilities, is designated as a Scenic Highway in the City's General Plan. Construction activities would have the potential to impact portions of the view of the project area from these streets. However, these impacts would be temporary during construction and would cease upon project completion. Nonetheless, Program FEIR PDF 4.2-4 and 4.2-7 and Mitigation Measures 4.8-1 and 4.8-2 have been proposed to minimize impacts associated with construction on the views from these streets. Implementation of the PDF and Mitigation Measures would reduce impacts associated with construction to less than significant levels.

New Sources of Light and Glare. The proposed project would include replacement of the existing lighting on the docks. The replacement lighting would be low-intensity lighting directed downward, with minimal spillover and would not substantially increase the amount of light and glare on site. Likewise, the replacement lighting would not increase the intensity of light to sensitive viewers such as residences in the surrounding area due to the distance and intervening uses between residences and the Marina. Therefore, the proposed project would not substantially increase the amount of light and glare on site and would not increase the intensity of light to sensitive viewers in the surrounding area. However, to ensure that light and glare are designed to minimize off-site spillage, Program FEIR PDF 4.2-19 and Mitigation Measure 4.8-3 are proposed to reduce impacts associated with lighting. Implementation of the PDF and Mitigation Measure 4.8-3 will ensure that potential impacts related to light and glare are reduced to a less than significant level.

Less than Significant Impacts

No less than significant impacts were identified, and no mitigation measures are required.

Mitigation Measures

The following measures are proposed to reduce the visual impact associated with construction equipment and materials to a less than significant level.

- 4.8-1** To reduce the visual impact associated with construction equipment and materials, OC Dana Point Harbor shall prepare a Construction Management Plan that establishes access and staging locations for construction equipment, separate from those used by the general public. The contractor's construction equipment and supply staging areas shall be established away from existing Marina operations. The Plan shall specify the following:
- a. During construction and grading, the Contractor shall keep the site clear of all trash, weeds, and debris.
 - b. The grading contractor shall not create large stockpiles of debris or soils, but shall seek to place smaller piles adjacent to each other to minimize visual impacts.
- 4.8-2** To reduce the visual impact associated with construction equipment and materials, the Director, OC Public Works (OC PW)/Subdivision and Grading, or designee, shall require OC Dana Point Harbor to provide screened construction fencing around the construction staging area to temporarily screen views of construction equipment and materials. The construction screening shall be in place prior to issuance of any construction permit for development within the Marinas (refer to Land Use Plan [LUP] I-8.1.1-30 and FEIR No. 591, Mitigation Measure 4.2-2).
- 4.8-3** To reduce impacts associated with lighting, an Exterior Lighting Plan (including outdoor recreation areas) for all proposed improvements shall be prepared prior to the issuance of a building permit. The lighting plan shall indicate the location, type, and wattage of all light fixtures and include catalog sheets for each fixture. The Lighting Plan shall demonstrate that all exterior lighting has been designed and located so that all direct rays are directed downwards, confined to the property, away from other areas and, where feasible, to minimize impacts to sensitive biological resource areas. The Lighting Plan shall be subject to review and approval by the Director, OC Dana Point Harbor (refer to FEIR No. 591, Mitigation Measure 4.2-4).

4.8.7 CUMULATIVE IMPACTS

The cumulative study area for aesthetics impacts is limited to the immediate vicinity of the project area. Cumulative impacts occur when impacts from a proposed project combine with impacts from other past, present, or reasonable foreseeable projects in a similar geographic area and overall contribute to degradation of the existing view. Currently, there are several projects that would be considered within the cumulative study area for aesthetic impacts. The following projects are projects that are proposed or approved but are not yet fully constructed:

- The Headlands – Commercial 35,000 sf Retail/Office (CUP/CDP/SDP approved in 2007)
- The Headlands – Seaside Inn 90 Room Hotel (CDP not yet approved but included as part of HDCP approval)
- The Headlands – Custom Homes 118 SFD (CDPs approved, 25 building permits have been issued by the City)
- Dana Point Harbor Revitalization Plan (landside development)
- Doheny Hotel – 258-Room Hotel with conference room and restaurant facilities

The Dana Point Headlands Projects are anticipated to develop coastal bluffs west of Dana Point Harbor. Although the projects are not located in the immediate vicinity of the Marina Improvement Project, they would add new hotel and commercial uses facing the Harbor from the bluff. The Headlands Project, along with the landside development of the Revitalization Project, was included in the cumulative analysis for the Program FEIR, and therefore, because the Marina Improvement Project is a part of the Program FEIR, the cumulative land use impacts associated with these projects have already been considered for the proposed project and were found not to be significant.

The Dana Point Harbor Marina Improvement Project is a part of the Dana Point Harbor Revitalization Project, which encompasses all planning areas in the Harbor. Despite implementation of the PDF, SC, and MM, the Program FEIR for the Revitalization Project concluded that the plan would result in significant and unavoidable long-term off-site aesthetic impacts due to development of the Dry Boat Storage building, which would partially obstruct views from surrounding roadways, public parks, and Doheny State Beach. There are no visual incompatibilities between the proposed Marina Improvement Project and the related Revitalization Project, as the Marina Improvement Project does not contribute new uses or structures to the Harbor. Therefore, the contribution of the proposed project to potential cumulative aesthetic impacts in the project area is considered less than significant.

The Doheny Hotel project is located on the west corner of Dana Point Harbor Drive and Pacific Coast Highway. This project would also add new hotel uses facing the Harbor from a bluff area. There are no visual incompatibilities between the proposed Marina Improvement Project and the proposed Doheny Hotel project, as the Marina Improvement Project does not contribute new uses or structures to the Harbor. Therefore, the contribution of the proposed project to potential cumulative aesthetic impacts in the project area is considered less than significant.

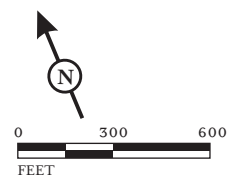
Implementation of the Marina Improvement Project would not have an adverse impact related to the lighting on surrounding Harbor land uses. Light and glare from the Marinas will be consistent with the proposed Lighting Plan as required in Mitigation Measure 4.8-3. The proposed project would not contribute to a cumulative adverse impact related to light and glare or shade and shadow because the proposed project would be consistent with the existing developed marine Harbor setting. Lighting for the project site and lighting for any present and future projects in the area must meet County requirements to minimize glare and spillover light, and must comply with Dana Point Harbor Revitalization Plan LUP Policy 8.4.1-9, requiring all exterior lighting to be designed and located to avoid intrusive effects on adjacent land uses. Therefore, the Marina Improvements Project would not contribute to a cumulatively significant impact related to light and glare in the project area.

4.8.8 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

No significant unavoidable adverse impacts related to aesthetics have been identified.



LSA



- Indicates Key View Locations

FIGURE 4.8-1

Dana Point Harbor Marina Improvement Project

Key View Locations



Key View 1: View of the project area from Cove Road.



Key View 2: View of the boats berthed in the West Marina from the boardwalk along the West Cove.

LSA

FIGURE 4.8-2

Dana Point Harbor Marina Improvement Project

Site Photos



Key View 3: View of the boats berthed in the East Marina from the East Cove along the boardwalk.



Key View 4: View of the OC Sailing and Events Center.



Key View 5: View of the Harbor Patrol Slips.

LSA

FIGURE 4.8-4

Dana Point Harbor Marina Improvement Project
Site Photos



Key View 6: View of the Marine Services docks.



Key View 7: View of the East Breakwater, location of the Temporary/Proposed Yacht Broker docks.

LSA

FIGURE 4.8-5

Dana Point Harbor Marina Improvement Project
Site Photos

4.9 RECREATION

This section provides the recreational setting of the project site, including surrounding recreation facilities and an analysis of potential impacts that project implementation may have on existing recreation facilities. This section also addresses the proposed impacts to recreation resources with consideration of local, State, and California Coastal Commission (CCC) policies.

4.9.1 EXISTING SETTING

Project Facilities

Dana Point Harbor (Harbor) offers recreational boaters, Orange County (County) residents, tourists, and others a number of recreational activity, retail shopping, and dining opportunities. The County was designated over 30 years ago by the Tidelands Act as the trustee of the Harbor for the people of the State of California. The County is responsible for the operation and maintenance of all facilities and property within the Harbor.

The project addresses recreation-related areas within the Harbor as follows: docks and slip facilities in the East and West Marinas, the OC Sailing and Events Center docks, guest docks, Harbor Patrol docks, commercial fishing docks, Marine Services docks, and sport fishing docks. Other project components include improved lighting on the docks and public access improvements, including gangways and docks in compliance with Americans with Disabilities Act (ADA) guidelines.

The West and East Marinas currently contain 2,409 slips, with an average length of 29.85 feet (ft). Due to changes in the boating needs, the proposed Marina Improvement Project includes adjustments to the number, size, and location of slips throughout the Marinas. At project completion the total number of boat slips under the County's preferred design may decrease from 2,409 to 2,293, resulting in a loss of approximately 116 slips. The average slip length would increase from 30 (29.85) ft to no greater than 32 ft.

Harborwide Recreational Boating Facilities

The Harbor is recognized as a regional recreation facility that offers a wide range of recreational opportunities to local and regional boaters, as well as the general public. The recreational activities and facilities are intended to meet the diverse interests of existing and future residents of the County, as well as visitors. In addition to the Harbor areas addressed in this Subsequent Environmental Impact Report (SEIR), the Harbor contains a variety of recreational facilities and activities within the Harbor itself, as indicated in the following list of amenities:

- A recently renovated public boat launch facility.
- Several locations in the Harbor provide boat and fishing charters, as well as boat rentals and personal watercraft, sailing instruction, cruises, whale-watching charters, and racing programs.

- Boater service buildings are located throughout the Harbor and provide restrooms, showers, laundry facilities for recreational boaters, and offices for marine/boating-related businesses.
- The OC Sailing and Events Center provides youth and adult programs in basic boating, rowing, canoeing, sailing, marine safety education, summer camps, and tidepool walks.
- Baby Beach is a popular beach location for picnics, beach activities, beginner sailing, kayaking, and private parties, with a launching area for nonmotorized craft.
- The Ocean Institute is an educational campus that is devoted to creating marine laboratory environments that serve as learning centers. Recreational uses within the Ocean Institute include the Old Cove Native Plant Preserve. The Institute offers Recreation Vehicle/Sea Explorer Cruises as educational cruises, the historic boat “Pilgrim” and “Spirit of Dana Point,” tidepool excursions, and other marine/coastal educational programs.
- A Marine Life Refuge is located at the far west side of Dana Point Harbor and can be reached by parking at the Ocean Institute lot and following the paved path to shore.
- Hiking walkways traverse the areas along the bottom of the bluffs and through the headlands, and walking trails are located around the perimeter of the marinas and throughout the Harbor. There are also small park areas for resting, barbequing, and picnicking in these passive recreation areas.
- A fishing pier is located between Baby Beach and the Ocean Institute.
- The Aventura Sailing Association located on the East Island offers sailing instruction in basic intermediate and advanced sailing as well as instruction in coastal navigation. Classes are open to the public, and membership is not required.

Doheny State Beach

Doheny State Beach, park, and campground are located immediately east of the east breakwater.

4.9.2 REGULATORY SETTING

California Coastal Act

The Recreation Policies contained in Article 3 of the California Coastal Act (Coastal Act) are intended to provide protection for suitable oceanfront land to be used for recreational purposes as well as maintaining upland areas to support coastal recreation uses, where feasible. The policies prioritize water-oriented recreational activities and encourage increased recreational boating use of coastal waters by developing support facilities. The policies also place priority on the use of private lands suitable for visitor-serving commercial recreational facilities designed to enhance public opportunities for coastal recreation over private residential, general industrial, or general commercial development, but not over agriculture or coastal-dependent industries.

Dana Point Harbor Revitalization Plan and District Regulations

The Dana Point Harbor District Regulations provide zoning designations for Dana Point Harbor and establish regulations for specific land use development projects. The District Regulations address division of the Dana Point Harbor into 12 planning areas and provide specific regulations, site

development standards, and discretionary permits applicable to all of these areas. The District regulations identify the Marina Improvement Project site within Land Use Planning Areas 8, 9, 10, 11, and 12, which are designated as M – Marina Waterways, Marine Services, Education Basin, and Harbor Entrance.

Implementation of the Dana Point Harbor Revitalization Plan required a series of subsequent approvals by the City of Dana Point and the CCC to modify existing regulatory documents, including the City's LCP. The Revitalization Plan and District Regulations therefore required an LCP Amendment (LCPA). The LCPA includes a Land Use Plan (LUP) component and an Implementation Plan (IP) component, which together establish zoning regulations and other implementing actions required for ongoing implementation of improvements and management of Dana Point Harbor pursuant to procedures set forth in the Coastal Act. The LUP component of the LCPA for the proposed Dana Point Harbor Revitalization Project was approved with suggested modifications by the CCC on October 8, 2009. The IP component was approved with suggested modifications by the CCC on January 12, 2011.

The Dana Point Revitalization Plan and Marina Improvement Project are consistent with the goals and provisions of the Coastal Act, including the policies related to recreational resources, which are further discussed below.

County of Orange General Plan

The County General Plan Recreation Element identifies the Harbor as a Regional Harbor. A Regional Harbor is defined as providing a variety of recreational facilities such as: boating, swimming, fishing, picnicking, play, and Marine preserve areas with facilities for both short- and long-term small craft anchorage. Such harbors are equipped with facilities for marine supply and aid and contain extensive commercial facilities of a tourist, recreational, and/or fishing nature.

The Recreation Element contains official policies pertaining to the acquisition, development, operation, maintenance, and financing of the County's varied recreation facilities, which are necessary to meet the County's existing and future recreation needs. The Master Plan includes goals, objectives, policies, and implementation programs to meet the changing recreation needs of the population and to provide recreation opportunities that satisfy those needs. The Recreation Element serves to guide and direct local government decision-making regarding recreation issues and facilitates the coordination of local, regional, State, and federal efforts.

City of Dana Point General Plan

Conservation Element/Open Space Element. The Conservation and Open Space Element addresses the preservation and use of the City's important natural resources and open space areas by setting relevant goals and policies to address City parks and recreation. The Plan is concerned with protecting and enhancing natural and open space resources. Detailed planning and operation of non-County parks and recreation facilities are the responsibility of the Dana Point Community Services and Parks Department.

4.9.3 METHODOLOGY

Impacts to recreational facilities in and around the Harbor were determined by comparing goals and policies adopted in the Coastal Act, the Dana Point Harbor Revitalization Plan Land Use Plan Policies and District Regulations, the County General Plan Recreation Element, and the City's General Plan Conservation and Open Space Element with the existing and proposed improvements within the Harbor. The proposed project plans and anticipated activities were analyzed in relation to CEQA guidelines.

4.9.4 THRESHOLDS OF SIGNIFICANCE

Recreation impacts are assessed based on the physical effects of the proposed project on existing recreation facilities in the project vicinity. In addition, the project is analyzed relative to any adverse physical effects on the environment that might result from the facilities identified in the proposed project. The impact significance criteria used for this analysis are based primarily on Appendix G of the State CEQA Guidelines and the County of Orange Local CEQA Procedures Manual (2000). The project may be considered to have a significant effect related to recreational resources if implementation would result in one of more of the following:

- 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
- Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment

4.9.5 OVERVIEW OF PROGRAM FEIR RECREATION ANALYSIS

Impacts. The Program FEIR concluded that the Revitalization Project will improve the recreational facilities within the project area, thereby reducing impacts on surrounding recreational facilities. However, the Program FEIR found that implementation of the Revitalization Project may increase the use of existing neighborhood and regional parks and other recreational facilities, thereby creating the potential for the physical deterioration of each facility. The Program FEIR determined the Revitalization Project to be consistent with applicable plans and policies within the County of Orange Master Plan of Regional Recreation Facilities (Master Plan). The Program FEIR analysis concluded that impacts to recreational resources would be less than significant with implementation of Project Design Features (PDFs), Standard Conditions of Approval (SCA), and Mitigation Measures (MMs).

Cumulatively, the Revitalization Project, along with other future development, may potentially increase the use of existing recreational areas and facilities, thereby creating the potential for physical deterioration. Additionally, cumulative development may include recreational facilities (e.g., Marina) that could have physical impacts on the environment. The Program FEIR concluded that cumulative recreation impacts would be less than significant with implementation of PDFs, SCAs, and MMs.

PDFs, SCAs, and MMs identified in the Program FEIR and applicable to the Marina Improvement Project are listed below. During the subsequent approval process for the LUP component of the LCPA, several of the listed PDFs, SCAs, and MMs were clarified and became LUP Policies within

the revised Dana Point Harbor Revitalization Plan LUP. Where applicable, the wording has been revised to be consistent with the approved LUP Policy, which is indicated in parenthesis.

Project Design Features (PDFs), Standard Conditions of Approval (SCA), and Mitigation Measures (MMs)

PDF 4.12-3 Maintain and enhance boating use through the provision of various amenities to the waterside areas, including but not limited to improved boater drop-off areas, designated boater parking, upgraded boater service buildings and restrooms and dinghy docks planned to be relocated adjacent to Planning Area 2. (LUP Policy 4.1.1-5)

Level of Significance after Mitigation. No unavoidable significant impacts related to Recreation were identified in the Program FEIR.

4.9.6 IMPACTS AND MITIGATION

This discussion focuses on potential recreational impact issues. Other issues related to and affecting adjacent and on-site recreational facilities are discussed in the applicable SEIR sections such as air quality, noise, traffic/parking, and aesthetics.

Less Than Significant Impacts

Project Vicinity Recreational Facilities. The proposed project would not substantially affect any of the existing off-site, adjacent recreational uses and activities such as surrounding City, County and State parks. In addition, the Marina Improvement project is not anticipated to increase employment nor increase the permanent population that would utilize the existing recreational facilities in the project vicinity.

The purpose of the proposed project is to renovate the existing Marina dock and slip facilities that have deteriorated over the many years since they were constructed. The improvements planned as part of the project would not cause a substantial physical deterioration of any nearby recreational facilities. Rather, the proposed project will renovate the existing Marina Basins within the Harbor and provide improved on-site recreational opportunities to better serve the public.

Implementation of the proposed project would not result in any physical change to area recreational uses. Significant impacts related to recreational facilities within the project vicinity will not occur, and no mitigation is required.

Harborwide Recreational Facilities. The proposed Marina waterside improvements are not anticipated to result in any substantial increased use of the Marina waterside facilities. Similarly, the proposed project is not anticipated to result in increased usage of other on-site recreational amenities or activities, including: guest docks, sport fishing facilities, and OC Sailing and Events Center docks. Temporary docks are included in the project in order to accommodate displaced boats during the

renovations. Implementation of the Marina Improvement Project will be phased over approximately eight years. This will provide for the continuation of recreational activities throughout the project and reduce construction impacts on recreational facilities and activities.

California Coastal Act Policies. The CCC retains jurisdiction over the Marina Improvement Project because the Marina Improvement Project area includes submerged lands. As discussed in the Program EIR, all waterside improvements must be approved as part of a Coastal Development Permit (CDP) issued by the CCC prior to project construction. An application for a CDP will be submitted following certification of the SEIR and approval of the Marina Improvement Project by the County. Therefore, the appropriate standard for review is consistency with the Chapter 3 policies of the California Coastal Act.

Table 4.1.A in Section 4.1 of this SEIR analyzes the project's consistency with applicable California Coastal Act policies. A brief discussion is included here as it relates specifically to recreation policies. Coastal Act Article 1 contains general policies and is not applicable to a recreation discussion. Similarly, Article 5 (Land Resources), Article 6 (Development), and Article 7 (Industrial Development) are not applicable to the recreational component of the project.

The following sections of the Coastal Act pertain to recreational facilities and are applicable to the proposed project:

Coastal Act Article 2, Public Access:

- *In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs, and the need to protect public rights, rights of private property owners, and natural resource areas from overuse. (Coastal Act Section 30210)*
- *Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred. (Coastal Act Section 30213)*

The remaining policies contained in Article 2 address new development, distribution of development, and implementation of public access policies, and are not applicable to the discussion of the project's potential recreational impacts.

Coastal Act Article 3, Recreation:

- *Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses. (Coastal Act Section 30220)*
- *Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area. (Coastal Act Section 30221)*

- *Increased recreational boating use of coastal waters shall be encouraged, in accordance with this division, by developing dry storage areas, increasing public launching facilities, providing additional berthing space in existing harbors, limiting non-water-dependent land uses that congest access corridors and preclude boating support facilities, providing harbors of refuge, and by providing for new boating facilities in natural harbors, new protected water areas, and in areas dredged from dry land. (Coastal Act Section 30224)*

The remaining policies contained in Article 3 address new development, coastal aquaculture, and upland areas, and are not applicable to the discussion of the project's potential recreational impacts.

Coastal Act, Article 4, Marine Environment:

- *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.(Coastal Act Section 30230)*
- *Facilities serving the commercial fishing and recreational boating industries shall be protected and, where feasible, upgraded. Existing commercial fishing and recreational boating harbor space shall not be reduced unless the demand for those facilities no longer exists or adequate substitute space has been provided. Proposed recreational boating facilities shall, where feasible, be designed and located in such a fashion as not to interfere with the needs of the commercial fishing industry. (Coastal Act Section 30234)*
- *The economic, commercial, and recreational importance of fishing activities shall be recognized and protected. (Coastal Act Section 30234.5)*

The remaining policies contained in Article 4 address biological productivity, water quality, hazardous materials, diking and dredging, alteration of the natural shoreline, water supply, and flood control, and are not applicable to the discussion of the project's potential recreational impacts.

As discussed in detail in Section 4.1, the proposed project is consistent with Coastal Act Sections regarding recreation resources. Proposed project elements that ensure compatibility with Coastal Act policies include the following:

- The proposed project provides for enhanced public access through rehabilitation of the Marina's access facilities, including docks and gangways. The project includes installation of ADA-compliant facilities, including ramp access to the docks, thereby increasing public access and improving public safety (Coastal Act Section 30224).

- The proposed project would enhance the existing water-oriented recreational activities of the Harbor and Marina facilities. The proposed project, which is adjacent to the ocean and oceanfront land, would enhance the existing recreational uses of the Harbor and Marina (Coastal Act Section 30224).
- The proposed project would renovate the existing Marina facilities and enhance the existing recreational boating facilities within the Harbor. The project does not involve any changes in land use or other issues that would preclude boating (Coastal Act Section 30221).
- The proposed project design would accommodate changes in the needs of boaters, and increased recreational opportunities because the renovated facilities would facilitate continued public use within the Coastal Zone (Coastal Act Sections 30221 and 30224).
- The Marina Improvement Project includes renovation to the commercial fishing dock area, thereby maintaining continued water-dependent business opportunities in the Harbor (Coastal Act Sections 30234 and 30234.5).

As indicated above, the policies within Chapter 3 of the Coastal Act are intended to provide protection for suitable oceanfront lands to be used for water-oriented and recreational purposes. The proposed project is consistent with the intent of these policies. The project consists of the improvement of the existing water-oriented recreational and visitor serving facilities within the Harbor. In addition, the Marina Improvement Project would further increase public recreational opportunities by providing facilities that satisfy ADA requirements, and impacts are considered less than significant. No mitigation measures are required.

Dana Point Harbor Revitalization Plan and District Regulations. The proposed Marina Improvement Project was contemplated as part of the Dana Point Harbor Revitalization Plan and the impacts are therefore considered less than significant, and no mitigation measures are required. Further, the proposed project has been designed to be consistent with the approved LUP component of the LCPA for the Dana Point Harbor Revitalization Project.

County of Orange General Plan. The following goals contained in the Orange County General Plan relate to the project site:

***Goal 1:** To provide a regional recreation network to meet the regional recreation needs of existing and future residents of the entire family.*

***Goal 2:** To develop regional recreation facility park sites with recreation facilities designed to respond to the diverse regional recreation interests of the citizens of the County.*

The proposed project would renovate the existing Marina facilities, thereby enhancing the existing recreational boating facilities within the Harbor to continue meeting the recreation needs of existing and future residents. The proposed project does not change the existing types of recreational and/or open space on site. The existing Marina-related recreation uses have been ongoing at the site for nearly 40 years, and the proposed project would therefore be consistent with the existing marine and water-related recreational uses on site. In addition, the project encourages boating use by providing

upgraded ADA facilities in response to the diverse regional recreation interests of the citizens of the County. Therefore, the proposed project is considered consistent with the County General Plan goals related to recreation, and impacts are considered less than significant. No mitigation measures are required.

City of Dana Point General Plan, Conservation Element/Open Space Element. The following policies relate to the Dana Point Harbor Marina Improvement Project:

Policy 7.1: Encourage the provision of a range of recreational facilities and programs to meet the needs of City residents and visitors.

Policy 7.3: Coordinate park and open space planning with the appropriate State and County agencies.

The proposed project includes renovations to existing facilities within the Marina and does not remove or preclude any existing recreational facility or affect the range of available recreational activities currently available in the Marina. In addition, the project ensures that public access to low-cost recreational facilities is protected and enhanced. It is the County's responsibility to provide long-term recreational uses to the Community within the Harbor and to complement similar facilities along the County coastline. The project includes the renovation of County recreation facilities within the City boundaries. Continued coordination between the County and the City will ensure that the recreational needs of residents and visitors are met.

Because the proposed project enhances existing recreational facilities and does not remove or otherwise affect any of the Harbor's recreational facilities, the project will have no long-term negative impact on the public's use or access to recreation facilities in the area, including Doheny State Park. Therefore, the proposed project is considered consistent with the Dana Point General Plan recreation policies listed above, and impacts are considered less than significant. No mitigation measures are required.

Potentially Significant Impacts

No potentially significant impacts were identified, and no mitigation is required.

4.9.7 CUMULATIVE IMPACTS

There are no recreational marinas in the immediate vicinity that would be considered to be within the cumulative study area for recreational impacts. Implementation of the proposed project in concert with the other Harbor Revitalization Projects is intended to increase lifespan and use of the recreational activities and associated facilities within Dana Point Harbor. As noted, this is the intent of the proposed project and would be considered a beneficial impact. The potential loss of 155 slips has been incorporated into the LUP component of the LCPA and effectively approved by the CCC as part of the LCPA process and is therefore, not considered cumulatively significant. In addition, the Dry Boat Storage building will provide 400 boat storage spaces. Therefore, the proposed project would not cumulatively, along with other projects in the vicinity, result in increased demand for

recreational facilities or require development or expansion of additional recreational facilities. Hence, cumulative impacts associated with recreation would be considered less than significant.

4.9.8 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

No significant unavoidable adverse impacts have been identified.

4.10 HAZARDS AND HAZARDOUS MATERIALS

The hazards and hazardous materials analysis in this section is based on the following project-specific technical reports: Environmental First Search Report (FirstSearch) (Track Info Services, LLC, June 12, 2007) and Appendix I of the Dana Point Harbor Revitalization Project Program Final Environmental Impact Report (FEIR), Preliminary Hazardous Materials Assessment. The findings of this report are summarized. Copies of these reports are available for review at OC Dana Point Harbor offices.

This section describes known and potentially hazardous materials conditions in the vicinity of the project area, related potentially significant adverse public health impacts anticipated as a result of the proposed project, and includes mitigation measures (MM) for the impacts as appropriate. This section also addresses the proposed impacts with consideration of local, State, and federal regulations and policies and provides recommended MM pursuant to California Environmental Quality Act (CEQA).

4.10.1 EXISTING ENVIRONMENTAL SETTING

Project Site Conditions

The majority of the structures on site date to the late 1960s/early 1970s. The West and East Marinas provide accommodation for 2,409 boat slips with an average length of 29.85 feet (ft). The Harbor offers recreational boaters, County residents, tourists, and others a number of recreational activities, retail shopping, and dining opportunities. Boat refueling occurs at one location within the Harbor, the Dana Point Fuel Dock, located in Planning Area 11.

Marina-related uses may store and use hazardous materials such as cleaning agents, solvents, oils, and fuel. The storage, use, transport, and disposal of such hazardous materials are subject to local, State, and federal regulations. Review of available databases did not identify any environmental concerns on site; however, some environmental concerns have been found on the adjacent land uses.

All boats potentially carry solvents, paints, cleaners, oils, and fuel. In addition, boats may include bottom treatments and/or paints that contain heavy metals or other compounds that, when released into the water, provide a source of contamination; this occurs primarily at the time of repainting, bottom cleaning, or repair. In addition, the shipyard located in Planning Area 11 performs boat maintenance and repair services that could potentially release contaminants into the water.

Waste Classification and Disposal Hazardous materials and wastes are defined in the California Code of Regulations, Title 22, Sections 66261.1 through 66261.126. In accordance with these regulations, a waste is classified as hazardous if it exhibits ignitability, corrosivity, reactivity, or toxicity. Section 66261.24 states that a waste is considered toxic if: (1) it contains certain metals or organic substances at soluble concentrations greater than federal regulatory levels using a test method called the toxicity characteristic leaching procedure (TCLP); (2) it contains total concentrations of

certain substances greater than the total threshold limit concentration (TTLC) or soluble concentrations greater than the soluble threshold limit concentration (STLC); (3) it contains specified carcinogenic substances at a single or combined concentration of 0.001 percent; or (4) testing indicates toxicity greater than the specified criteria.

Sediment Quality in the Marinas

As discussed in Section 4.3, Hydrology and Water Quality, a sediment analysis not associated with this project was conducted for the Harbor maintenance dredging.¹ The analysis divided the Harbor into three testing areas based on sediment grain size characteristics and geographic location: Area A, consisting of the West Anchorage and Main Channel West; Area B, consisting of Baby Beach, the West Turning Basin, the West Basin Channel, and Pilgrim Moorage; and Area C, consisting of the Boat Launch Ramp Basin, East Basin Channel, and East Basin Outfall. The sediment analysis shows that sediments from Area A contain relatively low values of contaminants; contaminant concentrations in Area A sediments are similar to or only slightly elevated above contaminant concentrations in the Capistrano and Baby Beach reference samples. Polycyclic aromatic hydrocarbon (PAH) concentrations in Area A samples range from 4 to 100 times higher than the reference samples, but are still considered relatively low.

Contaminants were not found in Area B in excess of Effects Range Low (ERL) screening values, while several contaminants (copper, total chlordane compounds, acenaphthene, benzo(a)pyrene, benzo(a)anthracene, total high molecular weight PAHs, and total PAHs) were found in Area C in excess of lower effects-based screening values. However, the study concluded that overall sediment contamination in Areas B and C will most likely not cause toxicity to benthic organisms. The bulk of the observed contamination in Area C can be attributed to the shoaled area in front of the 60-inch storm water outfall entering the East Basin. Therefore, sediments in the Harbor Marinas, while showing low levels of contamination, are not considered hazardous material.

Surrounding Conditions

Multiple structures and a variety of land uses surround the West and East Marinas. To the north of the Marinas are the landside structures occupied by commercial uses, including restaurants, small Harbor tourist shops, and offices, as well as recreational and marine service uses. Bordering the south side of the Marinas is the Island, separating the West and East Marina from the Outer Channel. The Island is comprised of boat slips, parking lots, boater service buildings, yacht clubs, a restaurant, Harbor Patrol offices, and a passive recreational grass and walkway area. The structures within the Harbor are generally situated on concrete foundations and are of wood frame construction with stucco, concrete block, or wood siding. Some of the structures and associated areas are separated by wood, block, or chain-link fencing.

The OC Sailing and Event Center is located in the western portion of the West Marina on the cove side. Marine Services, including sport fishing docks, a shipyard, fuel dock, and boat maintenance areas are located in the eastern portion of the Harbor on the cove side. These marine-related uses have the potential to contribute to the release of hazardous substances.

¹ *Dredge Material Evaluation, Dana Point Harbor Maintenance Dredging*, Moffatt & Nichol, March 2007.

No physical presence of hazardous materials on adjacent properties was visibly evident during a site inspection conducted by LSA on April 10, 2007. No unusual or suspicious materials handling or storage practices were observed with respect to adjacent properties. However, mixed commercial and marine-related uses are located adjacent to the site's northern and northeast boundaries. The surrounding properties contain sites where hazardous materials are generated, stored, handled, and/or treated, including sites of existing and past land uses that used, stored, and disposed of hazardous materials and wastes such as gasoline service stations and boat repair facilities. Additionally, several off-site properties have been listed for activities associated with hazardous materials (transferring, storing, subsurface releases, remediation, etc.).

There are also ongoing boat-related maintenance practices that may contribute either indirectly or directly to the potential for a spot and/or temporary hazardous material condition within the Harbor, such as:

- Oil and fuel handling
- Boat cleaning, painting, and maintenance
- Underground storage tanks
- Hazardous material disposal stations

Contaminated Sites from Prior Known Hazardous Releases

The Phase 1 Environmental Site Assessment (ESA) included a records search of various databases maintained by federal and State agencies regarding hazardous materials and wastes. The findings of this records search, as well as the First Search database search completed on June 12, 2007, are summarized below in Table 4.10.A. According to the FirstSearch Environmental Database, there were a total of nine release sites within 0.25 mile of the project site that may potentially impact soil or groundwater resources underneath the project site. The Emergency Response Notification System (ERNS) database identified one listing, and the Leaking Underground Storage Tank (LUST) database identified eight listings.

Eight of the nine total release sites are comprised of LUSTs. Out of the eight LUST sites, two sites have been identified multiple times. These sites include the Dana Point Harbor Patrol, identified twice at the same address, and the Dana Point Marina Company, listed twice under two different addresses. The remaining five sites are identified as Dana Point Fuel Dock, Dana West Marina, BMS Steam Cleaning Service, Embarcadero Marina, and Arco Station No. 447.

Seven of the eight sites listed in the LUST database have received closure letters from the Regional Water Quality Control Board (RWQCB), indicating that the existing soil and/or other groundwater contamination do not pose a significant enough risk to the underlying groundwater resources to require further remediation. Therefore, these seven sites are unlikely to pose a concern to the project site.

Table 4.10.A: Known or Suspected Hazardous Material Releases within the Project Site

Site Number	Case Type	Address, Distance from Subject Site	Tenant	Status
1	LUST	34661 Puerto Place, Dana Point, located at the project site	Dana Point Fuel Dock	A LUST containing diesel fuel was discovered on February 21, 1995. The contamination affected surface water only. The case was closed on December 18, 2002.
3	LUST	25005 Dana Drive, Dana Point, (0.02 mi) southwest of the project site	Dana Point Harbor Patrol	A LUST containing gasoline was discovered on October 1, 1996. The contamination affected surface water only. The case was closed on May 3, 2000.
3	LUST	25005 Dana Drive, (0.02 mi) southwest of the project site	Dana Point Marina Harbor Patrol	A LUST containing diesel fuel was discovered on May 16, 1990. The contamination affected soils only. The case was closed on December 9, 1992.
4	LUST	24705 Dana Drive, (0.02 mi) northeast of the project site	Dana Point Marina Company	A LUST containing waste oil was discovered on October 14, 1993. The contamination affected soil only. The case was closed on August 1, 1995.
5	LUST	24501 Dana Drive, (0.05 mi) northeast of the project site	Dana West Marina	A LUST containing waste oil was discovered on February 26, 1996. The contamination affected soil only. The case was closed on October 28, 1996.
6	ERNS	34451 Ensenada Place, (0.05 mi) northwest of the project site	BMS Steam Cleaning Service	There were no details available for this site. The status is identified as "unknown."
7	LUST	34553 Casitas Place, Dana Point, (0.07 mi) northeast of the project site	Dana Point Marina Company	A LUST containing waste oil was discovered on October 14, 1993. The contamination affected soil only. The case was closed on August 1, 1995.
8	LUST	34512 Embarcadero Place, (0.13 mi) northwest of the project site	Embarcadero Marina	A LUST containing gasoline was discovered on December 16, 1996. The contamination affected surface water only. The case was closed on September 8, 2000.
11	LUST	34342 Pacific Coast Highway, (0.25 mi) northeast of the project site	Arco No. 447	A LUST containing gasoline was discovered on January 17, 1995. The contamination affected soil and groundwater and began undergoing remedial action on February 5, 1997.

ERNS = Emergency Response Notification System

LUST = leaking underground storage tank

mi = mile

The remaining LUST site is identified as Arco No. 447 and is located approximately 0.25 mile northeast of the project site. As of February 5, 1997, the site had undergone remedial action. Although no additional details are available for this listing, no significant ground disturbance is anticipated in the immediate vicinity of the listed site. Therefore, this site is unlikely to pose a potential environmental concern to construction activities.

The remaining ERNS listed site is identified as BMS Steam Cleaning Service and is located approximately 0.05 mile northwest of the project site on Ensenada Place. Although no details are available for this listing, no ground disturbance is anticipated in the immediate vicinity of the listed site. Therefore, this listing is unlikely to pose a potential environmental concern to construction activities.

Underground Storage Tanks

In 2005, a Phase I ESA inspection was conducted by RBF Consulting, Inc. (RBF) within the perimeter of the project site for the potential presence of the fill pipes, vent pipes, areas of abnormal or heavy staining, manways, manholes, access covers, concrete pads not homogenous with surrounding surfaces, concrete build-up areas potentially indicating pump islands, abandoned pumping equipment, or fuel pumps. Evidence of on-site underground storage tanks (USTs) were noted through visual observations and governmental records searched.

According to the Phase I ESA, visible evidence indicating the presence of USTs was observed during the site reconnaissance by the presence of manholes and fuel pumps on adjacent properties near the East Marina. Existing fuel pumps were observed on the adjoining docks. Evidence of an UST was observed near the Harbor Patrol office. However, there were no indications of leaks at the time of the site visit.

During the Phase I ESA site reconnaissance, visible evidence of USTs (primarily manholes and fuel pumps at the terminus of Puerto Place) was observed in the north-northeast area of the East Marina. Active fuel pumps supplied by USTs and several 55-gallon drums were also observed in this general area. These drums appeared to contain waste oil and appear to be properly maintained; no odor or staining was observed.

Although the Phase I ESA has indicated that there are potential environmental concerns associated with the presence of USTs in the surrounding area, no significant ground disturbance is anticipated for the proposed project. Therefore, it is unlikely that any impacted soils or groundwater resulting from LUSTs would be encountered during proposed project activities.

According to the Phase I ESA completed by RBF, evidence to support the existence of a recognized environmental condition (REC) on site was not visible during the review of the historical topographic maps and aerial photographs.

Asbestos

The majority of the existing structures in the Harbor were built prior to 1978. Therefore, the potential for the asbestos-containing materials (ACMs) to be found on or adjacent to the site is very likely.

However, disturbance to or demolition of the existing structures is not included in the proposed Marina Improvement Project. Therefore, it is unlikely that any impacts associated with the exposure to ACMs will occur during construction activities.

Lead and Polychlorinated Biphenyls (PCBs)

The majority of the existing structures present on or adjacent to the project site were built prior to 1978; therefore, the potential for lead-based paints (LBP) to be found on site is considered likely. It is likely that LBP is present underneath more recent layers of paint, and there is a potential for LBP to be present in the soil immediately surrounding the existing structures. However, the disturbance or demolition of existing structures is not anticipated for the proposed project. Therefore, it is unlikely that any impacts associated with the exposure to LBP will occur during proposed project activities.

Additionally, some marine-related uses (boat maintenance) that may contain PCBs are located on or within the immediate vicinity of the project site. Properties associated with boat maintenance and repair may use hydraulic lifts and associated fluids, which are susceptible to subsurface leakages; if so, they may result in health impacts. If old electrical transformers and light ballasts remain on site, they may contain PCBs. Pole-mounted transformers and hydraulic lifts associated with boat maintenance and repair facilities were observed on site during the Phase I site reconnaissance. However, no visible signs of staining or leakage from transformers were observed on-site. The primary concern with hydraulic lifts is the potential for subsurface leakages of hydraulic fluids from the lift's piston. However, the disturbance of these existing pole-mounted transformers and hydraulic lifts is not anticipated for the proposed project. Therefore, it is unlikely that any impacts associated with the potential release of PCBs will occur during proposed project activities.

4.10.2 REGULATORY SETTING

Federal regulations related to hazardous materials and wastes include:

- Occupational Safety and Health, Title 29, Code of Federal Regulations (CFR), Regulations for General Industry (Part 1910) and Construction (Part 1926)
- United States Environmental Protection Agency (EPA), Title 40 CFR, National Emissions Standard for Hazardous Air Pollutants (NESHAPS), Part 61, Subpart A
- EPA, Title 40 CFR 700–799 (Toxic Substances Control Act)
- United States Department of Transportation (USDOT) Regulations, Title 49 CFR

State and local regulations related to hazardous materials and wastes include:

- Title 8 California Code of Regulations (CCR), California Occupational Safety and Health Administration (Cal-OSHA) Regulations, Chapter 4, Division of Industrial Relations, General Industry Safety Orders and Construction Safety Orders
- Title 22 CCR, Social Security, Division 2, Department of Social Services—Department of Health Services, and Division 4, Environmental Health

- Title 17 CCR, Public Health, Division 1, State Department of Health Services, Chapter 6—Lead Poisoning Prevention Program
- South Coast Air Quality Management District (SCAQMD), Rules and Regulations

Asbestos-Containing Materials

The SCAQMD and the Orange County Department of Health Services (DHS) are the enforcement agencies for the project site. No project facilities potentially include asbestos, as no existing structures are to be altered or removed with this project. Therefore, there is no potential effect on the environment.

Lead

Lead has been used in commercial, residential, roadway, and ceramic paint products; in electric batteries and other devices; as a gasoline additive; for weighting, in gunshot; and for other purposes. It is recognized as toxic to human health and the environment and is widely regulated in the United States. Structures constructed prior to 1978 are presumed to contain LBP unless proven otherwise, although buildings constructed after 1978 may also contain LBP. Lead is regulated as a criteria pollutant under the Clean Air Act (CAA), which has led to its elimination from automotive fuels. Aerially deposited lead (ADL) from past use of leaded fuels is a concern in unpaved areas adjacent to highly traveled roads. Lead is also regulated as a toxic pollutant under the federal Clean Water Act (CWA) and the Porter-Cologne Water Quality Control Act as well as under the federal and California safe drinking water acts.

Release of LBP into the environment is a violation of several laws, including OSHA, Resource Conservation and Recovery Act (RCRA), the CAA, and the CWA. The Phase I ESA identified suspect LBP structures on site. For the purposes of this analysis, it is assumed that LBP is present on site.

The Orange County DHS and SCAQMD are the enforcement agencies for the anticipated project-related activities.

Emergency Response Plan

The City's Emergency Plan designates procedures that will be followed in responding to anticipated emergencies. The Plan describes how the City will prepare for, respond to, and recover from an emergency or disaster. The Plan is consistent with State and federal guidelines regarding disaster planning. Additionally, the City maintains an Emergency Operations Center (EOC) and communications equipment to coordinate City services during local emergencies.

The Orange County and Operational Area EOC is a unit responsible for managing and coordinating disaster response and recovery for County agencies, departments, and constituents. Pacific Coast Highway, Dana Point Harbor Drive, and Street of the Golden Lantern are designated as evacuation routes. The Dana Point Harbor Marina Improvement Project area is accessed via Dana Point Harbor

Drive, which can be reached via Pacific Coast Highway, Street of the Golden Lantern, or in a boat via the Pacific Ocean.

Clean Marina Toolkit Programs

The *California Clean Marina Toolkit* (Toolkit), which was produced by the California Coastal Commission, is a guidebook designed to help a Marina operator manage and operate a “clean Marina.” A “clean Marina” complies with environmental laws and regulations and also strives to maintain a healthy, pollution-free environment by providing services that support clean boating, educating customers about clean boating practices, and training staff to be partners in the clean Marina program. The Toolkit recommends practices for addressing particular pollution problems and also provides guidelines to assist with educating Marina customers to be partners in clean Marina programs. The Toolkit also provides information of diverse Marinas in California and what they have done to operate as clean Marinas as well as sources for additional information.

The Dana Point Marina (East Basin) and the Dana Point West Marina (West Basin) were both certified as “Clean Marinas” on April 19, 2006. To obtain this designation, the Marinas implemented a number of best management practices (BMPs) that help reduce water pollution. Examples of BMPs implemented at Dana Point Harbor include good boat-keeping practices, education, signs, notices, Marina Rules and Regulations, waste receptacles, bilge pad exchange programs, and spill prevention and rapid clean-up plans. The program requires Certified Marinas to follow guidelines for Marina activities including, but not limited to, emergencies, topside boat maintenance and cleaning, and underwater boat hull cleaning. The Dana Point Harbor Marina rules and policies prohibit certain activities which could contribute to poor water quality. This includes prohibiting rebuilding, hull painting, and other major repairs, as well as restrictions for sanding, painting, and the use of chemicals on a boat while the boat is moored at the Marina. Owners and contractors are required to follow policies that specify proper methods of in-water boat maintenance and require contractors to be registered and carry identification for any in-water repairs or maintenance services.

4.10.3 METHODOLOGY

Project impacts related to hazards and hazardous materials were evaluated based on the existing and proposed land uses in the proposed project area and the potential to expose sensitive receptors, including nearby residents and construction workers, as well as the surrounding environment, to hazards or hazardous materials during construction activities and after construction of the Marina. A Phase I ESA and Basic Site Reconnaissance and Records Search (Environmental First Search Report, Track Info Services, June 12, 2007) were prepared to determine any existing hazardous waste release issues related to former or current operations within the project limits and in the surrounding vicinity.

On April 10, 2007, LSA conducted a site visit, which included a visual observation of Dana Point Harbor and surrounding properties. The objective of the site reconnaissance was to identify RECs, including hazardous substances and petroleum products on the property (including soils, surface water, and groundwater) and with immediately adjacent properties. Multiple structures were observed within the boundaries of the project site. On-site structures were utilized for commercial uses, storage, and as maintenance facilities. The structures appeared to be in fair to good condition; were constructed of wood frame with either stucco, brick, or wood siding; and are all situated on concrete

foundations. Many of the structures and associated lots are separated by concrete block, wood or chain-link fencing.

Based on the findings of the screening, impacts were evaluated and MM were developed to address recognized environmental concerns as well as use and disposal of hazardous materials.

4.10.4 THRESHOLDS OF SIGNIFICANCE

The impact significance criteria used for this analysis are based primarily on Appendix G of the State CEQA Guidelines and the County of Orange Local CEQA Procedures Manual (2000). The project may be considered to have a significant effect related to hazards and hazardous materials if implementation would result in one of more of the following:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials
- 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
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school
- 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, create a significant hazard to the public or the environment
- For a project located within an airport land use plan or, where such plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?
- For a project within the vicinity of private airstrip, would the project result in a safety hazard for people residing or working in the project area
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan
- Expose people or structures to a significant risk or loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands
- Include a new or retrofitted storm water treatment control Best Management Practice (BMP), (e.g. water quality treatment basin, constructed treatment wetlands), the operation of which could result in significant environmental effects (e.g. increased vectors and odors)

4.10.5 OVERVIEW OF PROGRAM FEIR HAZARDS AND HAZARDOUS MATERIALS ANALYSIS

Impacts. The Program FEIR concluded that the Revitalization Project implementation would have the potential to create a significant hazard to the public or the environment related to hazardous materials and would potentially create odors or foster disease vectors associated with implementation

of BMPs. Additionally, the Program FEIR stated that the Revitalization Project has the potential to create a significant hazard to the public or the environment through the release of ACMs into the environment, primarily during the demolition of landside structures, and would have the potential to create a significant hazard to the public or the environment through the release of LBP into the environment during demolition of older structures. The Program FEIR further found that the Revitalization Project could physically interfere with an adopted emergency response plan or emergency evacuation plan. However, the Program FEIR analysis concluded that with implementation of Project Design Features (PDFs), Standard Conditions of Approval (SCA), and MMs, no significant impacts are anticipated.

Cumulatively, the Revitalization Project along with other future development could increase exposure of the public to hazardous substances. However, the Program FEIR determined that compliance with federal, State, and local requirements on a project-by-project basis will reduce cumulative impacts to a less than significant level.

PDFs, SCAs, and MMs identified in the Program FEIR and applicable to the Marina Improvement Project are listed below. During the subsequent approval process for the Land Use Plan (LUP) component of the LCPA, several of the listed PDFs, SCAs, and MMs were clarified and LUP Policies within the revised Dana Point Harbor Revitalization Plan LUP. Where applicable, the wording has been revised to be consistent with the approved LUP Policy, which is indicated in parenthesis.

Project Design Features (PDFs), Standard Conditions of Approval (SCA), and Mitigation Measures (MMs)

MM 4.8-4 Any transformers to be relocated during site construction/demolition should be conducted under the purview of the local utility purveyor to identify property handling procedures regarding potential PCBs.

MM 4.8-9 If unknown wastes or suspect materials are discovered during construction that the contractor believes may be or contain hazardous waste or materials, the contractor shall:

- Immediately stop work in the vicinity of the suspected contaminant, and remove workers and the public from the area;
- Notify the Project Engineer of the implementing agency;
- Secure the area as directed by the Project Engineer; and
- Notify the implementing agency's hazardous waste/materials coordinator.

MM 4.8-10 OC Dana Point Harbor or its designee shall store, manifest, transport, and dispose of all on-site generated waste that meets hazardous waste criteria in accordance with California Code of Regulations Title 22 and in a manner to the satisfaction of the Manager, HCA/Hazardous Materials Program. The County shall keep storage, transportation, and disposal records on site and open for inspection to any government agency upon request.

MM 4.8-18 All finishing products used on site shall meet applicable SCAQMD regulations for solvent content, as required by SCAQMD Rules 1102 and 1171.

MM 4.8-19 All uses of solvents shall be conducted in adherence to California OSHA regulations for exposure of workers during construction activities as required by CCR Title 8.

Level of Significance after Mitigation. No unavoidable significant impacts related to hazards and hazardous materials were identified in the Program FEIR.

4.10.6 IMPACTS AND MITIGATION

The Initial Study contained in Appendix A determined that the proposed project would not have a significant impact with respect to hazardous emissions pursuant to Government Code Section 65962.5; is not within the vicinity of an airport environs land use plan, private helipad, or airstrip; would not interfere with an emergency response plan; or expose people to wild land fires. The project site was not listed on the government database for use or release of hazardous materials. Therefore, these issues are not addressed further in this SEIR.

Less Than Significant Impacts

Hazardous Materials During Construction. Construction of the proposed project would involve the routine use, handling, storage, transport, and disposal of hazardous materials such as fuels, paints, and solvents, consistent with applicable federal, State, and local regulations. In compliance with existing federal, State, and local regulations, the amounts of these materials present during construction would be limited and would not pose a significant adverse hazard to workers or the environment. The construction contractor would be required to implement standard BMPs regarding hazardous materials storage, handling, and disposal during construction in compliance with the State General Permit to protect water quality.

As previously discussed, the project site was developed over 30 years ago, and existing buildings and other structures may be constructed of materials that contain ACMs, LBP, PCBs, and/or other hazardous materials. However, the proposed project does not include the removal of any building structures and would therefore not result in hazards related to the removal or handling of such materials as asbestos and LBP. In addition, the docks, pilings and related systems are not anticipated to contain hazardous materials that pose any safety concerns. Impacts related to the removal of such hazardous materials during construction of the Marinas are therefore considered less than significant, and no mitigation is required.

Hazardous Materials during Operation. The operation of the Marina as proposed would involve the use of small amounts of hazardous materials typical of such uses. The handling, use, storage, transport, and disposal of small amounts of substances used for boat cleaning and maintenance such as cleaners, solvents, and paints are subject to existing applicable federal, State, and local regulations. Because the uses on site remain the same as under current conditions, it can be assumed that these materials are already present on site and that their use will continue. Substantial changes to the

operational characteristics and types of potentially hazardous materials present on site are not anticipated, and no mitigation is required.

Operational activities within specific areas of the Harbor may change due to reconfiguration of docks and the availability of slightly longer slips. Although slips in the East and West Basins may be slightly larger on average, the regulations and BMPs related to water quality and boat maintenance activities will not change. As stated above, the Dana Point Harbor Marina rules and policies, as well as the requirements to retain the Clean Marina Certification, prohibit certain activities that could contribute to poor water quality. This includes prohibiting boat and engine rebuilding, hull painting, and other major repairs, as well as restrictions for sanding, painting, and the use of chemicals on a boat while the boat is moored at the Marina. Owners and contractors are required to follow policies that specify proper methods of in-water boat maintenance and require contractors to be registered and carry identification for any in-water repairs or maintenance services. Therefore, impacts related to the use of hazardous materials under operational conditions in the East and West Basins are considered less than significant, and no mitigation is required.

Changes to operations at the Embarcadero/Dry Dock Storage Staging dock area will occur. These docks will be located adjacent to the future Dry Boat Storage building in the basin area adjacent to the boat launch ramp. The Dry Boat Storage building is a part of the landside improvements addressed in the previously Certified Program FEIR. The Dry Boat Storage building will be supported on piles and will extend out over portions of new docks where boats will wait for staging before and after release from dry storage. Operations related to the Embarcadero Marina are anticipated to remain similar to existing conditions, with boat rentals, sailing lessons, and operation of one hoist for boats stored in surface spaces or on trailers. However, these docks will also provide dock space for staging boats as they are taken in and out of the storage facility. The impacts related to hazards and hazardous materials remain similar to existing conditions due to the existing Harbor regulations and BMPs related to water quality and boat maintenance activities. No increased risk of spill or deliberate emission of contaminants is anticipated.

In addition to changes at the Embarcadero/Dry Dock Storage Staging docks, the Marine Services docks currently contain 1,190 linear feet (lf) of dock space, which will be reduced to 896 lf with project implementation. The shipyard currently utilizes approximately 560 lf dock space for uses directly related to shipyard operations. The remainder of the dock space is used for monthly rental purposes (e.g. Jet Ski rentals). The possible future reduction of dock space at the Marine Services docks will proportionally reduce the amount of boating activity at this location. However, the impacts related to hazards and hazardous materials remain similar to existing conditions due to the existing Harbor regulations and BMPs related to water quality and boat maintenance activities. No increased risk of spill or deliberate emission of contaminants is anticipated.

As stated above, the impacts related to hazards and hazardous materials for all areas within the Harbor, including the Marine Services docks, remain similar to existing conditions subject to the Harbor regulations and BMPs related to water quality and boat maintenance activities. The Certified Clean Marina guidelines for Marina activities are anticipated to remain effective and will continue to guide public and commercial boater emergencies, topside boat maintenance and cleaning, and underwater boat hull cleaning. This includes prohibiting boat and engine rebuilding, hull painting, and other major repairs, as well as restrictions for sanding, painting, and the use of chemicals on a boat while the boat is berthed at the Marina. Owners and contractors are required to follow policies that specify proper methods of in-water boat maintenance and require contractors to be registered and carry identification for any in-water repairs

or maintenance services. Therefore, impacts related to the use of such hazardous materials during operations within any Harbor area are considered less than significant, and no mitigation is required.

The proposed Dana Point Harbor Marina Improvement Project would not produce hazardous emissions or involve the handling of hazardous or acutely hazardous materials, substances, or waste. In addition, these activities would not occur within 0.25 mile of an existing or proposed school. Therefore, there would be no significant adverse hazard to the public or the environment through the routine handling, storage, transport, use, or disposal of hazardous materials and/or wastes as a result of the proposed project.

Because the proposed project uses would not store, use, or generate large quantities of hazardous materials, the proposed project would not create a significant hazard to the public or to the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

Potentially Significant Impacts

Hazardous Materials during Construction. The proposed renovations may pose a potential concern through the release of potentially hazardous materials during disturbance of any soils potentially contaminated by hazardous materials.

The Phase I identified one LUST-listed site and one ERNS-listed site that have not received closure letters from the RWQCB, indicating that the existing soil and/or other groundwater contamination could potentially pose a significant risk to the underlying groundwater resources. These two sites could have the potential to affect the project site through underground leaks and subsequent migration of contaminated groundwater. The LUST site is identified as Arco No. 447 and is located approximately 0.25 mile northeast of the project site. As of February 5, 1997, the site had undergone remedial action, but there is no closure letter on file. The ERNS-listed site is identified as BMS Steam Cleaning Service and is located approximately 0.05 mile northwest of the project site on Ensenada Place. It is possible that the BMS Steam Cleaning Service was a mobile cleaning service. No additional details are available for this listing.

The final design for the construction of the ADA gangways is not complete. However, the gangway to the ADA ramp will require installation of a concrete pad or concrete pilings on the inland side of the seawall. Either construction method would require a certain amount of soil disturbance. In addition, any trenching required for the replacement of utilities would require some soil disturbance. Although no significant ground disturbance is anticipated in the vicinity of the listed sites, MM 4.10-1 is proposed to ensure that appropriate measures are taken should contaminated groundwater or soils be encountered during excavation or trenching activities. Implementation of MM 4.3-4 requires compliance with safety measures required by the Occupational Safety and Health Administration (OSHA) and would mitigate potential impacts related to contaminated groundwater during construction to a less than significant level.

Mitigation Measure

The following measure is proposed to address potential impacts related to Hazards and Hazardous Materials during construction, including potentially contaminated groundwater.

- 4.10-1** During all excavation and construction activities for the Americans with Disabilities (ADA) gangway platforms and utilities, OC Dana Point Harbor shall require that all construction subcontractors address site safety requirements by complying with the appropriate health and safety measures required by the Occupational Safety and Health Administration (OSHA). Applicable specifications prepared by OSHA related to earth resources consist of Section 29 Code of Federal Regulations (CFR) Part 1926, which are focused on worker safety in excavations. In the event that suspicious odors are observed in soil, construction shall be terminated until the soil is properly characterized for hazardous waste content. Appropriate measures shall be taken in compliance with all applicable regulations for the characterization and disposal of hazardous materials (refer to FEIR No. 591, Mitigation Measure 4.3-4).

4.10.7 CUMULATIVE IMPACTS

The Hazards and Hazardous Materials cumulative study area considered for cumulative impacts consisted of (1) the area that could be affected by proposed project activities, and (2) the areas affected by other projects whose activities could directly or indirectly affect the presence or fate of hazards or hazardous materials on site. In general, only projects occurring adjacent to or very close to the project site are considered due to the limited potential impact area associated with on-site hazards or the release of hazardous materials into the environment from Marina renovation activities. Other than landside Commercial Core Projects already considered in the Program FEIR, no other projects in the immediate vicinity of the project site have been identified that would have the potential to affect the presence of hazardous materials on site.

The proposed Marina Improvement Project does not require the demolition of buildings or removal of hazardous materials that would need to be tested, removed, and transported off site to an approved disposal facility. The potential for contaminated soils to be encountered is considered low. However, MM 4.10-1 is proposed to ensure compliance with the appropriate health and safety measures required by OSHA to ensure that there would be no significant adverse impact to the environment or to human health. Encountering contaminated groundwater would be a temporary condition that is subject to regulatory oversight. Once existing hazardous materials have been removed to the satisfaction of the Orange County DHS, SCAQMD, and the Orange County Fire Authority (as applicable), operation of the Marinas would involve the use and storage of household hazardous materials typical of Harbor uses and would not present a significant hazard to the environment with regulatory compliance procedures in place.

The proposed project would not create potential significant cumulative impacts related to hazardous materials off site, as hazardous materials are not expected to be encountered. Transportation of hazardous materials off site is not anticipated. In addition, the Orange County Sheriff, Orange County Fire Authority, and the Orange County Harbor Patrol are trained in emergency response procedures for safely responding to accidental spills of hazardous substances in the Harbor, further reducing

potential impacts. Therefore, transport of hazardous materials to and from the project site does not present a significant cumulative hazard.

With implementation of MM 4.10-1 and compliance with all federal, State, and local regulations concerning the storage and handling of hazardous materials, the impacts of the proposed project in combination with reasonably foreseeable projects in the surrounding areas would not contribute to significant cumulative impacts to people or the environment due to exposure to hazardous materials or hazards.

4.10.8 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

There are no significant unavoidable adverse hazards or hazardous materials impacts associated with the proposed project.

4.11 GREENHOUSE GASES

This section discusses the potential project effects of building the proposed Dana Point Revitalization Project on global climate change (GCC) and the total greenhouse gas (GHG) emissions. This section describes the physical setting of the project area and the regulatory framework for GCC and GHG emissions; evaluates potential short- and long-term GHG impacts associated with the proposed project; and identifies Standard Conditions of Approval (SC) and mitigation measures recommended to address potentially significant adverse GHG impacts of the proposed project.

4.11.1 EXISTING SETTING

Global Climate Change

GCC is the observed increase in the average temperature of the Earth's atmosphere and oceans in recent decades. The Earth's average near-surface atmospheric temperature rose $0.6 \pm 0.2^\circ$ Celsius ($^\circ\text{C}$) or $1.1 \pm 0.4^\circ$ Fahrenheit ($^\circ\text{F}$) in the 20th century. The prevailing scientific opinion on climate change is that most of the warming observed over the last 50 years is attributable to human activities. The increased amounts of carbon dioxide (CO_2) and other GHGs are the primary causes of the human-induced component of warming. GHGs are released by the burning of fossil fuels, land clearing, agriculture, and other activities, and lead to an increase in the greenhouse effect.

GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The six gases that are widely seen as the principal contributors to GCC are as follows:

- CO_2
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Hydroflouorocarbons (HFCs)
- Perflouorocarbons (PFCs)
- Sulfur Hexaflouride (SF_6)

Over the last 200 years, humans have caused substantial quantities of GHGs to be released into the atmosphere. These extra emissions are increasing the natural greenhouse effect, which is believed to be causing global warming. While manmade GHGs include naturally occurring GHGs such as CO_2 , CH_4 , and N_2O , some gases, like HFCs, PFCs, and SF_6 , known collectively as chlorofluorocarbons (CFCs), are completely new to the atmosphere.

Some gases, such as water vapor, are short-lived in the atmosphere. Others remain in the atmosphere for significant periods of time, contributing to climate change in the long term. Water vapor is excluded from the list of GHGs above because it is short-lived in the atmosphere and its atmospheric

concentrations are largely determined by natural processes, such as oceanic evaporation. For the purposes of this analysis, the term “GHGs” will refer collectively to the above six gases only.

These six gases vary considerably in terms of Global Warming Potential (GWP): the relative effectiveness of a gas to absorb infrared radiation, remain in the atmosphere, and contribute to global warming. The GWP of each gas is measured relative to CO₂, the most abundant GHG; thus, GHG emissions are typically measured in terms of pounds or tons of “CO₂ equivalents” (CO₂e). Table 4.11.A shows the GWPs for each type of GHG. For example, sulfur hexafluoride is 22,800 times more potent in contributing to global warming than CO₂.

Table 4.11.A: Global Warming Potentials

Gas	Atmospheric Lifetime (Years)	Global Warming Potential (100-year Time Horizon)
Carbon Dioxide (CO ₂)	50-200	1
Methane (CH ₄)	12	25
Nitrous Oxide (N ₂ O)	114	298
HFC-23	270	14,800
HFC-134a	14	1,430
HFC-152a	1.4	124
PFC: Tetrafluoromethane (CF ₄)	50,000	7,390
PFC: Hexafluoromethane (C ₂ F ₆)	10,000	12,200
Sulfur Hexafluoride (SF ₆)	3,200	22,800

Source: IPCC, 2007. *Climate Change 2007: The Physical Science Basis*. Contribution of Working Group I to the Fourth Assessment Report of the IPCC.

The following discussion summarizes the characteristics of the six GHGs listed above.

Carbon Dioxide

In the atmosphere, carbon generally exists in its oxidized form, as CO₂. Natural sources of CO₂ include the respiration (breathing) of humans, animals and plants, volcanic outgassing, decomposition of organic matter and evaporation from the oceans. Human-caused sources of CO₂ include the combustion of fossil fuels and wood, waste incineration, mineral production, and deforestation. The Earth maintains a natural carbon balance and when concentrations of CO₂ are upset, the system gradually returns to its natural state through natural processes. Natural changes to the carbon cycle work slowly, especially compared to the rapid rate at which humans are adding CO₂ to the atmosphere. Natural removal processes, such as photosynthesis by land- and ocean-dwelling plant species, cannot keep pace with this extra input of man-made CO₂, and consequently, the gas is building up in the atmosphere. The concentration of CO₂ in the atmosphere has risen about 30 percent since the late 1800s.¹

¹ California EPA. 2006. *Climate Action Team Report to Governor Schwarzenegger and the Legislature*. March.

In 2002, CO₂ emissions from fossil fuel combustion accounted for approximately 98 percent of man-made CO₂ emissions and approximately 84 percent of California's overall GHG emissions (CO₂e). The transportation sector accounted for California's largest portion of CO₂ emissions, with gasoline consumption making up the greatest portion of these emissions. Electricity generation was California's second largest category of GHG emissions.

Methane

CH₄ is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources include wetlands, termites, and oceans. Decomposition occurring in landfills accounts for the majority of human-generated CH₄ emissions in California and in the United States as a whole. Agricultural processes such as intestinal fermentation, manure management, and rice cultivation are also significant sources of CH₄ in California. CH₄ accounted for approximately 6 percent of gross climate change emissions (CO₂e) in California in 2002. Total annual emissions of CH₄ are approximately 500 million tons, with manmade emissions accounting for the majority. As with CO₂, the major removal process of atmospheric CH₄—chemical breakdown in the atmosphere—cannot keep pace with source emissions, and CH₄ concentrations in the atmosphere are increasing.

Nitrous Oxide

N₂O is a product of the reaction that occurs between nitrogen and oxygen during fuel combustion. Both mobile and stationary combustion emit N₂O, and the quantity emitted varies according to the type of fuel, technology, and pollution control device used, as well as maintenance and operating practices. Agricultural soil management and fossil fuel combustion are the primary sources of human-generated N₂O emissions in California. N₂O emissions accounted for nearly 7 percent of climate change emissions (CO₂e) in California in 2002.

Hydrofluorocarbons, Perfluorocarbons, and Sulfur Hexafluoride

HFCs are primarily used as substitutes for ozone (O₃) depleting substances regulated under the Montreal Protocol.¹ PFCs and SF₆ are generally emitted from various industrial processes, including aluminum smelting, semiconductor manufacturing, electric power transmission and distribution, and magnesium casting. There is no aluminum or magnesium production in California; however, the rapid growth in the semiconductor industry leads to greater use of PFCs. HFCs, PFCs, and SF₆ accounted for about 3.5 percent of gross climate change emissions (CO₂e) in California.

Emissions Sources and Inventories

An emissions inventory that identifies and quantifies the primary human-generated sources and sinks² of GHGs is a well-recognized and useful tool for addressing climate change. This section summarizes

¹ The Montreal Protocol is an international treaty that was approved on January 1, 1989, and was designated to protect the O₃ layer by phasing out the production of several groups of halogenated hydrocarbons believed to be responsible for O₃ depletion.

² A sink is a natural or artificial reservoir that accumulates and stores some chemical compound for an indefinite period.

the latest information on global, United States, California, and local GHG emission inventories. However, because GHGs persist for a long time in the atmosphere (see Table 4.11.A), accumulate over time, and are generally well-mixed, their impact on the atmosphere and climate cannot be tied to a specific point of emission.

(1) Global Emissions

Worldwide emissions of GHGs in 2004 were 27 billion metric tons of CO₂e per year.¹ Global estimates are based on country inventories developed as part of programs of the United Nations Framework Convention on Climate Change (UNFCCC).

(2) United States Emissions

In 2008, the United States emitted approximately 7.0 billion metric tons of CO₂e or approximately 25 tons per year per person. Of the six major sectors nationwide— electric power industry, transportation, industry, agriculture, commercial, residential— the electric power industry and transportation sectors combined account for approximately 62 percent of the GHG emissions; the majority of the electrical power industry and all of the transportation emissions are generated from direct fossil fuel combustion. Between 1990 and 2006, total United States GHG emissions rose approximately 14.7 percent.²

(3) State of California Emissions

According to California Air Resources Board (ARB) emission inventory estimates, California emitted approximately 474 million metric tons³ of CO₂e emissions in 2008.⁴ This large number is due primarily to the sheer size of California compared to other states. By contrast, California has the fourth lowest per-capita carbon dioxide emission rate from fossil fuel combustion in the country, due to the success of its energy efficiency and renewable energy programs and commitments that have lowered the State's GHG emissions rate of growth by more than half of what it would have been otherwise.⁵

The Cal/EPA Climate Action Team stated in its March 2006 report that the composition of gross climate change pollutant emissions in California in 2002 (expressed in terms of CO₂e) was as follows:

- CO₂ accounted for 83.3 percent
- CH₄ accounted for 6.4 percent

¹ Combined total of Annex I and Non-Annex I Country CO₂eq emissions. UNFCCC, 2007. *Greenhouse Gas Inventory Data*. Information available at http://unfccc.int/ghg_data/ghg_data_unfccc/time_series_annex_i/items/3814.php and http://maindb.unfccc.int/library/view_pdf.pl?url=http://unfccc.int/resource/docs/2005/sbi/eng/18a02.pdf.

² U.S. EPA. 2010. The 2010 U.S. Greenhouse Gas Inventory Report. <http://www.epa.gov/climatechange/emissions/usinventoryreport.html>. Accessed September 2010.

³ A metric ton is equivalent to approximately 1.1 tons.

⁴ California ARB, Greenhouse Gas Inventory Data - 1990 to 2004. <http://www.arb.ca.gov/cc/inventory/data/data.htm>. Accessed November 2010.

⁵ California Energy Commission (CEC), 2007. Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004 - Final Staff Report, publication # CEC-600-2006-013-SF, Sacramento, CA, December 22, 2006; and January 23, 2007 update to that report.

- N₂O accounted for 6.8 percent
- HFCs, PFC, and SF₆ accounted for 3.5 percent¹

The ARB estimates that transportation is the source of approximately 38 percent of the State's GHG emissions in 2004, followed by electricity generation (both in-State and out-of-State) at 23 percent, and industrial sources at 20 percent. The remaining sources of GHG emissions are residential and commercial activities at 9 percent, agriculture at 6 percent, high global warming potential gases at 3 percent, and recycling and waste at 1 percent.²

The ARB is responsible for developing the California Greenhouse Gas Emission Inventory. This inventory estimates the amount of GHGs emitted to and removed from the atmosphere by human activities within the State of California and supports the AB 32 (Pavley, 2006) Climate Change Program. The ARB's current GHG emission inventory covers the years 1990-2004 and is based on fuel use, equipment activity, industrial processes, and other relevant data (e.g., housing, landfill activity, agricultural lands). The emission inventory estimates are based on the actual amount of all fuels combusted in the State, which accounts for over 85 percent of the GHG emissions within California.

The ARB staff has projected statewide unregulated GHG emissions for the year 2020, which represent the emissions that would be expected to occur in the absence of any GHG reduction actions, will be 596 million metric tons (MMT) of CO₂e. GHG emissions from the transportation and electricity sectors as a whole are expected to increase, but remain at approximately 38 percent and 23 percent of total CO₂e emissions, respectively. The industrial sector consists of large stationary sources of GHG emissions and the percentage of the total 2020 emissions is projected to be 17 percent of total CO₂e emissions. The remaining sources of GHG emissions in 2020 are high global warming potential gases at 8 percent, residential and commercial activities at 8 percent, agriculture at 5 percent, and recycling and waste at 1 percent.³

4.11.2 REGULATORY SETTING

Federal Regulations

The United States has historically had a voluntary approach to reducing GHG emissions. However, on April 2, 2007, the United States Supreme Court ruled that the Environmental Protection Agency (EPA) has the authority to regulate CO₂ emissions under the federal Clean Air Act (CAA). While there currently are no adopted federal regulations for the control or reduction of GHG emissions, the EPA commenced several actions in 2009 that are required to implement a regulatory approach to global climate change.

On September 30, 2009, the EPA announced a proposal that focuses on large facilities emitting over 25,000 tons of GHG emissions per year. These facilities would be required to obtain permits that would demonstrate they are using the best practices and technologies to minimize GHG emissions.

¹ California Environmental Protection Agency. 2006. *Climate Action Team Report to Governor Schwarzenegger and the Legislature*. March.

² California ARB, 2008. <http://www.climatechange.ca.gov/inventory/index.html>. September.

³ California ARB, 2008. <http://www.arb.ca.gov/cc/inventory/data/forecast.htm>. September.

On December 7, 2009, the EPA Administrator signed a final action under the CAA, finding that six greenhouse gases (CO₂, CH₄, N₂O, HFCs, PFCs, SF₆) constitute a threat to public health and welfare, and that the combined emissions from motor vehicles cause and contribute to global climate change. This EPA action does not impose any requirements on industry or other entities. However, the findings are a prerequisite to finalizing the GHG emission standards for light-duty vehicles mentioned below.

On April 1, 2010, the EPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) announced a final joint rule to establish a national program consisting of new standards for model year 2012 through 2016 light-duty vehicles that will reduce GHG emissions and improve fuel economy. EPA is finalizing the first-ever national GHG emissions standards under the CAA, and NHTSA is finalizing Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act. The EPA GHG standards require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide (CO₂) per mile in model year 2016, equivalent to 35.5 miles per gallon (mpg).

State Regulations

In a response to the transportation sector's significant contribution to California's CO₂ emissions, AB 1493 (Pavley, 2002) was enacted on July 22, 2002. AB 1493 (Pavley, 2002) requires the ARB to set GHG emission standards for passenger vehicles and light-duty trucks (and other vehicles whose primary use is noncommercial personal transportation in the State) manufactured in 2009 and all subsequent model years. To set its own GHG emissions limits on motor vehicles, California must receive a waiver from the EPA. On June 30, 2009, the EPA granted the waiver of CAA preemption to California for its GHG emission standards for motor vehicles beginning with the 2009 model year. Notice of the decision was published in the Federal Register on July 8, 2009.

In June 2005, Governor Schwarzenegger established California's GHG emissions reduction targets in Executive Order (EO) S-3-05. This EO (Schwarzenegger, 2005) established the following goals for the State of California: GHG emissions should be reduced to 2000 levels by 2010; GHG emissions should be reduced to 1990 levels by 2020; and GHG emissions should be reduced to 80 percent below 1990 levels by 2050.

California's major initiative for reducing GHG emissions is outlined in AB 32 (Pavley, 2006), the "Global Warming Solutions Act," passed by the California State legislature on August 31, 2006. This effort aims at reducing GHG emissions to 1990 levels by 2020. The ARB has established the level of GHG emissions in 1990 at 427 MMTCO₂e. The emissions target of 427 MMTCO₂e requires the reduction of 169 MMTCO₂e from the State's projected business-as-usual 2020 emissions of 596 MMTCO₂e. AB 32 (Pavley, 2006) requires the ARB to prepare a Scoping Plan that outlines the main State strategies for meeting the 2020 deadline and to reduce GHGs that contribute to global climate change. The Scoping Plan was approved by the ARB on December 11, 2008, and includes measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures.¹ Emission reductions that are projected to result from the recommended measures in the Scoping Plan are expected to total 174 MMTCO₂e, which would allow

¹ ARB. 2008. *Climate Change Proposed Scoping Plan: a Framework for Change*. October.

California to attain the emissions goal of 427 MMTCO₂e by 2020. The Scoping Plan includes a range of GHG reduction actions that may include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system. The Scoping Plan, even after Board approval, remains a recommendation. The measures in the Scoping Plan will not be binding until after they are adopted through the normal rulemaking process. The ARB rule-making process includes preparation and release of each of the draft measures, public input through workshops and a public comment period, followed by an ARB Board hearing and rule adoption.

In addition to reducing GHG emissions to 1990 levels by 2020, AB 32 (Pavley, 2006) directed the ARB and the newly created Climate Action Team (CAT)¹ to identify a list of “discrete early action GHG reduction measures” that can be adopted and made enforceable by January 1, 2010. On January 18, 2007, Governor Schwarzenegger signed EO S-1-07, further solidifying California’s dedication to reducing GHGs by setting a new Low Carbon Fuel Standard. This EO (Schwarzenegger 2007) sets a target to reduce the carbon intensity of California transportation fuels by at least 10 percent by 2020 and directs the ARB to consider the Low Carbon Fuel Standard as a discrete early action measure.

In June 2007, the ARB approved a list of 37 early action measures, including three discrete early action measures (Low Carbon Fuel Standard, Restrictions on High Global Warming Potential Refrigerants, and Landfill Methane Capture). Discrete early action measures are measures that were required to be adopted as regulations and made effective no later than January 1, 2010, the date established by Health and Safety Code (HSC) Section 38560.5. The ARB adopted additional early action measures in October 2007² that tripled the number of discrete early action measures. These measures relate to truck efficiency, port electrification, reduction of perfluorocarbons from the semiconductor industry, reduction of propellants in consumer products, proper tire inflation, and sulfur hexafluoride (SF₆) reductions from the non-electricity sector. The combination of early action measures is estimated to reduce State-wide GHG emissions by nearly 16 MMTCO₂e.³

To assist public agencies in analyzing the effects of GHGs under CEQA, Senate Bill (SB) 97 (Chapter 185, 2007) required the Governor’s Office of Planning and Research (OPR) to develop CEQA guidelines on how to minimize and mitigate a project’s GHG emissions. On December 30, 2009, the Natural Resources Agency adopted CEQA Guidelines Amendments related to climate change. These amendments became effective on March 18, 2010.

SB 375 (Steinberg, 2008), signed into law on October 1, 2008, is intended to enhance the ARB’s ability to reach AB 32 (August 31, 2006) goals by directing the ARB to develop regional GHG emissions reduction targets to be achieved within the automobile and light truck sectors for 2020 and 2035. The ARB will work with California’s 18 metropolitan planning organizations to align their regional transportation, housing, and land use plans and prepare a “Sustainable Communities

¹ CAT is a consortium of representatives from State agencies who have been charged with coordinating and implementing GHG emission reduction programs that fall outside of ARB’s jurisdiction.

² ARB. 2007. *Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration*. October.

³ ARB. 2007. “ARB approves tripling of early action measures required under AB 32.” News Release 07-46. <http://www.arb.ca.gov/newsrel/nr102507.htm>. October 25.

Strategy” to reduce the number of vehicle miles traveled in their respective regions and demonstrate the region’s ability to attain its GHG reduction targets.

California Green Buildings Standards Code (Cal Green Code) (CCR, Title 24, part 11) was adopted by the California Building Standards Commission in 2010 and became effective in January, 2011. The Code applies to all new constructed residential, nonresidential, commercial, mixed-use, and State-owned facilities, as well as schools and hospitals. Cal Green Code is comprised of Mandatory Residential and Nonresidential Measures and more stringent Voluntary Measures (TIERS I and II).

Mandatory Measures are required to be implemented on all new construction projects and consist of a wide array of green measures concerning project site design, water use reduction, improvement of indoor air quality, and conservation of materials and resources. The Cal Green Building Code refers to Title 24, Part 6 compliance with respect to energy efficiency, however it encourages 15 percent energy use reduction over that required in Part 6. Voluntary Measures are optional, more stringent measures to be used by jurisdictions that strive to enhance their commitment towards green and sustainable design and achievement of AB 32 (Pavley, 2006) goals. Under TIERS 1 and 2, all new construction projects are required to reduce energy consumption by 15 percent and 30 percent, respectively, below the baseline required under CEC as well as implement more stringent green measures than those required by mandatory code.

Regional Regulations

In April 2008, the SCAQMD, in order to provide guidance to local lead agencies on determining the significance of GHG emissions identified in CEQA documents, convened a “GHG CEQA Significance Threshold Working Group.”¹ The goal of the working group is to develop and reach consensus on an acceptable CEQA significance threshold for GHG emissions that would be utilized on an interim basis until the ARB (or some other state agency) develops statewide guidance on assessing the significance of GHG emissions under CEQA.

Initially, SCAQMD staff presented the working group with a significance threshold that could be applied to various types of projects—residential; non-residential; industrial; etc. However, the threshold is still under development. In December 2008, staff presented the SCAQMD Governing Board with a significance threshold for stationary source projects in which it is the lead agency. This threshold uses a tiered approach to determine a project’s significance, with 10,000 metric tons of carbon dioxide equivalent (MTCO_{2e}) as a screening numerical threshold.

On September 28, 2010, the SCAQMD proposed the following draft-tiered interim GHG significance threshold for development projects:

- **Tier 1** consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA. If the project qualifies for an exemption, no further action is required. If the project does not qualify for an exemption, then it would move to the next tier.

¹ For more information see: <http://www.aqmd.gov/ceqa/handbook/GHG/GHG.html>.

- **Tier 2** consists of determining whether or not the project is consistent with a GHG reduction plan that may be part of a local general plan, for example. The concept embodied in this tier is equivalent to the existing consistency determination requirements in CEQA Guidelines Sections 15064(h)(3), 15125(d), or 15152(a). The GHG reduction plan must, at a minimum, comply with AB 32 (Pavley, 2006), GHG reduction goals; include an emissions inventory agreed upon by either the ARB or the SCAQMD, have been analyzed under CEQA and have a certified Final CEQA document, and have monitoring and enforcement components. If the proposed project is consistent with the qualifying local GHG reduction plan, it is not significant for GHG emissions. If the project is not consistent with a local GHG reduction plan, there is no approved plan, or the GHG reduction plan does not include all of the components described above, the project would move to Tier 3.
- **Tier 3** establishes a screening significance threshold level to determine significance using a 90 percent GHG emission capture rate. The 90 percent capture rate GHG significance screening level in Tier 3 for stationary sources was derived using the following methodology. Using the SCAQMD's Annual Emission Reporting (AER) Program, the reported annual natural gas consumption for 1,297 permitted facilities for 2006 through 2007 was compiled and the facilities were rank-ordered to estimate the 90th percentile of the cumulative natural gas usage for all permitted facilities. Approximately 10 percent of facilities evaluated comprise more than 90 percent of the total natural gas consumption, which corresponds to 10,000 MTCO₂e/yr (the majority of combustion emissions comprise CO₂). SCAQMD suggested the following GHG screening thresholds: Industrial (when SCAQMD is the Lead Agency): 10,000 tpy CO₂e; Residential: 3,500 tpy CO₂e; Commercial: 1,400 tpy CO₂e; Mixed-use: 3,000 tpy CO₂e. If a project's GHG emissions exceed the GHG screening threshold, the project would move to Tier 4.
- **Tier 4** establishes a decision tree approach that includes compliance options for projects that have incorporated design features into the project and/or implement GHG mitigation measures.
 - Efficiency Target (2020 Targets)
 - 4.8 MTCO₂e per service population (SP) for project level threshold (land use emissions only) and total residual emissions not to exceed 25,000 mty CO₂e
 - 6.6 MTCO₂e per SP for plan level threshold (all sectors)
 - Efficiency Target (2035 Targets)
 - 3.0 MTCO₂e per SP for project level threshold
 - 4.1 MTCO₂e per SP for plan level threshold

If a project fails to meet any of these emissions efficiency targets, the project would move to Tier 5.
- **Tier 5** would require projects that implement off-site GHG mitigation that includes purchasing offsets to reduce GHG emission impacts to purchase sufficient offsets for the life of the project (30 years) to reduce GHG emissions to less than the applicable GHG screening threshold level.

4.11.3 METHODOLOGY

This analysis evaluates potential global climate-related emissions associated with the proposed project. Modeled project emissions are estimated using methodology similar to that used in the FEIR

No. 591 Air Quality analysis and is based on the project land uses, vehicle data, and project trip generation, among other variables. The cumulative impact of the project is analyzed by determining whether the project conflicts with or obstructs the implementation of GHG reduction measures under Assembly Bill (AB) 32 (August 31, 2006) and/or other applicable State regulations.

4.11.4 THRESHOLDS OF SIGNIFICANCE

Land use projects may contribute to the phenomenon of GCC in ways that would be experienced worldwide, and with some specific effects felt in California. However, no scientific study has established a direct causal link between individual land use project impacts and global warming. AB 32 (Pavley, 2006) requires statewide GHG emissions to be reduced to 1990 levels by 2020. Although these statewide reductions are now mandated by law, no generally applicable GHG emission threshold has yet been established.

In accordance with Senate Bill (SB) 97 (Chapter 185, 2007), the Natural Resources Agency adopted amendments to the State CEQA Guidelines on December 30, 2009, which includes criteria for evaluating GHG emissions.¹ Specifically, Appendix G of the State CEQA Guidelines (Environmental Checklist Form) lists the following thresholds, under which a project may be deemed to have a significant impact on air quality if it would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Under CEQA, “the determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data.” CEQA grants agencies with the general authority to adopt criteria for determining whether a given impact is “significant.” When no guidance exists under CEQA, the agency may look to and assess general compliance with comparable regulatory schemes.²

The SCAQMD is currently developing thresholds for GHG emissions. As noted previously, the SCAQMD recommends a tiered approach. The Tier 3 threshold requires that a project’s incremental increase in GHG emissions should be below or mitigated to less than the significance screening level (10,000 MTCO₂e per year for industrial projects; 3,500 MTCO₂e for residential projects; 1,400 MTCO₂e for commercial projects; 3,000 MTCO₂e for mixed-use or all land use projects). The Tier 4

¹ The adopted amendments may be viewed at the following website: <http://ceres.ca.gov/ceqa/guidelines/>. 2010.

² See *Protect Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal. App. 4th 1099, 1107 [“[A] lead agency’s use of existing environmental standards in determining the significance of a project’s environmental impacts is an effective means of promoting consistency in significance determinations and integrating CEQA environmental review activities with other environmental program planning and resolution.”]. Lead agencies can, and often do, use regulatory agencies’ performance standards. A project’s compliance with these standards usually is presumed to provide an adequate level of protection for environmental resources. See, e.g., *Cadiz Land Co. v. Rail Cycle* (2000) 83 Cal.App.4th 74, 106-09 (upholding use of regulatory agency performance standard).

threshold requires that projects achieve a project-level efficiency target of 4.8 MTCO₂e per service population per year by 2020 and 3.0 MTCO₂e per year by 2035 (total emissions not to exceed 25,000 MTCO₂e per year).

While a wide array of thresholds and standards have been presented, the amendments to the State CEQA Guidelines reaffirm that the lead agency has the discretion to determine how to evaluate a project's significance under CEQA. The State CEQA Guidelines includes a new Section 15064.4, which states that, when making a determination of the significance of GHG emissions, a lead agency shall have discretion to determine whether to use a model or methodology to quantify GHG emissions and/or rely on a qualitative analysis or performance based standards.

This section analyzes whether the project would make a cumulatively significant contribution to the impact of GCC under the following qualitative standard:

- The proposed project would result in a significant GCC impact if it would conflict with or obstruct the implementation of GHG reduction goals under AB 32 (Pavley, 2006) or other State regulations.

If a project implements reduction strategies identified in AB 32 (Pavley, 2006), the Governor's Executive Order S-3-05, or other strategies to assist in reducing GHGs to the level proposed by the Governor, it could reasonably follow that the project would not result in a significant contribution to the cumulative impact of GCC.

4.11.5 OVERVIEW OF PROGRAM FEIR GHG ANALYSIS

Because CEQA did not have thresholds addressing climate change or GHG emissions at the time FEIR No. 591 was prepared, an analysis of GHG emissions was not included in FEIR No. 591. Therefore, a technical analysis was prepared to support the Addendum to FEIR No. 591; to analyze the GHG emissions associated with the Revitalization Project as a whole. The analysis for the Marina Improvement Project is derived from the GHG Memorandum prepared for the Addendum to FEIR No. 591 and Air Quality Analysis conducted to support this SEIR. This section therefore addresses the GHGs resulting from the entire construction process of the waterside project and from future long-term operation of the waterside project. CEQA requires that Lead Agencies consider the reasonably foreseeable adverse environmental effects of projects considered for approval. According to a recent letter from California's Office of the Attorney General¹ and other State guidance, GCC can be considered an "effect on the environment," and an individual project's incremental contribution to GCC can have a cumulatively considerable impact.

4.11.6 IMPACTS AND MITIGATION

Less Than Significant Impacts

Rising Ocean Levels. Rising sea levels may affect the natural environment in the coming decades by eroding beaches, converting wetlands to open water, exacerbating coastal flooding, and increasing the

¹ State of California, Department of Justice, 2008. Comment letter to the City of Concord re "Concord Community Reuse Plan Draft Environmental Impact Report – SCH #2007052094." August 8.

salinity of estuaries and freshwater aquifers. Coastal headlands and beaches are expected to erode at a faster pace in response to future sea level rise. Cumulatively, the effects of sea level rise may be combined with other potential long-term factors such as changes in sediment input and nutrient runoff. The cumulative impacts of physical and biological change due to sea level rise on the quality and quantity of coastal habitats are not well understood.¹ As the proposed project site is an existing man-made harbor, there is little potential for the sea level change to adversely affect the ecosystem.

Rising sea levels may affect the built environment, including coastal development such as buildings, roads, and infrastructure. Potential adaptations for the built environment include the construction of dikes and seawalls; beach nourishment; and elevating structures and roadways. The approved Dana Point Harbor Revitalization Plan LUP Policy 8.6.3-1 requires that a Shoreline Management Plan be prepared for Dana Point Harbor and updated every five years. The plan is intended to assess seasonal and long-term shoreline changes and the potential for flooding or damage from erosion, sea-level rise, waves, storm surge or seiches. The plan is also required to evaluate the feasibility of hazard avoidance, planned retreat, retrofitting existing or proposing new protection devices. The project site is currently protected by breakwaters and is therefore unlikely to be significantly affected by the change in sea level. Further, due to the nature of the proposed project being a floating marina, impacts related to rising sea levels are expected to be less than significant.

Potentially Significant Impacts

GCC/GHG Emissions. An individual project cannot generate enough GHG emissions to significantly influence climate change, but individual projects can incrementally contribute toward the potential for the cumulative emissions driving GCC. Consequently, it is difficult to determine how project-related GHG emissions would contribute to GCC and how GCC may impact California. Therefore, project-related GHG emissions are not project-specific impacts to global warming but are instead the project's contribution to this cumulative impact. Therefore, this Subsequent Environmental Impact Report (SEIR) analyzes whether the project's GHG emissions would contribute toward the potential for GCC on a cumulative basis. Cumulative impacts related to GCC and GHG emissions are discussed in Section 4.11.7 below.

Cumulative Impacts

GHG emissions estimates are provided herein for informational purposes only, as there is no established quantified GHG emissions threshold. Bearing in mind that CEQA does not require "perfection" but instead "adequacy, completeness, and a good faith effort at full disclosure," the analysis below is based on methodologies and information available at the time this analysis was prepared. Estimation of GHG emissions in the future does not account for all changes in technology that may reduce such emissions; therefore, the estimates are based on past performance and represent a scenario that is worse than that which is likely to be encountered (after energy-efficient technologies have been implemented). While information is presented below to assist the public and decision

¹ Climate Change Science Program (CCSP) 4.1 January 15, 2009, 1 of 784 Final Report, United States CCSP, Synthesis and Assessment Product 4.1. Coastal Sensitivity to Seal Level Rise: A Focus on the Mid-Atlantic Region. Lead Agency: United States Environmental Protection Agency, Other Key Participating Agencies: United States Geological Survey, National Oceanic and Atmospheric Administration. Contributing Agencies: Department of Transportation.

makers in understanding the project's potential contribution to GCC impacts, the information currently available is not sufficiently detailed to allow a direct comparison between particular project characteristics and particular GCC impacts or between any particular proposed mitigation measure and any reduction in GCC impacts.

Construction and operation of project development would generate GHG emissions. Typically, more than 80 percent of the total energy consumption takes place during the use of buildings and less than 20 percent is consumed during construction.¹ However, as the proposed project is replacing an existing use with a similar facility, the long-term impact on energy consumption would be negligible.

Overall, the following activities associated with the proposed project could directly or indirectly contribute to the generation of GHG emissions:

- **Construction Activities:** During construction of the project, GHGs would be emitted through the operation of construction equipment and from worker and vendor vehicles and vessels, each of which typically uses fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO₂, CH₄, and N₂O. Furthermore, CH₄ is emitted during the fueling of heavy equipment.
- **Solid Waste Disposal:** Solid waste generated by the project, including construction waste, could contribute to GHG emissions in a variety of ways. Landfilling and other methods of disposal use energy for transporting and managing the waste, and they produce additional GHGs to varying degrees. Landfilling, the most common waste management practice, results in the release of CH₄ from the anaerobic decomposition of organic materials. CH₄ is 25 times more potent a GHG than CO₂. However, landfill CH₄ can also be a source of energy. In addition, many materials in landfills do not decompose fully, and the carbon that remains is sequestered in the landfill and not released into the atmosphere.
- **Motor Vehicle Use:** Transportation associated with the proposed project would result in GHG emissions from the combustion of fossil fuels in daily automobile and truck trips.

Preliminary guidance from OPR and recent letters from the Attorney General critical of CEQA documents that have taken different approaches indicate that lead agencies should calculate, or estimate, emissions from vehicular traffic, energy consumption, water conveyance and treatment, waste generation, and construction activities. GHG emissions generated by the proposed project would predominantly consist of CO₂. In comparison to criteria air pollutants such as O₃ and PM₁₀, CO₂ emissions persist in the atmosphere for a substantially longer period of time. While emissions of other GHGs, such as CH₄, are important with respect to GCC, emission levels of other GHGs are less dependent on the land use and circulation patterns associated with the proposed project than are levels of CO₂.

Construction activities produce combustion emissions from various sources, such as Vessel and utility engines, on-site heavy-duty construction vehicles, equipment hauling materials to and from the site, and motor vehicles transporting the construction crew. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change.

¹ United Nations Environment Programme (UNEP), 2007. *Buildings and Climate Change: Status, Challenges and Opportunities*, Paris, France.

The actual details of the future construction schedule are not known. The only GHG with well-studied emissions characteristics and published emissions factors for construction equipment is CO₂. The construction modeling (Table 4.5.D in Section 4.5) lists a peak daily emissions rate of 10,734 lbs/day of CO₂ during the removal of the existing piles and slips. The removal of the existing piles and slips will require up to 80 days to complete. The installation of the new piles and slips will require approximately 360 days. The total CO₂ generated during the project construction will be 2,041,000 lbs, or 925 metric tons.

Due to the global nature of this phenomenon and the scale of the emissions, total emissions are expressed in units of teragrams (a trillion [10¹²] grams or one million metric tons) per year (Tg/year). This is the standard metric unit used worldwide. As described above, the project will produce 925 metric tons of CO₂, which is approximately 0.0093 Tg/year of CO₂. As a comparison, the existing emissions from the entire SCAG region are estimated to be approximately 176.79 million metric tons of CO₂ per year and approximately 496.95 million metric tons of CO₂ per year for the entire State.

As described above, project-related GHG emissions are not confined to a particular air basin but are dispersed worldwide. Consequently, it is difficult to determine how project-related GHG emissions would contribute to GCC and how GCC may impact California. Therefore, project-related GHG emissions are not project-specific impacts to global warming but are instead the project's contribution to this cumulative impact.

Implementation of the project would result in GHG emission levels that would not substantially conflict with implementation of the GHG reduction goals under AB 32 (Pavley, 2006) or other State regulations. The project would be required to implement the construction exhaust control measures (Standard Conditions) listed in Section 4.5.6 (in Section 4.5), including minimization of construction equipment idling and implementation of proper engine tuning and exhaust controls. Therefore, project-related impacts related to GCC are considered less than cumulatively significant. However, in order to ensure that the proposed project complies with and would not conflict with or impede the implementation of reduction goals identified in AB 32 (Pavley, 2006), the Governor's Executive Order S-3-05, and other strategies to help reduce GHGs to the level proposed by the Governor, Mitigation Measure 4.5-1 is proposed. Implementation of this measure would further reduce GHG emissions from construction and energy consumption sources. In addition, the project would also be subject to all applicable regulatory requirements, which would also reduce the GHG emissions of the project.

4.11.7 MITIGATION MEASURES

The following measure is intended to reduce GHG emissions from construction and energy consumption sources.

- 4.11-1** OC Dana Point Harbor shall review and specifically approve contract provisions requiring that the following measures be incorporated into the design and construction of the project:

Energy Efficiency Measures.

- Install energy-efficient lighting and lighting control systems

- Install solar or other energy-efficient outdoor lighting, such as light-emitting diodes (LEDs)
- Landscape with native or drought-tolerant species to reduce water consumption and provide passive solar benefits, where feasible.

Solid Waste Measures.

- Reuse and recycle construction waste (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard) to the extent feasible; and
- Provide storage areas for recyclables and green waste and adequate recycling containers located in public areas (refer to FEIR No. 591, Project Design Feature [PDF] 4.6-1).

4.11.8 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

Project-related impacts in regard to GCC are considered less than cumulatively significant. Implementation of Mitigation Measure 4.11-1 would further reduce GHG emissions from construction and energy consumption sources. In addition, the project would also be subject to all applicable regulatory requirements, which would also reduce the GHG emissions of the project. Therefore, no significant unavoidable adverse impacts are anticipated.