TABLE OF CONTENTS

FIGURES

TABLES

This page intentionally left blank

5.0 ALTERNATIVES

5.1 INTRODUCTION

The California Environmental Quality Act (CEQA) requires that an Environmental Impact Report (EIR) describe a reasonable range of alternatives to the proposed project or to its location that could feasibly attain most of the basic project objectives but avoid or substantially lessen any of the significant effects, and that it evaluate the comparative merits of each of the alternatives. This section sets forth the potential alternatives to the proposed project and evaluates them as required by CEQA and the CEQA Guidelines.

Key provisions in the CEQA Guidelines regarding alternatives (section 15126.6) are summarized below to explain the foundation of the alternatives analysis in an EIR:

- The EIR will describe and analyze a range of reasonable alternatives to the project or the project's location that would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant impacts of the project. The EIR will also evaluate the comparative merits of the alternatives.
- The No Project/No Development Alternative shall be evaluated along with its impact. The No Project/Development Alternative analysis shall discuss the existing conditions as well as what could be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.
- The range of alternatives required in an EIR is governed by the "rule of reason," which requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project.
- Factors that may be taken into account when addressing the feasibility of alternatives are site suitability; economic viability; availability of infrastructure; General Plan consistency; other plans or regulatory limitations; jurisdictional boundaries; and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site(s).
- Only alternative locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR.
- An EIR need not consider an alternative under which the effect cannot be reasonably ascertained and implementation is remote and speculative.

In identifying alternatives for this Program EIR, alternatives were selected by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) that comply with CEQA requirements, would be reasonable and feasible for the project site, are in consideration of the existing uses of the project area, and are based upon comments received on the Notice of Preparation (NOP) and/or at the public scoping meeting for this Program Environmental Impact Report (PEIR).

In addition to the alternatives selected for evaluation, several possible alternatives were considered but not studied further because they failed to meet the project objectives and/or were not deemed feasible. These considered, but rejected, alternatives are described in Section 5.4.1

5.2 PROJECT OBJECTIVES

As stated in Section 3.0, Project Description, the objectives set forth below have been established for the Shipyard Sediment Remediation Project and will aid decision-makers in their review of the project and associated environmental impacts. The primary goal of the project is to improve water quality in San Diego Bay, consistent with the provisions of the Tentative Cleanup and Abatement Order (CAO). The specific project objectives are:

- Protect the quality of the waters of San Diego Bay for use and enjoyment by the people of the state by executing a shipyard sediment cleanup project consistent with the provisions of Tentative CAO No. R9-2011-0001;
- Attain cleanup levels as included in the Tentative CAO No. R9-2011-0001 (judged to be technologically and economically feasible as defined in section 2550.4 of CCR Title 23, pursuant to Resolution No. 92-49);
- Remediate areas identified in Attachment 2 of Tentative CAO No. R9-2011-0001;
- Minimize adverse effects to aquatic life beneficial uses, including Estuarine Habitat (EST), Marine Habitat (MAR), and Migration of Aquatic Organisms (MIGR);
- Minimize adverse effects to aquatic-dependent wildlife beneficial uses, including Wildlife Habitat (WILD), Preservation of Biological Habitats of Special Significance (BIOL), and Rare, Threatened, or Endangered Species (RARE);
- Minimize adverse effects to human health beneficial uses, including Contact Water Recreation (REC-1), Non-contact Water Recreation (REC-2), Shellfish Harvesting (SHELL), and Commercial and Sport Fishing (COMM);
- Implement a cleanup plan that will have long-term effectiveness;
- Minimize adverse effects to the natural and built environment;
- Avoid or minimize adverse impacts to residential areas;

- Result in no long-term loss of use of shipyard and other San Diego Bay-dependent facilities; and
- Minimize short-term loss of use of shipyard and other San Diego Bay-dependent facilities.

5.3 PROPOSED PROJECT

As previously noted, alternatives must be evaluated as to their ability to reduce or eliminate significant unavoidable adverse environmental impacts associated with the proposed project, including an alternate location, and feasibly attain the basic objectives of the project. The comparative merits of the different alternatives are evaluated in accordance with CEQA.

The project addressed in this PEIR is the implementation of Tentative CAO No. R9-2011-0001, which requires that remedial actions be implemented within the Shipyard Sediment Site. Remedial actions may include dredging, application of clean sand cover, and/or natural recovery depending upon a number of factors, including levels of contamination in the sediment and site accessibility. The Tentative CAO determined that dredging and disposal of sediments is the proposed remedy for approximately 15.2 acres of the site and is expected to generate approximately 143,400 cubic yards (cy) of contaminated marine sediment. In addition to the 15.2 acres targeted for dredging, approximately 2.3 acres of the project site are inaccessible or under-pier areas that will be remediated by one or more methods other than dredging, most likely by application of clean sand cover. The remedial action would be followed by a period of post-remedial monitoring.

The project includes the dredging of and/or applying a clean sand cover to the contaminated soils; vessel transport to shore; dewatering, stockpiling, and testing of dredged materials at a landside staging location; and truck transport of dredge materials to the appropriate landfill disposal facility.

There are two scheduling options for completion of the remedial action. The first scheduling option is expected to take 2 to 2.5 years to complete. Under this option, the dredging operations would occur for 7 months of the year and would cease from April through August during the endangered California least tern breeding season.

The second option is to implement the remedial plan with continuous dredging operations, which would be expected to take approximately 12.5 months to complete. This scenario assumes that the dewatering, solidification, and stockpiling of the materials would occur simultaneously and continuously with the dredging. Also assumed under this compressed schedule option is that dredging operations could proceed year-round, including during the breeding season of the endangered California least tern (April through August). Both scheduling options would be followed by a period of post-remedial monitoring as required by the Tentative CAO. Some variation in the schedule may occur depending upon selected

equipment size and numbers, the distance to the process area, the potential ship traffic, and the contractual obligations of the shipyards at the time the dredge activity is to occur.

The proposed project requires a landside sediment management site with sufficient space and access to stockpile, dewater, and transport the removed dredge material. Although the exact area required for sediment management will be determined during the final design phase, it is estimated that 2 to 2.5 acres would be required. Five potential staging areas have been identified and discussed throughout this PEIR.

Once the dredge materials have been dried and tested, they will be loaded from the staging area onto trucks for disposal at an approved landfill. For purposes of this project, it is assumed that 85 percent of the material will be transported from the staging area to Otay Landfill, approximately 15 miles southeast of the Shipyard Sediment Site. Although the sediment is not known to be classified as California hazardous material, it will be tested upon removal and prior to disposal. It is assumed for the purposes of this PEIR that up to 15 percent of the material will require transport to a hazardous waste facility (a Class I facility), which will most likely be the Kettleman Hills Landfill in Kings County, California, near Bakersfield.

Please refer to Chapter 3.0 of this PEIR for more information regarding the proposed project, including details of the proposed dredging and clean sand cover operations, onshore dewatering and treatment, and transportation and disposal operations. Specifically, Figures 3-1 through 3-7 illustrate the location of the project site and potential staging areas.

The potential impacts of the proposed project are described in Chapter 4.0, along with feasible mitigation measures to reduce significant impacts. Many of the project impacts are below established thresholds of significance or can be reduced to below thresholds of significance with the implementation of mitigation measures. Some impacts cannot be reduced to below a level of significance, even with mitigation, and are considered unavoidable adverse impacts. The unavoidable adverse impacts for the proposed project are described below.

5.3.1 Significant Unavoidable Environmental Impacts of the Proposed Project

5.3.1.1 Air Quality

The proposed Shipyard Sediment Remediation Project would result in significant unavoidable construction-related adverse air quality impacts of oxides of nitrogen (NO_X) (which is a precursor to ozone [O_3]) emissions, even after the implementation of feasible standard conditions and mitigation measures. While adherence to San Diego Air Pollution Control District (APCD) rules and regulations and identified mitigation measures would reduce this impact, it would remain significant and adverse because the City of San

Diego and National City daily thresholds for NO_X would be exceeded. There are no other feasible mitigation measures that are available to offset this significant impact.

Construction activities for the Shipyard Sediment Remediation Project would also contribute to construction-related adverse cumulative air quality impacts because the San Diego Air Basin (SDAB) is presently in nonattainment for O_3, and the proposed project, in conjunction with other planned projects, would contribute to the existing nonattainment status for O_3. Therefore, the cumulative construction air quality impacts of the proposed project would remain significant.

5.3.2 Attainment of Project Objectives

The proposed project implements all of the project objectives. The proposed project includes the removal of debris and sediment and the placement of clean sand cover over sediments not suitable for dredging, thereby improving water quality in San Diego Bay, consistent with the Draft Technical Report (DTR) for the Tentative CAO. The proposed project will attain the cleanup levels judged to be technologically and economically feasible for the remedial footprint areas identified in the Tentative CAO. [1]

Removal and covering of the contaminated sediments will protect the quality of the waters of San Diego Bay for use and enjoyment by the people of the state. Further, implementation of the post-remediation monitoring as required will ensure the long-term effectiveness of the project.

Protective measures, such as the use of double silt curtains and environmental clamshell buckets, have been incorporated into the project design to ensure that the proposed project minimizes adverse effects to aquatic life beneficial uses, aquatic-dependent wildlife beneficial uses, and human health beneficial uses. Measures proposed to protect water quality during removal and covering operations have been specifically designed to minimize adverse effects to the natural and built environment.

Both scheduling options for the proposed project will reflect the contractual obligations of the shipyards at the time the dredge activity is to occur. It is anticipated that the shipyards will be able to schedule most of the contract work around the remediation efforts with few exceptions. A 10 percent delay in the schedule has been anticipated to accommodate necessary ship movements in order to minimize short-term and long-term losses of shipyard uses and those of other San Diego Bay-dependent facilities. Additionally, the project has incorporated an alternative truck route for Staging Areas 1 through 4 in order to minimize adverse impacts to residential areas.

[1] The Tentative CAO established alternative cleanup levels for the project that are the lowest technologically and economically achievable levels, as required under the California Code of Regulations (CCR) Title 23 section 2550.4(e).

Overall, the implementation of the proposed project meets all project objectives and results in the improvement of water quality in San Diego Bay to ensure its beneficial uses and for present and future generations.

5.4 SELECTION OF ALTERNATIVES

Section 21100 of the Public Resources Code (PRC) and CCR section 15126 of the CEQA Guidelines require an EIR to identify and discuss a No Project/No Development Alternative as well as a reasonable range of alternatives to the proposed project that would feasibly attain most of the basic objectives of the project and would avoid or substantially lessen any of the significant environmental impacts. This section describes alternatives that were considered by the San Diego Water Board but ultimately rejected, discusses alternative sites for the proposed project, and outlines the CEQA alternatives selected for consideration in this PEIR.

5.4.1 Alternatives Considered But Not Studied Further

Section 15126.6(c) of the CEQA Guidelines requires EIRs to identify any alternatives that were considered by the Lead Agency but were rejected during the scoping process and briefly explain the reasons underlying the Lead Agency's determination. In evaluating an appropriate range of alternatives to the proposed project, a number of alternatives were considered and rejected by the San Diego Water Board. The alternatives considered and rejected for the proposed project are described below.

5.4.1.1 Ocean Disposal

This alternative consisted of dredging the remedial footprint consistent with the Tentative CAO and DTR. However, under this alternative, the dredged sediments would be not dewatered, treated, and trucked to a landfill site. Under this alternative, the sediments would be disposed of by barge at a United States Environmental Protection Agency (U.S. EPA) approved ocean disposal site. The ocean disposal site for the San Diego area is San Diego 100 Fathom, more commonly known as LA-5. Disposal at LA-5 is limited to dredged materials that comply with U.S. EPA Ocean Dumping Regulations and Corps Permitting Regulations. In addition, if material were tested and found to be suitable for open water ocean disposal, Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 requires authorization from the United States Army Corps of Engineers (ACOE) for transportation of dredged material for disposal in the ocean where it is determined that the disposal will not unreasonably degrade or endanger human health, welfare, or amenities; the marine environment or ecological systems; or economic potentialities.

Based on the preliminary analysis conducted in support of the Tentative CAO, sediments that were identified for remedial action within the remedial footprint exceeded sediment cleanup levels and/or failed toxicity testing guidance, and/or did not meet benthic community composition for ocean disposal. Chemicals of concern that exceeded their sediment screening criteria within the identified remedial footprints include metals (arsenic, cadmium, chromium, copper, lead, mercury, silver, selenium, zinc), butyltins (mono, di, tetra, and tri), high molecular weight polynuclear aromatic hydrocarbons (HPAHs), polychlorinated biphenyls (PCBs), polychlorinated terphenyls (PCTs), Diesel Range Organics (DRO), and Residual Range Organics (RRO).

Therefore, because the sediments would not meet the criteria for ocean disposal due to the elevated chemical concentrations, this alternative was not deemed feasible and was rejected from further consideration by the San Diego Water Board.

5.4.1.2 Confined Disposal Facility (CDF) with New Pier Use

This alternative consisted of the creation of a CDF utilizing sheet pile walls or other structural means to contain the sediments. This alternative would have included the beneficial use of placing the dredged sediment into, and in order to create, a new pier area. Sediment would be mixed with pozzolanics and placed by clamshell application. This alternative would have required a dry cell sufficiently large enough to contain all the sediment and to allow placement, working, and treatment of the material.

The CDF with New Pier Use Alternative would meet the primary project objectives by removing the sediment within the identified remediation area. This alternative assumes the dredging of the same amount of contaminated sediment as the proposed project. Therefore, construction equipment/vehicle emissions during the dredging operations of the sediment would still result in NO_X emissions that would exceed the daily emissions threshold established by the City of San Diego and National City for that pollutant. Because the SDAB is presently in nonattainment for O_3, construction activities for this alternative, in conjunction with other planned projects, would also contribute to construction-related adverse cumulative air quality impacts. Therefore, this alternative would not avoid or substantially lessen the unavoidable adverse air quality impacts associated with the proposed project.

Consistent with CEQA Guidelines section 15126.6(f)(1), the San Diego Water Board determined that they did not already own and could not reasonably acquire, control or otherwise have access to a site on which to construct a CDF pier structure. Therefore, due to the lack of ownership or access to an adequate land site required for implementation of this alternative, and because this alternative would not eliminate or substantially lessen the unavoidable adverse air quality impacts associated with the proposed project, this alternative was rejected from further consideration.

5.4.1.3 CDF with New Non-Load-Bearing Pier

This alternative is a CDF similar to the new Pier Use Alternative described above. However, under this alternative, the sediment placed in a new pier area would not be load bearing. The pier load would be designed to rest on piles. Sediment would be placed in the CDF by clamshell and would be contained by sheet pile walls on all sides. Sediment would not require mixing with pozzolanics. This alternative assumed a partially dry cell would be used to minimize water treatment.

The CDF with a Non-Load-Bearing Pier Alternative would meet the primary project objectives by removing the sediment within the identified remediation area. This alternative assumes the dredging of the same amount of contaminated sediment as the proposed project. Therefore, construction equipment/vehicle emissions during the dredging operations of the sediment would still result in NO_X emissions that would exceed the daily emissions threshold established by the City of San Diego and National City for that pollutant. Because the SDAB is presently in nonattainment for O_3, construction activities for this alternative, in conjunction with other planned projects, would also contribute to construction-related adverse cumulative air quality impacts. Therefore this alternative would not avoid or substantially lessen the unavoidable adverse air quality impacts associated with the proposed project.

Consistent with CEQA Guidelines section 15126.6(f)(1), the San Diego Water Board determined that they did not already own and could not reasonably acquire, control or otherwise have access to a site on which to construct a CDF non-load-bearing pier. Therefore, due to the lack of ownership or access to an adequate land site required for implementation of this alternative, and because this alternative would not eliminate or substantially lessen the unavoidable adverse air quality impacts associated with the proposed project, this alternative was rejected from further consideration.

5.4.1.4 Alternative Locations

CEQA Guidelines section 15126.6(f)(2)(A) states: "The key question [with regard to alternative locations] and first step in analysis is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location. Only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR." Further, CEQA Guidelines section 15126.6(f)(1) states that alternative locations only need be considered if the project proponent can reasonably acquire or already owns the identified alternative site.

The proposed project is location-specific, as the primary objective of the project is to improve water quality in San Diego Bay by removing the contaminated sediments from the identified remedial footprint, consistent with the provisions of the DTR prepared in support of Tentative CAO No. R9-2010-0002. Given that the contaminated sediments are site-

specific, there are no alternative locations; therefore, the PEIR does not include analysis regarding alternative locations. Further, the PEIR includes five alternative staging areas for dewatering, treatment, and stockpiling of the sediments prior to removal to a landfill facility. Therefore, alternative landside staging locations have been already incorporated as a component of the project and have been considered and analyzed throughout the PEIR.

5.4.2 PEIR Alternatives

Consistent with the CEQA Guidelines criteria for selection of project alternatives, the following four alternatives have been determined to represent a reasonable range of alternatives that have the potential to feasibly attain most of the basic objectives of the project but that may avoid or substantially lessen any of the significant impacts of the project. Therefore, the alternatives considered in this PEIR include the following:

- **Alternative 1:** No Project/No Development
- **Alternative 2:** Confined Aquatic Disposal (CAD) Site
- **Alternative 3:** Convair Lagoon Confined Disposal Facility (CDF)
- **Alternative 4:** CDF with Beneficial Use of Sediments

5.5 ALTERNATIVE 1: NO PROJECT/NO DEVELOPMENT ALTERNATIVE

Consistent with Section 15126.6(e) of the CEQA Guidelines, the No Project Alternative is the existing condition of the project site at the time the NOP was published on November 25, 2009, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved and implemented. The setting of the site at the time of the NOP is described throughout Chapter 4.0 of this PEIR with respect to individual environmental issues and forms the baseline of the impact assessment of the proposed project. This alternative summarizes environmental conditions that would exist if the project were not implemented.

This alternative evaluates circumstances under which the project does not proceed. Alternative 1 would not implement the Tentative CAO, and no cleanup of the contaminated marine sediments in San Diego Bay would occur.

5.5.1 Attainment of Project Objectives

Under the No Project Alternative, the accumulation of waste in the San Diego Bay marine sediments would continue to adversely affect aquatic life, aquatic-dependent wildlife, human health, and San Diego Bay beneficial uses. Alternative 1 would not implement any of the

San Diego Water Board's basic objectives or overall goal to remediate the contaminated marine sediments. Further, the No Project Alternative is not consistent with the DTR for the Tentative CAO. A more detailed summary of the attainment of project objectives under Alternative 1 is provided below.

- Alternative 1 would not attain the cleanup levels and would not remediate areas as identified in the Tentative CAO because the Tentative CAO would not be implemented. Therefore, Alternative 1 would not protect the quality of the waters of San Diego Bay for the use and enjoyment by the people of the state.
- Alternative 1 would not reduce or minimize adverse effects to aquatic life beneficial uses, aquatic-dependent wildlife beneficial uses, or human health beneficial uses because the contaminated sediments would remain in place.
- Alternative 1 would not implement a cleanup plan and would not realize any long-term public benefits associated with the cleanup of the contaminated marine sediments; the site would continue to constitute a public nuisance by being injurious to human health, obstructing the free use of property, and interfering with the comfortable enjoyment of life and property.
- Because there is no construction or dredging activity associated with Alternative 1, this alternative would not result in any long-term or short-term loss of use of shipyard and other San Diego Bay-dependent facilities; however, the nuisance and public health effects of the contaminated sediments would continue to have a negative impact on San Diego Bay-dependent facilities and beneficial uses.

5.5.2 Environmental Analysis

In leaving the site in its current condition, the elevated levels of pollutants above San Diego Bay background conditions would continue to exist in the bottom marine sediments of the bay. The existing contaminants in the sediments would continue to adversely affect aquatic life, aquatic-dependent wildlife, human health, and San Diego Bay beneficial uses. Alternative 1 would not improve water quality in San Diego Bay and would not reduce the threats to the health and safety of either marine communities or humans.

No temporary construction traffic or noise would occur, and this alternative would not create air quality impacts, contribute to global warming, or generate objectionable odors as no construction equipment would be present. There would be no risk of accidental spills related to hazards as no cleanup activities would occur. In addition, no temporary impacts to marine species or communities would occur.

5.5.3 Conclusion

Alternative 1 would not result in any new physical environmental effects and would avoid significant construction-related impacts to air quality. Alternative 1 would not further, and therefore would be inconsistent with, the project objectives.

5.6 ALTERNATIVE 2: CONFINED AQUATIC DISPOSAL (CAD) SITE

Alternative 2 consists of dredging and constructing a CAD facility at a yet to be determined location. A CAD facility is a submerged containment area where dredged material is placed. This technique has been employed in San Diego Bay and elsewhere in the country and can simultaneously be enhanced to provide aquatic habitat. The construction of the CAD facility would require dredging a sufficient amount of marine sediments in order to construct a CAD facility large enough to contain the contaminated sediments from the Shipyard Sediment Site. The CAD facility would be constructed by mechanically dredging a large disposal area. A disposal location for the dredged materials would need to be determined. However, for purposes of this alternatives analysis, it is assumed that a majority of the sediments removed for construction of the CAD facility could be barged to an ocean disposal location. The location, size, shape, and design of the CAD facility would be determined during the design phase.

Alternative 2 involves the mechanical dredging of debris and sediments from the Shipyard Sediment Site. Contaminated marine sediments would be transported by barge to the CAD facility and deposited. The excess noncontaminated sediment from the CAD facility can be beneficially used as cover next to structures and under piers where dredging is infeasible. Debris removed from the project site would be taken to a landside staging area and sampled. The debris would be trucked to the appropriate landfill facilities after sampling was completed.

Once all the contaminated marine sediments have been placed in the CAD facility, and a sufficient amount of time had passed to allow the sediments to consolidate in the CAD facility, a clean cap of material would be put in place as a cover to contain the CAD facility. The CAD facility would require Waste Discharge Requirements (WDRs) issued by the San Diego Water Board for the design and construction of the CAD facility as well as ongoing monitoring to ensure that the CAD cap maintains its integrity for sequestering underlying contaminants, and that the marine biological community was re-establishing itself and was not adversely affected in the immediate area of the CAD facility.

5.6.1 Attainment of Project Objectives

Alternative 2 would obtain the project objectives, would implement the San Diego Water Board's overall goal to improve water quality in San Diego Bay, and would remove the contaminated sediments within the remedial footprint. Alternative 2 is consistent with the DTR for Tentative CAO No. R9-2010-0002, Finding 30 (pages 30-5 and 30-6). A more detailed summary of the attainment of project objectives under Alternative 2 is provided below.

- Alternative 2 would attain the cleanup levels and remediate areas as identified in the Tentative CAO; therefore, Alternative 2 would protect the quality of the waters of San Diego Bay for its use and enjoyment by the people of the state.
- Alternative 2 would reduce or minimize adverse effects to aquatic life beneficial uses, aquatic-dependent wildlife beneficial uses, and human health beneficial uses by the removal and/or covering of the contaminated sediments in the remedial footprint.
- Alternative 2 would implement a cleanup plan that would have long-term effectiveness and would realize long-term public benefits associated with the cleanup of the contaminated marine sediments. The site would no longer constitute a public nuisance.
- Because Alternative 2 would relocate the sediments within San Diego Bay via barge, Alternative 2 would not require as large a landside staging area for dewatering and treatment of the sediments as the proposed project; therefore, Alternative 2 would reduce the number of trucks required and minimize the adverse effects to residential areas and the built environment.
- The location of the CAD facility for Alternative 2 is unknown at this time; therefore, it is unknown whether this alternative would result in any short-term or long-term loss of use of shipyard or other San Diego Bay-dependent facilities.

5.6.2 Environmental Analysis

5.6.2.1 Transportation

Alternative 2 does not involve the landside dewatering, treatment, and hauling of the dredged sediments. Alternative 2 would result in fewer vehicular trips than the proposed project since the dredged sediments from the remedial footprint would be transported by barge to the CAD facility and would not require landside treatment or trucking to a landfill. Although some debris removed from the site would require sampling and possibly treatment at a landside staging area, and some worker trips would be associated with this alternative, the majority of trucks trips associated with the proposed project would not occur. The proposed project generates a total of approximately 50 haul trucks, 8 delivery trucks, and 29 employees to the

project site on the busiest day, resulting in 348 passenger car equivalent (PCE) daily trips.[1] Alternative 2 would not require off-site trucking and therefore would significantly reduce the traffic generated as compared to the proposed project. Under this alternative, the project-related significant impacts for the I-5 southbound ramp/Boston Avenue intersection and the roadway segment of Boston Avenue between 28th Street and the I-5 southbound ramp would not occur, and no alternate truck route would be required as mitigation.

Although the location or need for any landside staging area is unknown at this time, Alternative 2 would not require a large staging area; therefore, many alternative staging sites could be suitable for this alternative. Because there would be more options for selection of a construction staging area, there would be more opportunities to locate the staging activity away from the planned Bayshore Bikeway and also to avoid a short-term loss of any employee parking facilities. Therefore, Alternative 2 would have less potential for project-related tuck trips to interfere with the implementation and/or operation of the Bayshore Bikeway and employee parking, and would most likely not require any mitigation related to those potential impacts.

In conclusion, the traffic impacts of Alternative 2 would be significantly reduced as compared to the proposed project, but would remain less than significant, similar to the proposed project.

5.6.2.2 Water Quality

Water quality impacts related to the dredging operations of Alternative 2 would be similar to the proposed project. Similar impacts due to resuspension, spillage, and misplaced sediment during dredging operations would be anticipated during operation of Alternative 2, compared to the proposed project. Water quality Best Management Practices (BMPs) (including visual monitoring and recording of water turbidity during the dredging operations), measures to adhere to water quality objectives in the Water Quality Control Plan for the San Diego Basin (Basin Plan), and utilization of a double silt curtain to contain the dredge area would be included under Alternative 2, similar to the proposed project.

Alternative 2 would require WDRs issued by the San Diego Water Board for the design and construction of the CAD facility. Alternative 2 would require implementation of additional BMPs, treatment measures, and monitoring requirements related to the construction of the CAD facility and to ensure that the CAD cap maintains its integrity for sequestering underlying contaminants.

Alternative 2 would not require the landside dewatering, treatment, and disposal of sediments and therefore would not require a National Pollutant Discharge Elimination System

[1] The *Traffic Impact Analysis* (LSA Associates, May 2011) converted the haul and delivery truck trips to PCE trips at a ratio of 2.5 passenger cars per truck.

(NPDES) General Permit for storm water discharges. Further, Alternative 2 would not have impacts related to potential contamination of runoff and would not discharge any decanted water to the sewer system.

Similar to the proposed project, Alternative 2 would result in the removal of contaminated sediments and would result in improved water quality conditions in the San Diego Bay waters as compared to existing conditions. Overall, both Alternative 2 and the proposed project would result in similar improvements to water quality.

5.6.2.3 Hazards and Hazardous Materials

Similar to the proposed project, Alternative 2 would involve the dredging of contaminated sediments within the remedial footprint. Therefore, this alternative has the same potential as the proposed project to create a hazard to the environment through the routine transport, use, or disposal of hazardous materials, and upset and accident conditions involving the release of hazardous materials into the environment. Alternative 2 would have a slightly greater risk related to the release of contaminated sediments into the marine environment due to the relocation and placement of the sediments into the CAD facility.

Alternative 2 would not involve the landside dewatering, treatment, and trucking of the sediments to a landfill, and therefore would have reduced impacts associated with those activities as compared to the proposed project.

Overall, potential impacts related to hazards and hazardous materials impacts for Alternative 2 are slightly reduced as compared to the proposed project because activities related to the treatment and trucking of sediments are not required for implementation of this alternative.

5.6.2.4 Noise

Construction noise levels associated with the dredging activities of Alternative 2 would be similar to those of the proposed project since the same amount of sediment would be removed. However, unlike the proposed project, Alternative 2 would generate additional noise associated with the construction of the CAD facility as well as the barge activities associated with placement of the dredged sediment within the CAD facility.

No landside dewatering, treatment or trucking of dredged sediments would occur under Alternative 2. Therefore, similar to the proposed project, construction noise impacts for Alternative 2 are not expected to exceed the construction noise thresholds established by either the City of San Diego (75 A-weighted decibels [dBA] at an equivalent continuous sound level [L_{eq}]) or National City (75 dBA at a maximum noise level [L_{max}]). However, because there would be a significant reduction in the amount of truck traffic associated with

Alternative 2, noise impacts on sensitive receptors due to construction traffic are substantially reduced with Alternative 2 as compared to the proposed project.

The elimination of landside dewatering, treatment, and transport of dredged sediments under Alternative 2 would result in fewer noise impacts overall as compared to the proposed project.

5.6.2.5 Marine Biological Resources

The proposed project's dredging operations will result in the temporary loss of marine invertebrates and fish within the area contained within the silt curtains, as well as impacts to eelgrass areas and a reduction in the available foraging area for local marine mammals, marine reptiles, fish-eating birds, and various fish species.

Similar to the proposed project, Alternative 2 would involve the dredging of contaminated sediments within the remedial footprint. Therefore, Alternative 2 would result in similar impacts to marine resources within the remedial footprint area. Those impacts would be less than significant with implementation of mitigation measures, similar to the proposed project.

Alternative 2 includes additional areas within the San Diego Bay waters that would be disturbed due to the construction and filling of the CAD facility. Although the location of the CAD facility is not known at this time, this alternative would have a slightly greater potential to impact marine resources due to the additional construction activities and placement of a permanent structure in the waters of San Diego Bay. Further, although ongoing monitoring would be required to ensure that the CAD cap maintains its integrity, Alternative 2 could have greater impacts if the CAD facility did not effectively sequester underlying contaminants and the marine biological community did not re-establish itself. However, construction of the CAD could also present an opportunity to simultaneously provide enhanced or restored aquatic habitat (i.e. return of previously dredged areas to a depth suitable for eelgrass beds). Therefore, impacts to marine biological resources are considered slightly greater under Alternative 2 due to the potential for impacts to be affected in the immediate area of the CAD facility.

In conclusion, the potential marine biological impacts of Alternative 2 would be slightly increased as compared to the proposed project, but would remain less than significant with mitigation, similar to the proposed project.

5.6.2.6 Air Quality

The proposed project would result in significant and unavoidable construction-related adverse air quality impacts of NO_X emissions during the dredging and landside staging operation phases of the project.

Because there would be no landside dewatering, treatment, and no significant off-site trucking activities associated with Alternative 2, NO_X emissions associated with landside staging operations would not be anticipated to exceed thresholds. Therefore, Alternative 2 would eliminate or substantially reduce the significant and adverse impacts related to these issues.

Although landside construction activities would be substantially reduced under Alternative 2, the construction and filling of the CAD facility as proposed under Alternative 2 would increase the amount of marine vessel operations and resulting emissions. Therefore, although Alternative 2 would generate NO_X emissions during dredging of the remedial footprint similar to the proposed project, the operations associated with construction and filling of the CAD facility would generate marine vessel emissions greater than the proposed project, and those NO_X emissions would remain a significant adverse impact for Alternative 2.

Similar to the proposed project, Alternative 2 would also contribute to construction-related adverse cumulative air quality impacts because the SDAB is presently in nonattainment for O_3, and this alternative, in conjunction with other planned projects, would contribute to the existing nonattainment status for O_3.

5.6.2.7 Climate Change and Greenhouse Gas Emissions

Similar to the proposed project, Alternative 2 would result in short-term emissions associated with the use of construction equipment for dredging activities, but would not create an ongoing increase in or contribution to climate change because there are no on-site stationary sources. Although landside construction activities would be substantially reduced under Alternative 2, the construction and filling of the CAD facility as proposed would result in an increased amount of marine vessel operations and resulting emissions as compared to the proposed project.

Similar to the proposed project, Alternative 2 would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases (GHGs), and impacts associated with this issue would be less than significant.

Overall, Alternative 2 would have a less than significant impact related to its contribution to global climate change (GCC) in the form of GHG emissions, similar to the proposed project.

5.6.3 Conclusion

Alternative 2 would meet the project objectives and would implement the San Diego Water Board's overall goal to improve water quality in San Diego Bay. Alternative 2 would

remove the contaminated sediments within the remedial footprint and would attain the cleanup levels as identified in the Tentative CAO.

The significant project impacts related to landside construction air quality would be avoided under Alternative 2. However, air quality emissions associated with dredging activities (due to construction vessels and equipment) would increase under this alternative and remain a significant adverse impact. In addition, Alternative 2 would not avoid the significant cumulative air quality impacts related to the nonattainment status for O_3.

The potential marine biological impacts of Alternative 2 would be slightly increased as compared to the proposed project, but would remain less than significant with mitigation, similar to the proposed project. Alternative 2 would result in impacts similar to the proposed project for water quality, hazards, and climate change. However, Alternative 2 would result in reduced impacts for traffic and noise as compared with the proposed project.

5.7 ALTERNATIVE 3: CONVAIR LAGOON CONFINED DISPOSAL FACILITY (CDF)

Alternative 3 consists of the creation of a nearshore CDF at Convair Lagoon. A CDF is an engineered structure consisting of dikes or other retaining structures that extend above any adjacent water surface and enclose a disposal area for containment of dredged material, thereby isolating the dredged material from adjacent waters or land. A nearshore CDF typically creates new shoreline. The proposed Alternative 3 Convair Lagoon CDF would be constructed by removing abandoned ramps and sub-marine structures and excavating marine soils from the Convair Lagoon site. The excavated materials would most likely be trucked to an upland landfill. Rock revetment would then be utilized to create an in-water area to contain the sediments. The precise size, shape, and design of the CDF would be determined during the design phase.

Similar to the CAD Alternative, the CDF Alternative involves the mechanical dredging of debris and sediments from the shipyard site. Contaminated marine sediments would be transported by barge to the CDF and deposited. Debris removed from the sediment remediation site would be taken to a landside staging area and sampled. The debris would be trucked to the appropriate landfill facilities after sampling was completed.

No dewatering of contaminated sediments would be required with the CDF Alternative. The placement and construction of the CDF would allow water to pass through as the contaminated sediments are placed from the barge into the CDF. The CDF will require WDRs issued by the San Diego Water Board for the design and construction of the CDF ongoing monitoring to ensure that the CDF cap maintains its integrity for sequestering underlying contaminants, and marine biological communities to be re-established and not adversely affected in the immediate area of the CDF structure.

The CDF Alternative is consistent with the DTR for Tentative CAO No. R9-2010-0002, Finding 30 (pages 30-5 and 30-6).

5.7.1 Attainment of Project Objectives

Alternative 3 would obtain the project objectives and would implement the San Diego Water Board's overall goal to improve water quality in San Diego Bay. Alternative 3 would remove the contaminated sediments within the remedial footprint and is consistent with the DTR for Tentative CAO No. R9-2010-0002, Finding 30 (pages 30-5 and 30-6). A more detailed summary of the attainment of project objectives under Alternative 3 is provided below.

- Alternative 3 would attain the cleanup levels and remediate areas as identified in the Tentative CAO; therefore, Alternative 3 would protect the water quality of San Diego Bay for the use and enjoyment by the people of the state.
- Alternative 3 would reduce or minimize adverse effects to aquatic life beneficial uses, aquatic-dependent wildlife beneficial uses, and human health beneficial uses by the removal and/or covering of the contaminated sediments in the remedial footprint.
- Alternative 3 would implement a cleanup plan that would have long-term effectiveness and would realize long-term public benefits associated with the cleanup of the contaminated marine sediments; the site would no longer constitute a public nuisance.

5.7.2 Environmental Analysis

A complete analysis of the potential impacts related to Alternative 3, the Convair Lagoon CDF, was completed by Atkins and is included in Section 5.10 of this chapter. Technical appendices in support of the Convair Lagoon CDF Alternative Analysis are included as Appendices I through O of this PEIR.

The Convair Lagoon CDF Alternative would have either a less than significant impact or no impact associated with the following topics: Aesthetics, Agricultural and Forestry Resources, Mineral Resources, Population and Housing, Public Services, Recreation, Transportation and Traffic, and Utilities and Service Systems.

Implementation of the Convair Lagoon CDF Alternative could result in potentially significant impacts to the following environmental topics: Air Quality, Biological Resources, Cultural Resources, Geology and Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology/Water Quality, and Land Use/Planning. Please refer to Section 5.10 for a complete discussion of impacts and mitigation associated with each of these topics for Alternative 3.

5.7.3 Conclusion

The Convair Lagoon CDF Alternative would meet the project objectives and would implement the San Diego Water Board's overall goal to improve water quality in San Diego Bay. Alternative 3 would remove the contaminated sediments within the remedial footprint and would attain the cleanup levels as identified in the Tentative CAO.

The significant project air quality impacts related to construction emissions would be reduced but not avoided under Alternative 3. Further, air quality emissions associated with dredging activities (due to construction vessels and equipment) would increase under this alternative due to the removal and construction activities associated with the construction of the CDF. These air quality impacts would remain a significant adverse impact. In addition, Alternative 3 would not avoid the significant cumulative air quality impacts related to the nonattainment status for O_3.

The potential marine biological impacts and traffic impacts of the Convair Lagoon CDF Alternative would be greater as compared to the proposed project, but would remain less than significant with mitigation, similar to the proposed project. Alternative 3 would result in impacts similar to the proposed project for water quality, hazards, noise, and climate change.

5.8 ALTERNATIVE 4: NEARSHORE CDF WITH BENEFICIAL USE OF SEDIMENTS

The Alternative 4 CDF is similar to Alternative 3 in that it would create a nearshore CDF; however, Alternative 4 includes the beneficial use of placing the contaminated sediment as cover for areas under existing piers that cannot be dredged. The placed sediment would be contained by sheet pile walls on both sides. The contaminated sediment would be dredged from the project site, mixed with water to create a heavy slurry, and then mixed with pozzolanics and pumped in-place under the structures. Existing water will be pumped out and any decanted or infiltrated water will be treated prior to release.

The area under the piers that cannot be dredged is not large enough to contain all of the contaminated sediment; consequently, landfill disposal will be necessary for the excess. The excess would be transported by barge to a landside staging area, treated, and then trucked to an upland facility. Similarly, debris removed from the Shipyard Sediment Site would be taken to the landside staging area and sampled. The debris would be trucked to the appropriate landfill facilities after sampling was completed.

Alternative 4 is consistent with the DTR for the Tentative CAO No. R9-2010-0002, Finding 30 (pages 30-5 and 30-6)

5.8.1 Attainment of Project Objectives

Alternative 4 would obtain the project objectives and would implement the San Diego Water Board's overall goal to improve water quality in San Diego Bay. Alternative 4 would remove the contaminated sediments within the remedial footprint and is consistent with the DTR for Tentative CAO No. R9-2010-0002, Finding 30 (pages 30-5 and 30-6). A more detailed summary of the attainment of project objectives under Alternative 4 is provided below.

- Alternative 4 would attain the cleanup levels and remediate areas as identified in the Tentative CAO; therefore, Alternative 4 would protect the quality of the waters of San Diego Bay for the use and enjoyment by the people of the state.
- Alternative 4 would reduce or minimize adverse effects to aquatic life beneficial uses, aquatic-dependent wildlife beneficial uses, and human health beneficial uses by the removal and/or covering of the contaminated sediments in the remedial footprint.
- Alternative 4 would implement a cleanup plan that would have long-term effectiveness and would realize long-term public benefits associated with the cleanup of the contaminated marine sediments; the site would no longer constitute a public nuisance.
- Although Alternative 4 would require a landside staging area for dewatering and treatment of the excess sediments, the amount of land would be reduced as compared to the proposed project. Therefore, this alternative would reduce the number of trucks required to transport the excess sediment, thus minimizing the adverse effects to residential areas and the built environment.
- The location of the CDF for Alternative 4 is unknown at this time; therefore, it is unknown whether this alternative would result in any short-term or long-term loss of use of shipyard or other San Diego Bay-dependent facilities.

5.8.2 Environmental Analysis

5.8.2.1 Transportation and Circulation

Alternative 4 involves a reduced amount of dewatering, treatment, and fewer vehicle trips than the proposed project since only the excess sediments that cannot be placed as cover for areas under existing piers would require landside treatment and trucking to a landfill.

The proposed project generates a total of approximately 50 haul trucks, 8 delivery trucks, and 29 employees to the project site on the busiest day, resulting in 348 PCE.[1] Alternative 4 would reduce the amount of sediments requiring off-site trucking and therefore would significantly reduce the traffic generated as compared to the proposed project. Although the

[1] The *Traffic Impact Analysis* (LSA Associates, May 2011) converted the haul and delivery truck trips to PCE trips at a ratio of 2.5 passenger cars per truck.

average daily trips would be reduced under Alternative 4, impacts related to traffic and circulation would remain less than significant with proposed mitigation for this alternative, similar to the proposed project.

Although the location and size of the landside staging area is unknown at this time, Alternative 4 would not require as large a staging area as the proposed project; therefore, many alternative construction staging areas could be suitable for this alternative. Because there would be more options for selection of a construction staging area, there would be more opportunities to locate the staging activity away from the planned Bayshore Bikeway and also avoid a short-term loss of any employee parking facilities. Therefore, Alternative 4 would have less potential for project-related tuck trips to interfere with implementation and/or operation of the Bayshore Bikeway or employee parking. Therefore, impacts related to these issues are less under Alternative 4 than for the proposed project.

In conclusion, traffic impacts of Alternative 4 would remain less than significant, similar to the proposed project, but would be reduced as compared to the proposed project.

5.8.2.2 Hydrology and Water Quality

Water quality impacts related to the dredging operations of Alternative 4 would be similar to the proposed project. Similar impacts due to resuspension, spillage, and misplaced sediment during dredging operations would be anticipated during operation of Alternative 4 compared to the proposed project. Water quality BMPs (including visual monitoring and recording of water turbidity during the dredging operations), measures to adhere to water quality objectives in the Basin Plan, and utilization of a double silt curtain to contain the dredge area would be included under Alternative 4, similar to the proposed project.

Alternative 4 would require WDRs issued by the San Diego Water Board for the design and construction of the CDF. Alternative 4 would require implementation of additional BMPs, treatment measures, and monitoring requirements related to construction of the CDF and to ensure that the CDF covering maintains its integrity for sequestering underlying contaminants.

Alternative 4 would not require as much landside dewatering, treatment, and disposal of sediments as the proposed project, but would still require a NPDES General Permit for storm water discharges. Further, Alternative 4 would have potential impacts similar to the proposed project that are related to the potential contamination of runoff and discharge of any decanted water to the sewer system.

Similar to the proposed project, Alternative 4 would result in the removal of contaminated sediments and improved water quality conditions in San Diego Bay as compared to existing conditions. Overall, both Alternative 4 and the proposed project would result in similar improvements to water quality.

5.8.2.3 Hazards and Hazardous Materials

Similar to the proposed project, Alternative 4 would involve the dredging of contaminated sediments within the remedial footprint. Therefore, this alternative has the same potential as the proposed project to create a hazard to the environment through the routine transport, use, or disposal of hazardous materials and upset and accident conditions involving the release of hazardous materials into the environment. Alternative 4 would have a slightly greater risk related to the release of contaminated sediments into the marine environment due to the relocation and placement of the sediments in the CDF.

Alternative 4 would involve a lesser amount of dewatering, treatment, and trucking of sediments to a landfill, and therefore would have reduced impacts associated with those activities as compared to the proposed project.

Overall, potential impacts related to hazards and hazardous materials for Alternative 4 are slightly reduced as compared to the proposed project because activities related to the treatment and trucking of sediments are reduced under this alternative.

5.8.2.4 Noise

Construction noise levels associated with the dredging activities for Alternative 4 would be similar to those for the proposed project since the same amount of sediment would be removed. However, unlike the proposed project, Alternative 4 would generate additional noise associated with the construction of the CDF as well as the barge activities associated with placement of the dredged sediment within the CDF.

A reduced amount of landside dewatering, treatment, and trucking of dredged sediments would occur under Alternative 4. Therefore, similar to the proposed project, construction noise impacts for Alternative 4 are not expected to exceed the construction noise thresholds established by either the City of San Diego (75 dBA L_{eq}) or National City (75 dBA L_{max}). However, because there would be a reduction in the amount of truck traffic associated with Alternative 4, noise impacts on sensitive receptors due to construction traffic would be reduced under Alternative 4 as compared to the proposed project.

The reduction in the amount of dewatering, treatment, and transport of dredged sediments under Alternative 4 would result in fewer noise impacts overall as compared to the proposed project.

5.8.2.5 Marine Biological Resources

The proposed project's dredging operations will result in the temporary loss of marine invertebrates and fish within the area contained within the silt curtains, as well as impacts to

eelgrass areas and a reduction in the available foraging area for local marine mammals, marine reptiles, fish-eating birds, and various fish species.

Similar to the proposed project, Alternative 4 would involve the dredging of contaminated sediments within the remedial footprint. Therefore, Alternative 4 would result in similar impacts to marine resources within the remedial footprint area. Those impacts would be less than significant with implementation of mitigation measures, similar to the proposed project.

Alternative 4 includes the creation of a CDF and placement of the dredged sediments under pier areas. This alternative would have a slightly greater potential to impact marine resources in the waters of San Diego Bay due to the additional construction and filling activities associated with the CDF. Further, although ongoing monitoring would be required to ensure that the CDF covering maintains its integrity, Alternative 4 could have greater impacts if the covering did not effectively sequester underlying contaminants and the marine biological community did not re-establish itself. Therefore, impacts to marine biological resources are considered slightly greater under Alternative 4 due to the potential for impacts to be affected in the immediate area of the CDF.

In conclusion, the potential marine biological impacts of Alternative 4 would be slightly increased as compared to the proposed project, but would remain less than significant with mitigation, similar to the proposed project.

5.8.2.6 Air Quality

The proposed project would result in significant and unavoidable construction-related adverse air quality impacts of NO_X emissions during the dredging and landside staging operation phases of the project.

Because there would be a reduced amount of dewatering, treatment, and off-site trucking activities under Alternative 4, NO_X emissions associated with landside staging operations would be reduced as compared to the proposed project. Although the amount of excess sediment that would require dewatering and removal by trucks is not known at this time, Alternative 4 would reduce the significant and adverse impacts related to construction-related NO_X emissions.

Although landside construction activities would be reduced under Alternative 4, the construction and placement of sediments for the CDF as proposed under Alternative 4 would increase the amount of marine vessel operations and resulting emissions. Therefore, although Alternative 4 would generate NO_X emissions during dredging of the remedial footprint similar to the proposed project, the operations associated with the CDF would generate marine vessel emissions greater than the proposed project, and those NO_X emissions would remain a significant adverse impact for Alternative 4.

Similar to the proposed project, Alternative 4 would also contribute to construction-related adverse cumulative air quality impacts because the SDAB is presently in nonattainment for O_3, and Alternative 4, in conjunction with other planned projects, would contribute to the existing nonattainment status for O_3.

5.8.2.7 Climate Change and Greenhouse Gas Emissions

Similar to the proposed project, Alternative 4 would result in short-term emissions associated with the use of construction equipment for dredging activities, but would not create an ongoing increase in or contribution to climate change because there are no on-site stationary sources. Although landside construction activities would be reduced under Alternative 4, the construction and filling of the CDF as proposed would result in an increased amount of marine vessel operations and emissions as compared to the proposed project.

Similar to the proposed project, Alternative 4 would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs, and impacts associated with this issue would be less than significant.

Overall, Alternative 4 would have a less than significant impact related to its contribution to GCC in the form of GHG emissions, similar to the proposed project.

5.8.3 Conclusion

Alternative 4 would meet the project objectives and would implement the San Diego Water Board's overall goal to improve water quality in San Diego Bay. Alternative 4 would remove the contaminated sediments within the remedial footprint and would attain the cleanup levels identified in the Tentative CAO.

The significant project impacts related to landside construction air quality impacts would not be avoided under Alternative 4, but would be lessened. However, air quality emissions associated with dredging activities (due to construction vessels and equipment) would increase under this alternative and remain a significant adverse impact. In addition, Alternative 4 would not avoid the significant cumulative air quality impacts related to the nonattainment status for O_3.

The potential marine biological impacts of Alternative 4 would be slightly increased as compared to the proposed project, but would remain less than significant with mitigation, similar to the proposed project. Alternative 4 would result in similar impacts as the proposed project for water quality and climate change. However, Alternative 4 would result in reduced impacts for traffic, hazards, and noise as compared with the proposed project.

5.9 IDENTIFICATION OF ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The No Project/No Development Alternative (Alternative 1) would be environmentally superior to the proposed project because the direct physical effects of the proposed project would not occur with Alternative 1. If there were no changes to the existing conditions on site, there would be no increase in construction traffic, noise, or air emissions, and the significant effects of the project would be avoided. However, Alternative 1 would not remediate the contaminated marine sediments that currently present a hazard and a nuisance condition. Therefore, the No Project Alternative would cause the environmental impacts related to the existing conditions to be perpetuated.

The No Project/No Development Alternative (Alternative 1) would be environmentally superior to the proposed project because the direct physical effects of the proposed project would not occur with Alternative 1. If there were no changes to the existing conditions on site, there would be no increase in construction traffic, noise, or GHG emissions, and the significant air quality effects of the project would be avoided. In addition, there would be no increased potential impacts related to hazards or marine biological resources. However, Alternative 1 would not remediate the contaminated marine sediments that currently present as a hazard and nuisance to water quality and the beneficial uses of San Diego Bay. Therefore, the No Project Alternative would cause the environmental impacts related to the existing conditions to be perpetuated.

If the Environmentally Superior Alternative is the No Project/No Development Alternative, the CEQA Guidelines require that "the EIR also identify an environmentally superior alternative among the other alternatives" (CEQA Guidelines section 15126.6[e][2]).

Alternatives 2, 3, and 4 would meet all the project objectives. Because the proposed project is the cleanup of contaminated sediment within the waters of San Diego Bay in conformance with the Tentative CAO, all three alternatives would have impacts similar to the proposed project in relation to the dredging activities for removal of the sediments within the remedial footprint. A smaller or less intense project would not adequately remediate the identified areas and would not implement the Tentative CAO as intended by the San Diego Water Board.

Similar to the proposed project, all three alternatives involve the mechanical dredging of debris and sediments from the Shipyard Sediment Remediation Site. All of the project impacts related to the in-water dredging phase of the project would be the same for Alternatives 2, 3, and 4.

The significant and unavoidable impacts of the proposed project include construction-related adverse air quality impacts of NO_X (which is a precursor to O_3) emissions, and construction-

related adverse cumulative air quality impacts because the SDAB is presently in nonattainment for O_3. Although Alternative 2 would result in reduced air quality emissions because landside haul trips would be eliminated, the emissions from dredging equipment and barge tugs would still exceed the daily emissions threshold for NO_x. Therefore, this Alternative would not avoid the significant and adverse impacts of the proposed project.

Based on the analysis contained in this section with regard to direct physical effects on the environment, there is no clear Environmentally Superior Alternative to the proposed project. No one alternative would eliminate the significant and adverse impacts of the proposed project.

Table 5.1 provides a comparison of the key impacts of the alternatives, and Table 5-2 provides a comparison of the project alternatives relative to the significant adverse impacts of the proposed project.

Table 5-1: Alternatives Impacts Comparison Matrix

Issue Topic	Proposed Project	Alternative 1: No Project/No Development	Alternative 2: CAD Site	Alternative 3: Convair Lagoon CDF	Alternative 4: CDF with Beneficial Use of Sediments
Traffic and Circulation	• Less than significant impacts with implementation of mitigation measures	• No change from existing conditions • No additional traffic would be generated	• Substantially less construction traffic and circulation impacts than proposed project • Does not require any mitigation related to alternative routes, proposed bikeways, or employee parking at landside staging areas	• Greater construction traffic and circulation impacts than proposed project • Does not require any mitigation related to alternative routes, proposed bikeways, or employee parking at landside staging areas	• Less construction traffic and circulation impacts than proposed project • Truck trips for removal of excess sediment still required under Alternative 4 • Does not require any mitigation related to alternative routes, proposed bikeways, or employee parking at landside staging areas
Water Quality	• Less than significant impacts related to water quality with implementation of mitigation measures	• No change from existing conditions • No improvement to existing water quality conditions	• Same as proposed project but fewer BMPs and permits required due to lack of landside operations • CAD requires additional BMPs, permitting and monitoring for construction and maintenance	• Same as proposed project • Requires additional BMPs, permitting and monitoring due to CDF construction and maintenance	• Same as proposed project • Requires additional BMPs, permitting and monitoring due to CAD/CDF construction and maintenance
Hazards and Hazardous Materials	• Less than significant impacts related to hazards and hazardous materials with implementation of mitigation measures	• No change from existing conditions • No improvement to existing hazards conditions due to contaminated sediment	• Same as proposed project but fewer mitigation measures required due to reduced landside operations	• Similar to the proposed project	• Same as proposed project
Noise	• Less than significant impacts related to noise with implementation of mitigation measures	• No change from existing conditions • No additional noise generated	• Substantially reduced landside construction noise impacts compared to the proposed project	• Similar to the proposed project	• Reduced landside construction noise impacts compared to the proposed project • Noise will be generated

Table 5-1: Alternatives Impacts Comparison Matrix

Issue Topic	Proposed Project	Alternative 1: No Project/No Development	Alternative 2: CAD Site	Alternative 3: Convair Lagoon CDF	Alternative 4: CDF with Beneficial Use of Sediments
					from landside operations and truck trips for removal of excess sediment
Marine Biology	• Less than significant impacts related to marine biological resources with implementation of mitigation measures	• No change from existing conditions • No improvement to the marine resource environment	• Same as proposed project within the remedial dredge footprint • Slightly greater impacts due to construction activities in additional water areas	• Same as proposed project within the remedial dredge footprint • Greater impacts than the proposed project due to construction activities in additional water areas and conversion of bay waters to land.	• Same as proposed project within the remedial dredge footprint • Slightly greater impacts due to construction activities in additional water areas
Air Quality	• Significant and unavoidable impacts related to NO_X emissions during construction • Significant and unavoidable cumulative construction air quality impacts associated with the existing SDAB nonattainment status for O_3	• No change from existing conditions • No contribution to short-term or cumulative air quality emissions	• Haul truck emissions would be significantly lessened • Significant and unavoidable impacts related to NO_X emissions during in-water construction • Significant and unavoidable cumulative construction air quality impacts associated with the existing SDAB nonattainment status for O_3	• Significant and unavoidable NO_X emissions impacts during landside construction due to construction operations • Significant and unavoidable impacts related to NO_X emissions during in-water construction • Significant and unavoidable cumulative construction air quality impacts associated with the existing SDAB nonattainment status for O_3	• Fewer NO_X emissions impacts due to reduced landside construction operations; still may be significant and unavoidable • Significant and unavoidable impacts related to NO_X emissions during in-water construction • Significant and unavoidable cumulative construction air quality impacts associated with the existing SDAB nonattainment status for O_3
Climate Change and GHG	• Less than significant impact to GHG emissions	• No change from existing conditions	• Same as proposed project	• Same as proposed project	• Same as proposed project

Table 5-1: Alternatives Impacts Comparison Matrix

Issue Topic	Proposed Project	Alternative 1: No Project/No Development	Alternative 2: CAD Site	Alternative 3: Convair Lagoon CDF	Alternative 4: CDF with Beneficial Use of Sediments
Emissions					
Meets Project Objectives?	• Meets all project objectives	• Would not satisfy any project objectives	• Meets project objectives	• Meets project objectives	• Meets project objectives
Summary Comparison of Impacts Relative to the Proposed Project	• Not applicable	• No new environmental impacts • Does not meet project objectives	• This alternative would avoid the significant project impacts related to landside construction NO_X emissions • This alternative would not avoid the significant and unavoidable impacts related to NO_X emissions during in-water construction • This alternative would not avoid the significant and unavoidable cumulative construction air quality impacts associated with the existing SDAB nonattainment status for O_3 • This alternative would result in reduced impacts for traffic and noise compared with the proposed project • This alternative would result in slightly greater marine biological impacts compared to the proposed project.	• This alternative would not avoid the significant and unavoidable impacts related to NO_X emissions during in-water construction • This alternative would not avoid the significant and unavoidable cumulative construction air quality impacts associated with the existing SDAB nonattainment status for O_3 • This alternative would result in increased impacts for traffic compared with the proposed project • This alternative would result in greater marine biological impacts compared to the proposed project. • Meets all the project objectives	• This alternative would reduce the significant project impacts related to landside construction NO_X emissions • This alternative would not avoid the significant and unavoidable impacts related to NO_X emissions during in-water construction • This alternative would not avoid the significant and unavoidable cumulative construction air quality impacts associated with the existing SDAB nonattainment status for O_3 • This alternative would result in reduced impacts for traffic and noise compared with the proposed project • This alternative would result in slightly greater marine biological impacts compared to the proposed project. • Meets all the project objectives

Table 5-1: Alternatives Impacts Comparison Matrix

Issue Topic	Proposed Project	Alternative 1: No Project/No Development	Alternative 2: CAD Site	Alternative 3: Convair Lagoon CDF	Alternative 4: CDF with Beneficial Use of Sediments
			• Meets all the project objectives		

BMPs = Best Management Practices
CAD = Confined Aquatic Disposal
CDF = Confined Disposal Facility
GHG = greenhouse gas
NO_X = oxides of nitrogen

Table 5-2: Summary of Alternatives/Significant Impacts

Topic	Significant Effect: Proposed Project	Alternative 1: No Project/No Development	Alternative 2: Confined CAD Site	Alternative 3: Convair Lagoon CDF	Alternative 4: CDF with Beneficial Use of Sediments
Air Quality	• Significant and unavoidable impacts related to NO_X emissions during construction • Significant and unavoidable cumulative construction air quality impacts associated with the existing SDAB nonattainment status for O_3	• No change from existing conditions	• Landside construction air quality NO_X emissions would be less than the proposed project impacts, and less than significant with implementation of mitigation measures • Cumulative construction air quality impacts associated with the existing SDAB nonattainment status for O_3 would remain significant and unavoidable	• Landside construction air quality NO_X emissions would be similar to the proposed project impacts. • Cumulative construction air quality impacts associated with the existing SDAB nonattainment status for O_3 would remain significant and unavoidable	• Landside construction air quality NO_X emissions would be less than the proposed project impacts, but could remain significant and unavoidable • Cumulative construction air quality impacts associated with the existing SDAB nonattainment status for O_3 would remain significant and unavoidable

CAD = Confined Aquatic Disposal
CDF = Confined Disposal Facility
NO_X = oxides of nitrogen
O_3 = ozone
SDAB = San Diego Air Basin

5.10 ALTERNATIVE 3: CONVAIR LAGOON CONFINED DISPOSAL FACILITY ALTERNATIVE

5.10.1 Alternative Description

5.10.1.1 Introduction

The following section provides detailed environmental information on the Convair Lagoon Confined Disposal Facility Alternative (Convair Lagoon Alternative) for the Shipyard Sediment Site. The Convair Lagoon Alternative involves a Port Master Plan Amendment and the construction of a confined disposal facility (CDF) for the placement of contaminated marine sediment dredged from the Shipyard Sediment Site.

5.10.1.2 Location

The Convair Lagoon Alternative site consists of an approximately 15.4-acre water and land area located within the San Diego Bay in the city of San Diego, California. Figure 5-1 illustrates the regional location of the Convair Lagoon Alternative site. Figure 5-2 provides a more detailed map of the alternative's site location. The site is bounded by the San Diego Bay to the south; North Harbor Drive, a greenway and the San Diego International Airport to the north; the United States (U.S.) North Harbor Drive Coast Guard Facility to the east; and a rental car parking lot to the west (Figure 5-3). The site is within the jurisdiction of the San Diego Unified Port District (District) and is located in Planning District 2 (Harbor Island/Lindbergh Field), Planning Subarea 24 (East Basin Industrial) of the 2010 Port Master Plan.

5.10.1.3 Setting and Site

Physical Setting

The Convair Lagoon Alternative site is an area of the San Diego Bay that consists of open water, submerged facilities and land.

Land Facilities. Land facilities located on the Convair Lagoon Alternative site are illustrated in Figure 5-4. These facilities are located along the periphery of the site, with the exception of the southern boundary of the site which is San Diego Bay (see Figure 5-4). Land facilities include an asphalt paved area along the northern boundary of the site, parallel to North Harbor Drive; a concrete seawall or rip-rap located along the north, east and west shorelines; and an abandoned concrete sea plane marine ramp located along the southwesterly interface between the land and water. The western and northwestern part of the site is a large rental car parking lot.

Submerged Facilities. Submerged facilities located on the Convair Lagoon Alternative site are illustrated in Figure 5-4, and include a sand cap, rock berm and storm drains. The

submerged area of the site includes an approximate seven-**acr**e sand cap that was designed to isolate sediment contamination associated with former Teledyne Ryan Aeronautical operations. In addition to the sand cap, submerged facilities on the site include a subsurface rock berm and multiple submerged storm drains. The subsurface rock berm transects the site from the northwest corner to the southeast corner in an "L" shape to contain the existing sand cap. On the northern shoreline, a 60-inch diameter storm drain, a 54-inch diameter storm drain, and two 30-inch diameter storm drains outlet into the lagoon. The two 30-inch diameter storm drains are abandoned in place and are no longer active. On the western shoreline, three smaller storm drains outlet into the lagoon.

Surrounding Areas. Areas surrounding the Convair Lagoon Alternative site are illustrated in Figure 5-3. The site is located within an urban area in the city of San Diego, California. Immediately north of the site is Harbor Drive and north of that is the San Diego International Airport. The San Diego International Airport covers 661 acres and consists of a single, 9,401 foot-long 200-foot wide east-west runway, two main terminals and a commuter terminal (SDCRAA, 2008). A greenway with a bicycle path is also located north and adjacent to the site, parallel to North Harbor Drive. Land directly west of the site is a rental car parking lot, while to the east of the site is the San Diego U.S. Coast Guard Station. The San Diego U.S. Coast Guard Station conducts Maritime Law Enforcement, Search and Rescue operations and escorts cruise and Navy ships entering and leaving the bay. The San Diego Bay and a boat anchorage area (Anchorage A-9) are located to the south of the site. Anchorage A-9 is a nine-acre water area which can accommodate approximately 30 transient craft anchored with a ground tackle, a device which prevents an anchored, waterborne vessel from moving.

Planning Setting

Port Master Plan. The Convair Lagoon Alternative site is located within Planning District 2 (Lindbergh Field/Harbor Island), Planning Subarea 24 (East Basin Industrial) of the Port Master Plan. Planning District 2 is one of the nine planning districts that are covered by the Port Master Plan (PMP) and encompasses approximately 996 acres, which consists of about 816 acres of tidelands and 180 acres of submerged tidelands. Planning Subarea 24, within Planning District 2, encompasses the entire Convair Lagoon Alternative site, as well as other land to the west of the site that is designated Industrial Business Park, and a bicycle path that extends along Harbor Drive. The PMP recommends the Industrial Business Park designated land for eventual redevelopment into a light, marine related industrial/business park land use that would allow such activities as scientific laboratories, office space, marine oriented businesses and light manufacturing plants, with some ancillary storage and warehousing where necessary.

The Convair Lagoon Alternative site, including potential staging areas, is approximately 15.4 acres in size. Within the PMP, approximately 5.0 acres of the eastern portion of the Convair Lagoon Alternative site is designated as Harbor Services (water), while the northern portion of the site (0.4 acres) is designated Harbor Services (land) The westerly portion of the

water portion of the site (5.3 acres) is designated Specialized Berthing (water) (see Figure 5-5). A small portion of the site (1.3 acres), along the southeastern boundary, is designated as Boat Navigation Corridor (water) and the western and northwestern part of the site, including the staging area, (3.4 acres), is designated as Industrial Business Park (land).

Coastal Zone. The Convair Lagoon Alternative site falls entirely within the Coastal Zone, which is regulated by the California Coastal Commission under the California Coastal Act. Pursuant to the California Coastal Act, the California Coastal Commission has approved the PMP giving the District primary authority to regulate development and to issue Coastal Development Permits for development projects consistent with the Port Master Plan. However, some District issued permits can be appealed to the California Coastal Commission and the Commission must also approve any amendments to the Port Master Plan. Implementation of the Convair Lagoon Alternative would require a Coastal Development Permit but does not constitute an appealable project under the California Coastal Act.

5.10.1.4 Background

The surrounding shoreline of Convair Lagoon was previously shallow portions of the San Diego Bay which were filled with dredge sediment. The earliest information regarding dredging and fill operations in the vicinity of the alternative site is from 1921, when the northeastern shoreline of the bay was between present-day Pacific Highway and California Street (see Figure 5-1). In the 1920s and 1930s the area north of present-day West Laurel Street and North Harbor Drive, encompassing the eastern portion of the present-day San Diego Airport, was filled with material dredged from the bay. A dredging pipeline, (later converted to a 54-inch reinforced concrete storm drain), extended from the northern portion of the filled land, south to the bay, and discharged into the Convair Lagoon. In the mid-1930s dredging operations filled the area where the San Diego U.S. Coast Guard Station is located east and adjacent to this alternative site. By 1939, a concrete pier was constructed above the previously-mentioned storm drain on the site. In the early 1940s, dredging operations filled the area west of the site. Convair Lagoon is the unfilled area between the U.S. Coast Guard Station and the filled area to the west of the site. Throughout the years, multiple improvements to the site have been constructed and removed, including additional storm drains and other piers.

On October 17, 1986, the San Diego Regional Water Quality Control Board (San Diego Water Board) Executive Officer issued "*Cleanup and Abatement Order No. 86-92 for Teledyne Ryan Aeronautical near Lindbergh Field, San Diego County*" for the discharge of polychlorinated biphenyl (PCBs), several trace metals, and volatile organic compounds to the storm drains on Teledyne Ryan Aeronautical property and to the Convair Lagoon portion of the San Diego Bay. Cleanup and Abatement Order (CAO) 86-92, as amended, required Teledyne Ryan Aeronautical to construct a sand cap on the San Diego Bay bottom in Convair Lagoon to isolate the existing sediment contamination within the lagoon from the environment.

In 1996, the PCB contamination in Convair Lagoon was remediated by the Convair Lagoon Capping Project. During the PCB remediation, the existing sub-surface rock berm was constructed (Figure 5-4) and a sand cap was placed behind the rock berm. The sand cap consisted of fill material and still exists on the site. The majority of the existing sand cap is submerged, although construction of the cap converted approximately 1,400 square feet of an intertidal area to upland. The main cap consists of several layers of materials. The first layer is a geogrid which was placed on top of the existing sediment. The second layer consists of a minimum of one-foot of gravel on top of the geogrid. The third and last layer is a minimum of two feet of sand placed on top of the gravel. The geogrid provides separation between the existing sediments and the gravel. The gravel layer is provided to prevent animals from burrowing into contaminated sediment, while the sand layer isolates the contaminated sediment and provides habitat for plants and animals. The subsurface rock berm provides containment for the main cap and acts as a physical barrier limiting the effects of erosive currents and waves. The subsurface rock berm is approximately five feet in height with 3:1 (horizontal: vertical) sideslopes and is constructed of rock riprap. The thin cap is used to transition between the main cap and the existing topography. The thickness of the thin cap at the PCB contamination boundary is equal to the thickness of the main cap and tapers shoreward to a thickness of four inches of sand over four inches of gravel on the existing sediment. The outer cap is outside the subsurface rock berm and consists of three feet of sand placed directly on top of existing sediment for a distance of 80 feet from the toe of the subsurface rock berm. Beyond 80 feet, the outer cap tapers off at a rate of natural repose of sand.

Recent bay deposits underlie the sand cap and PCB contaminated sediment. Bay deposit materials typically consist of interlayered dark gray, wet, loose, fine silty sand and silt and soft, sandy clay. Old paralic deposits underlie the bay deposits and typically consist of medium dense sand and stiff clay.

Subsequent to installation of the sand cap over the PCB contaminated sediments in Convair Lagoon, monitoring has been conducted that has discovered PCB contamination above the cap, presumably coming from the 60-inch storm drain. In response to this discovery, the San Diego Water Board issued CAO R9-2004-0258, as amended, which addresses the cleanup and abatement of wastes discharged to land at the former TDY site. According to the CAO, significant wastes discharged to soil and groundwater at the site must be identified and cleaned up, and the discharge of any wastes to Convair Lagoon and San Diego Bay must be abated. A subsequent enforcement order will be necessary to assess and cleanup wastes discharged from landside sources to the marine sediments in Convair Lagoon and San Diego Bay. The CAO states that soil and groundwater must be cleaned up and waste discharges abated prior to conducting remedial actions in Convair Lagoon and San Diego Bay to prevent potential recontamination of the marine sediments in the bay. Therefore, the Convair Lagoon Alternative would commence construction once the PCB source is eliminated.

5.10.1.5 Project Alternative Description

The following discussion describes the three major features of the Convair Lagoon Alternative: 1) Port Master Plan Amendment, 2) construction activities, and 3) post-construction operation.

Port Master Plan Amendment

Of the entire 15.4 acre site, only the 10 acre proposed fill pad area (see Figure 5-4) would be subject to the proposed Port Master Plan Amendment (PMPA) because these lands would undergo a conversion from water to land. Under the proposed PMPA, all existing water areas of the 10-acre PMPA site would be designated as Harbor Services, as illustrated in Figure 5-6, and converted to land. The Harbor Services use category identifies land and water areas devoted to maritime services and harbor regulatory activities of the District, including remediation and monitoring. As illustrated in Figure 5-5**,** water areas on the existing site are designated as Harbor Services (land and water), Industrial Specialized Berthing (water), and Boat Navigation Corridor (water) under the 2010 Port Master Plan. The proposed water use changes and related acreages that would occur with approval of the Convair Lagoon Alternative PMPA are summarized in Table 5-3. Minor textual changes in the PMP would also be included in the PMPA to ensure consistency within the document. The proposed PMPA is evaluated in detail in Section 5.10.10, Land/Water Use Compatibility.

Table 5-3: Port Master Plan Amendment Land Use Acreage Changes for Convair Lagoon Alternative

Land Use Designation	Existing (acres)	Proposed (acres)	Net Change
Harbor Services (water)	**5**	**0**	**-5.0 acres**
Harbor Services (land)	**0**	**10**	**+10 acres**
Boat Navigation Corridor	**0.5**	**0**	**-0.5 acre**
Industrial Specialized Berthing	**4.5**	**0**	**-4.5**

Construction Activities

The description provided below is conceptual in nature and although design details may change, the overall concept, truck loads and construction methods would occur as described below. In addition, the conceptual design is consistent with the specifications provided in the Naval Facilities Engineering Command, DM-7.2, Foundations and Earth Structures, dated September 1986. Construction of the Convair Lagoon Alternative is estimated to occur for a duration of approximately 15 months with the activities divided into five phases: 1) Site Preparation, 2) Containment Barrier Construction, 3) Storm Drain Outlet Extension, 4) Sediment Transport and Placement, and 5) Containment Cap Installation. The phasing of construction activities may vary somewhat depending on various factors, such as permitting limitations and availability of dredge fill materials. Each of the five construction phases is

described in detail below with material volumes for each phase is shown in Table 5-4. Table 5-5 provides a summary of the total material volume capacity available on site, upon completion of the Convair Lagoon Alternative.

As shown in Table 5-4, all five phases of construction would require 7,714 truck trips and 116 barge trips. The maximum daily truck trips that would occur during construction would be 98 truck trips per day. The average holding capacity of trucks used for the importation and exportation of materials would be approximately 12.22 cubic yards (cy), while the average holding capacity of barges used for the importation and exportation of materials would be approximately 1,250 cy. Construction staging areas are shown in Figure 5-4 and would be located on the rental car parking lot in the western part of the site. During each construction phase, the Convair Lagoon Alternative would employ approximately ten construction workers. A maximum of A short-term monitoring program would occur during all phases of construction to monitor if disturbed sediments are adequately contained and to determine that construction is occurring according to specifications.

Table 5-4: Convair Lagoon Alternative Material Volumes (by Construction Phase)

Construction Phase	Material Volume (in cubic yards)
Phase 1, Site Preparation	
Demolition	500 cy
Excavation Underneath Jetty	13,000 cy
Phase 1 Subtotal	13,500 cy
Phase 2, Containment Barrier Construction	
Jetty Aggregate Material and Placement	38,000 cy
Jetty Underlayer Material and Placement	3,000 cy
Jetty Armored Rock Material and Placement	8,000 cy
Filter Rock Material	2,000 cy
Phase 2 Subtotal	51,000 cy
Phase 3, Storm Drain Outlet Extension	
2 Storm Drain Extension Rock Barrier	2,200 cy
2 Storm Drain Energy Dissipaters	300 cy
Phase 3 Subtotal	2,500 cy
Phase 4, Sediment Transport and Placement	
Dredge from Shipyard Sediment Site	143,400 cy
Disposal to Class I landfill (Kettleman Hills)	24,737 cy
Placement in Convair Lagoon Alternative Site	121,890 cy
Phase 4 Subtotal	24,737 cy to Kettleman Hills Landfill 121,890 cy to Convair Lagoon Alternative Site
Phase 5, Containment Cap Installation	
9 inch Sand Cap	12,000 cy
3 inch Asphalt Pavement	4,000 cy
Phase 5 Subtotal	16,000 cy
Total Material Volume Placed in Convair Lagoon Alternative	**204,890 cy**

Site – (includes all construction materials and contaminated sediment)	

Table 5-5: Convair Lagoon Alternative Site Capacity Summary

Convair Lagoon Alternative Site	Material Volume
Capacity Available Upon Completion of Construction	240,000 cy
Total Material Volume proposed under Convair Lagoon Alternative (includes all construction materials and contaminated sediment)	204,890 cy
Unused Capacity	35,110 cy

Note: Sediment shrinkage and bottom consolidation are accounted for in determining the CDF capacity.

Table 5-6: Convair Lagoon Alternative Truck and Barge Trips (by Construction Phase)

Construction Phase	Truck Trips	Barge Trips
Phase 1, Site Preparation	0	0
Phase 2, Containment Barrier Construction	4,174	0
Phase 3, Storm Drain Outlet Extension	205	0
Phase 4, Sediment Transport and Placement		
Sub-Phase A: Dredging and Capping Shipyard Sediment Site	0	0
Sub-Phase B: Dewatering and Disposal	2,025	18
Sub-Phase C: Transportation and Placement	0	98
Phase 5, Containment Cap Installation.	1,310	0
Total (All Phases)	**7,714 truck trips**	**116 barge trips**

Phase 1, Site Preparation. Phase 1 of the construction would involve initial site preparation activities. This phase of construction would include the demolition and removal of the existing concrete pier, riprap, concrete mattress storm drain energy dissipaters, and the abandoned seaplane marine ramp. Removal of the pier would involve cutting the existing support piles at the approximate existing mud-level. The existing sub surface rock berm would remain undisturbed. In total, approximately 500 cubic yards (cy) of materials would be demolished. Demolished facilities would be reused on site as fill material.

In addition to demolition activities, the site would require the excavation of existing sediment in the area proposed for the containment barrier (Phase 2). To prepare the site for construction of the containment barrier, approximately three feet of existing sediment (13,000 cy) would be excavated within the footprint of the proposed barrier, consistent with the specifications provided in the Naval Facilities Engineering Command, DM-7.2, Foundations and Earth Structures, dated September 1986. This excavated material would be

stockpiled on the adjacent rental car parking lot and then, after the containment barrier is constructed it would be reused as fill material in shallow water portions of the site.

Phase 1 construction activities would require no truck trips because all excavated and demolished materials would be reused on site as fill. Construction equipment required for Phase 1 construction would include tracked excavators (i.e., Caterpillar 350) with breaker hammers with a 10,000 pound (lb) capacity, loaders (i.e.,Caterpillar 980), dredging equipment, hydraulic pumps, and a clamshell crane. Construction activities would be conducted from the existing shoreline or from a barge with a crane.

Phase 2, Containment Barrier Construction. Phase 2 construction activities would involve the installation of a rock jetty containment barrier from the southwest corner of the San Diego U.S. Coast Guard facility shoreline to the southeast corner of the rental car lot shoreline as shown in Figure 5-4. The containment barrier would serve to contain the dredged fill material from the Shipyard Sediment Site and mitigate the migration of contaminated fill material into the bay. The barrier would extend an estimated 1,100 feet from the southwest corner of the site to the southeast corner of the site. The containment barrier would be constructed prior to the placement of the dredged fill (Phase 4) and would be designed to resist marine and earth forces. The containment barrier would be constructed with a 2:1 (horizontal: vertical) slope gradient.

The containment barrier would consist of three layers (core, underlayer and armor) placed upon the Phase 1 excavated surface below the marine floor (Figure 5-7). The core layer of the containment barrier would consist of quarry-run aggregate or similar material. The underlayer would consist of small rock and would support the armor layer. The armor rock layer would be located on the bay-side of the barrier to protect the outside of the containment barrier from wave action, boat wakes and other erosional forces. The containment barrier would include an engineered filter on the north face, consisting of graded rock or geotextile fabric. This filter would mitigate migration of fill particles into the bay due to tidal fluctuations. The filter would be approximately 7,000 square yards and would be anchored to the containment barrier with 2,000 cy of rock. A weir would be constructed on or near the containment barrier to provide a method to release site water displaced during the placement of fill at the site. The weir would consist of a low crest in the containment barrier or a pipe in the structural fill of the barrier. The weir would employ a method for sediment management, such as a turbidity curtain.

Rock and aggregate material used to construct the containment barrier would be imported from a nearby quarry. Multiple rock sizes would be imported for the armor and underlayer materials of the containment barrier. Armor rock size would be approximately three feet in size with a weight of approximately two-tons per rock; underlayer rock would be sized in proportion with the armor face rock; and the core layer would consist of import quarry-run or similar aggregate material. In total, the containment barrier would require approximately 49,000 cy of materials, including 8,000 cy of armor rock material, 3,000 cy of underlayer rock material, and 38,000 cy of core aggregate material.

The importation of containment barrier materials would require approximately 4,174 truck trips, using a 12.22 cy, ten-wheeled dump truck. Construction equipment required for the construction of the containment barrier would include dump trucks, barges, front loaders, hydraulic pumps and clamshell cranes.

Construction of the containment barrier would either occur by a placement or end dumping method. Placement construction would occur from a crane located on land adjacent to the site or from a crane located at the crest of the containment barrier. Under the placement method, armor rock layers would require individual rock placement, using a crane mounted on a barge, to promote stress distribution and uniform coverage. The placement of core rock may include bottom dumping. Alternatively, the containment barrier could be constructed using an end dumping method. End dumping would involve pushing or dumping rock materials from the western rental car lot shoreline to progressively build the containment barrier eastward without the use of a barge or crane. The end dumping construction method would require individual rock placement for armor rock. Upon completion of construction, the containment barrier would have an elevation of 12 Mean Lower Low Water (MLLW), and would have a total fill capacity of 168,000 cy.

Phase 3, Storm Drain Outlet Extension. Phase 3 of construction activities would involve the extension of the existing 60-inch diameter storm drain and the extension of the existing 54-inch diameter storm drain to the face of the containment barrier, as shown in Figure 5-4. The two 30-inch diameter storm drains that currently exist on site would not be extended because they have been abandoned and no longer discharge storm water. Storm drain extensions would require the installation of rock for support. A total of 2,200 cy of rock material would be imported for the storm drain extensions and placed using an end dumping construction method. Material would be dumped from the same trucks used to import the material. Each extended storm drain would be installed with an energy dissipater apron at the mouth of the each storm drain. Energy dissipaters would be constructed at or near the high water mark to allow for storm water discharge at high tide. Material for the new energy dissipaters would include various rock material sizes (similar to those used for the containment barrier), as well as a geotextile fabric or graded rock filter medium. Each energy dissipater would require approximately 150 cy of imported rock. Imported rock materials for the storm drain extensions and energy dissipaters would be transported by truck and would require approximately 205 truck trips. The extension of storm drains and construction of energy dissipaters would require earthwork or marine machinery, including cranes and an excavator.

Phase 4, Sediment Transport and Placement. Phase 4 of construction activities would involve three sub-phases: A) dredging and capping the Shipyard Sediment Site, B) dewatering and disposing of highly contaminated sediment, and C) transporting and placing remaining dredged sediment in the Convair Lagoon Alternative site. These sub-phases are discussed separately below.

A. Dredging and Capping Shipyard Sediment Site. Sub-phase A of Phase 4 of the Convair Lagoon Alternative includes the dredging and removal of approximately 143,400 cubic yards of contaminated sediment from the Shipyard Sediment Site. The Shipyard Sediment Site is located along the eastern shore of central San Diego Bay, extending approximately from the Sampson Street Extension on the northwest to Chollas Creek on the southeast, and from the shoreline out to the San Diego Bay main shipping channel to the west, as shown in Figure 3-1 of Chapter 3, Project Description, of this EIR. The Shipyard Sediment Site consists of marine sediments in the bottom bay waters that contain elevated levels of pollutants greater than San Diego Bay background conditions. This alternative would utilize environmental dredging which, unlike navigational or construction dredging, is performed specifically for the removal of contaminated sediment while minimizing the spread of contaminants to the surrounding environment during dredging operations.

Silt curtains and/or air curtains would be placed around the dredge area, including the dredge barges. The silt curtain would consist of a geotextiles fabric curtain with a floatation boom at the upper hem and ballast weights at the lower hem. The silt curtain would act as a physical barrier that would limit access to the portions of the site where the dredging operations are occurring. The silt curtain would also contain any resuspended particles from migrating outside of the active dredging area. Air curtains have been used successfully during the removal operations on the St. Lawrence River in Massena, NY, and the KK River in Milwaukee, Wisconsin. These air curtains were used in conjunction with silt curtains to contain re-suspended sediment but specifically to enhance worker safety and allow barges to transit into and out of the work area without the need to open and close silt curtain gates.

It is anticipated that the dredging would utilize a derrick barge equipped with a closed environmental bucket such as the Cable Arm® Environmental Clamshell in order to maintain water quality. The dredge material would be placed on material barges. All barges would be outfitted with a water recovery system to collect the water deposited on the barges during dredging operations.

Due to the presence of infrastructure, such as piers and pilings, dredging is constrained in several locations within the Shipyard Sediment Site. Therefore, contaminated areas under piers and pilings at the Shipyard Sediment Site would be remedied through subaqueous, or in-situ, capping. In-situ capping is the placement of clean material on top of the contaminated sediment. The capping material is typically clean sand, silty to gravelly sand, and/or armoring material. Effective capping requires sufficient cap thickness, careful cap placement to avoid disturbance, and maintenance to ensure cap integrity from future disturbances. Sand capping would involve the transport of capping material to the site (possibly via truck or barge) and placement of the materials over contaminated sediment. The capping operations will require a materials barge outfitted with a stone slinger truck, hoppers, and conveyors to move and place the capping materials over the contaminated marine sediments.

B. Dewatering and Disposal. Under the Convair Lagoon Alternative, approximately 21,510 cy, or 15 percent, of dredged sediment from the Shipyard Sediment Site would not qualify for placement in the Convair Lagoon Alternative CDF because of high contamination levels. This 21,510 cy of contaminated dredged sediment would be transported to land via barge and would require dewatering and transportation to a Class I landfill.

For this 21,510 cy, or 15 percent, of dredged sediment, the Convair Lagoon Alternative would require a landside sediment management site with sufficient space and access to stockpile, dewater, and transport the 21,510 cy of dredged material. Five potential staging areas have been identified and are shown in Figures 3-2 through 3-7 in Chapter 3, Project Description, of this EIR. Approximately 18 barge trips would be required to transport the 21,510 cy of dredged material to land. The 21,510 cy of dredge sediment would be off-loaded from the materials barge by an excavator and put into dump trucks for placement in a staging area or treated with cement-based reagent (pozzilonics) in the barge, then off-loaded into trucks for placement in a staging area for curing and sampling.

The staging area would require site preparation and construction of a pad. The site would be graded and compacted (if necessary) and a sealing liner would be put in place. An asphalt pad would then be constructed. The drying area would be surrounded by k-rails and sealed with foam and impervious fabric to form a confined area. The sediment would then be mixed with pozzilonics to accelerate the drying. Treatment with pozzilonics would increase the 21,510 cy of material by 15 percent, to approximately 24,737 cy. The sediment would be spread out and rotated frequently to further accelerate the drying process. The drains located in the drying area would be isolated from the rest of the storm water system at the site. If the excess water from the drying area does not meet industrial wastewater permit requirements, and cannot be discharged into the City sewage system, the water would be dealt with as contaminated waste and removed from the site by a licensed waste hauler. All collected water would be tested and disposed of in accordance with local, state, and federal requirements. After drying, soil sampling would be conducted and the 24,737 cy of material would be loaded directly onto trucks for disposal at a Class I disposal facility, most likely Kettleman Hills Landfill in Kings County, California. It is estimated that approximately 2,025 truck trips would be required to transport this sediment to the Kettleman Hills Landfill. The preferred route to Kettleman Hills Landfill in Kings County, California is via I-5 north. Trucks departing from potential Staging Areas 1 through 4 would access I-5 south via E. Harbor Drive and 28th Street; trucks departing from Staging Area 5 would access I-5 south either directly from Bay Marina Drive or from W. 32nd Street to Marina Way to Bay Marina Drive.

C. Transportation and Placement. Approximately 85 percent of the dredged material, or 121,890 cy, from the Shipyard Sediment Site would be transported by barge to the Convair Lagoon Alternative Site and placed within the submerged areas of the lagoon as hydraulic fill. The contaminated marine sediment would be transported via a barge towed by a tug boat from the Shipyard Sediment Site to the Convair Lagoon Alternative site over a distance of approximately 5 miles that would require 98 barge trips. Barges used to receive the

contaminated sediment at the Shipyard Sediment Site would transport the dredged material to the Convair Lagoon Alternative site. The contaminated sediment would be transferred from the barges to the CDF through the use of pumps, pipelines and hoses or a clamshell crane. Erosion control measures would be implemented to protect the placed sediment from wave action, boat wakes and other erosional forces. After all the contaminated sediment is placed within the containment barrier, the elevation of the site would be approximately nine feet above sea level or MLLW.

Phase 5, Containment Cap Installation. Phase 5 of the construction would involve the importation and installation of an engineered containment cap. The engineered cap would consist of 9 inches of clean sand placed over the contaminated fill material and a 3-inch layer of asphalt pavement above the clean sand to isolate the contaminated material from the community. Cap material is anticipated to be transported and placed conventionally by truck and earthwork equipment. During this phase of construction, approximately 12,000 cy of sand and 4,000 cy of asphalt would be imported to the site and placed above the contaminated sediment by unloading the sand and asphalt directly from the trucks. The importation of sand and asphalt would require approximately 1,310 truck trips, using 12.22 cy, ten-wheeled dump trucks. Construction equipment required for Phase 5 would include trucks, a grader and asphalt spreading and compacting equipment. Upon completion of the containment cap, the elevation of the site would be 10 feet MLLW and a portion of the dredge fill would remain saturated beneath sea level. The elevation transition between the existing, surrounding ground surface, which is 12 feet MLLW, would be gradual across the site and would be based on surface drainage requirements. Four storm drains would remain on site (Figure 5-4), two abandoned in-place and two discharging beyond the containment barrier, each equipped with an energy dissipater apron.

Post-Construction Operation

Upon completion of construction, the alternative would create approximately 10 acres of upland that would consist of paved, undeveloped land with an elevation of approximately 10 feet above sea level or MLLW. Additionally, the site would be designated Harbor Services (land) in the Port Master Plan. Harbor Services is a use category that identifies land and water areas devoted to maritime services and harbor regulatory activities of the District, including remediation and monitoring.

The Convair Lagoon Alternative does not include the construction or development of any buildings or structures on the converted site and no permanent dewatering would be required.

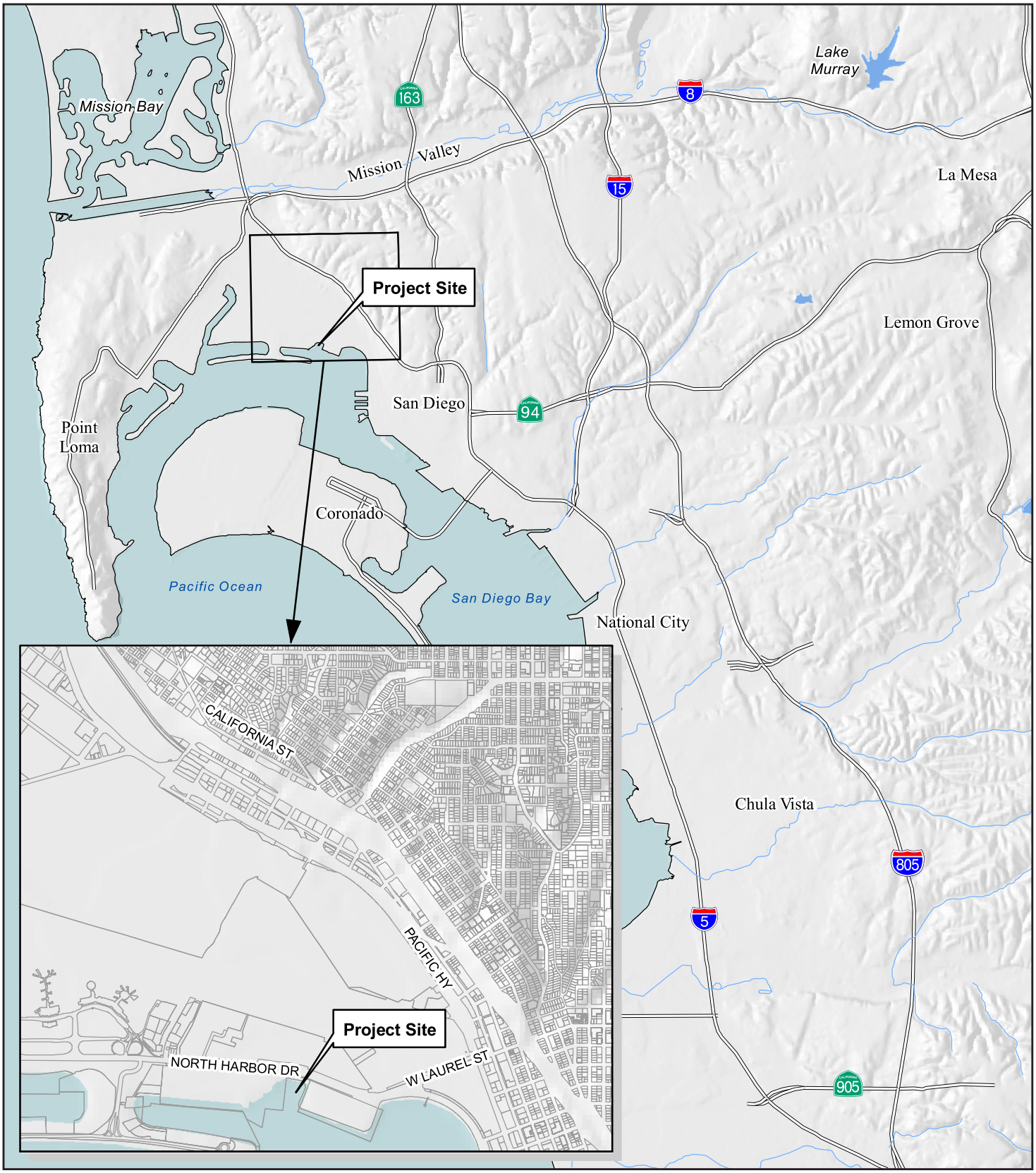
5.10.1.6 Permits and Approvals Required

Numerous federal, state and local laws, regulations and permit requirements would be applicable to the Convair Lagoon Alternative. Table 5-7 identifies potential permits and approvals that would be required for the Convair Lagoon Alternative.

Table 5-7: Potential Permits

Agency/Department	Permit	Action Associated With or Required For
Federal Agencies		
US Army Corps of Engineers	Individual/Nationwide section 404 Permit (CWA, 33 USC 1341)	Responsible for issuing section 404 permits for dredged or fill material into waters of the US (up to higher high water line in tidal waters) and into wetlands in compliance with EPA regulations.
	Section 10, Rivers and Harbors Act Permit	Regulates construction, excavation, and deposition in navigable waters (up to mean high water in tidal waters).
	Marine Protection, Research, and Sanctuaries Act of 1972, section 103	Regulates dumping and transport for dumping of material into US waters.
State Agencies		
State Water Resources Control Board, Regional Water Quality Control Board	401 Certification (CWA, 33 USC 1341, if the project requires ACOE 404 Permit)	Discharge into waters and wetlands (see ACOE section 404 Permit).
California Coastal Commission	Port Master Plan Amendment	Change in designated land use.
Local Agencies		
San Diego Unified Port District	Port Master Plan Amendment	Change in designated land use.
	Coastal Development Permit	Development within the Coastal Zone.

This page intentionally left blank



ATKINS

FIGURE 5-1

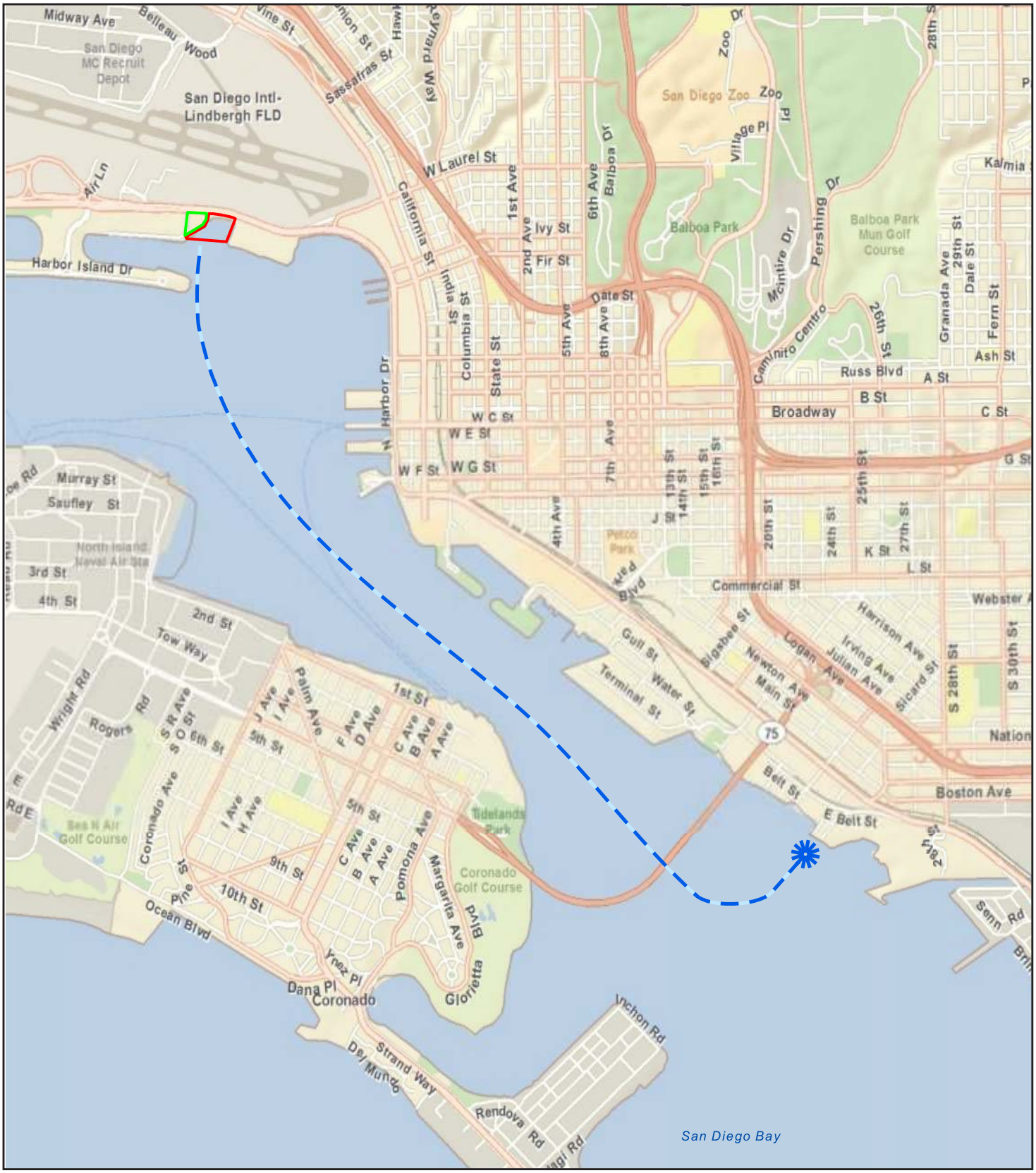
N

0 1 2
MILES

SOURCE: SanGIS 2011

Convair Lagoon Alternative
Regional Location

This page intentionally left blank



ATKINS

LEGEND

- Convair Alternative Site Boundary
- Convair Alternative Staging Area
- Approximate Barge Route

N

0 1,500 3,000

FEET

SOURCE: ESRI 2011

FIGURE 5-2

Convair Lagoon Alternative

Site Vicinity

This page intentionally left blank

ATKINS

FIGURE 5-3

N

0 120 240

FEET

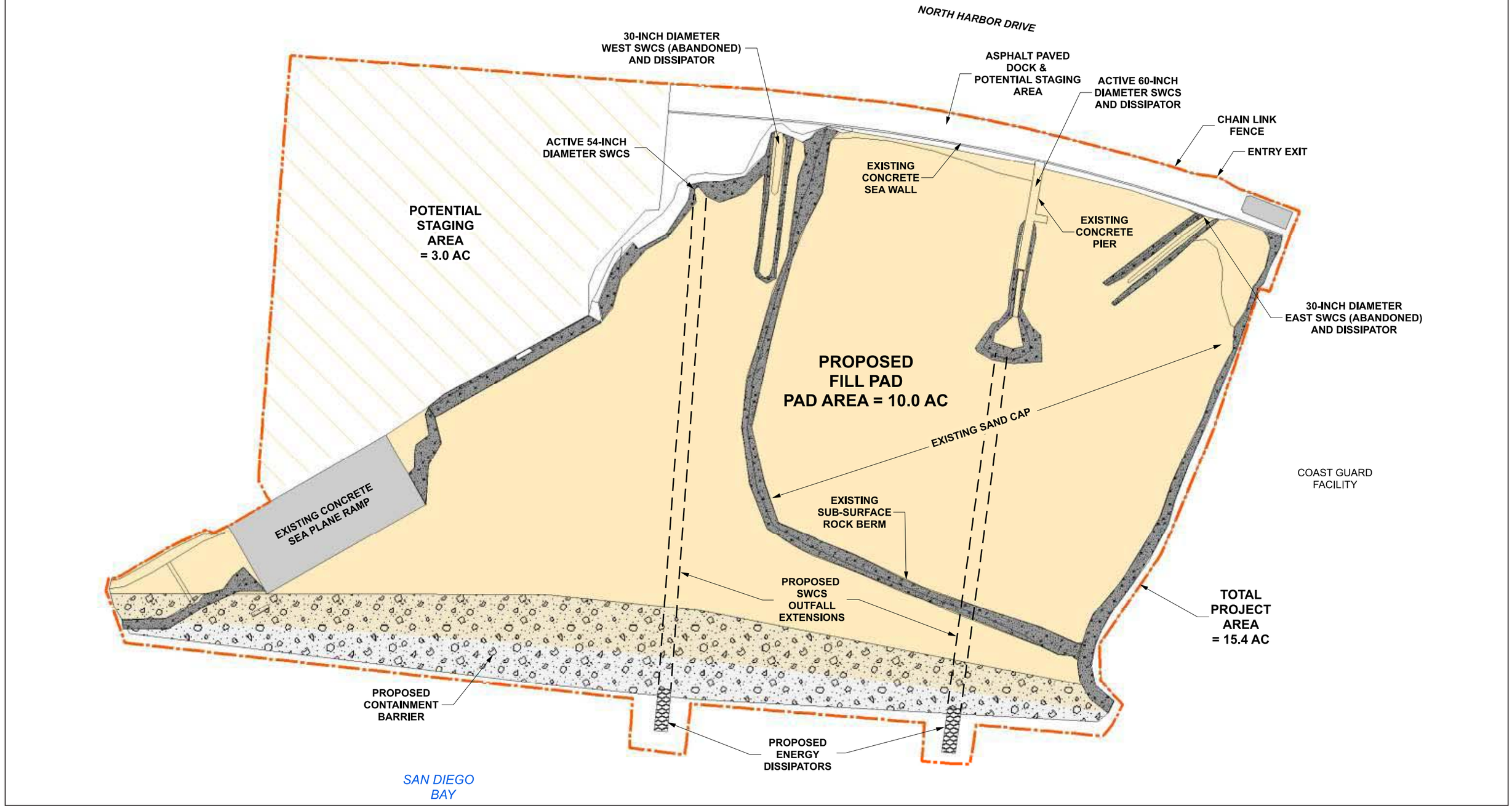
SOURCE: Aerial Imagery - Photo Date: August, 2010; (c) Google Earth, 2011

Note: Directions, dimensions and locations are approximate.

Convair Lagoon Alternative

Site Location

This page intentionally left blank



ATKINS

N

0 50 100

FEET

SOURCE: Ninyo and Moore 2011

LEGEND

- Project Area
- Existing Concrete
- Proposed Fill Pad
- Existing Rip Rap
- Proposed Containment Barrier
- Proposed SWCS (Storm Water Conveyance System)

Note: Directions, dimensions and locations are approximate

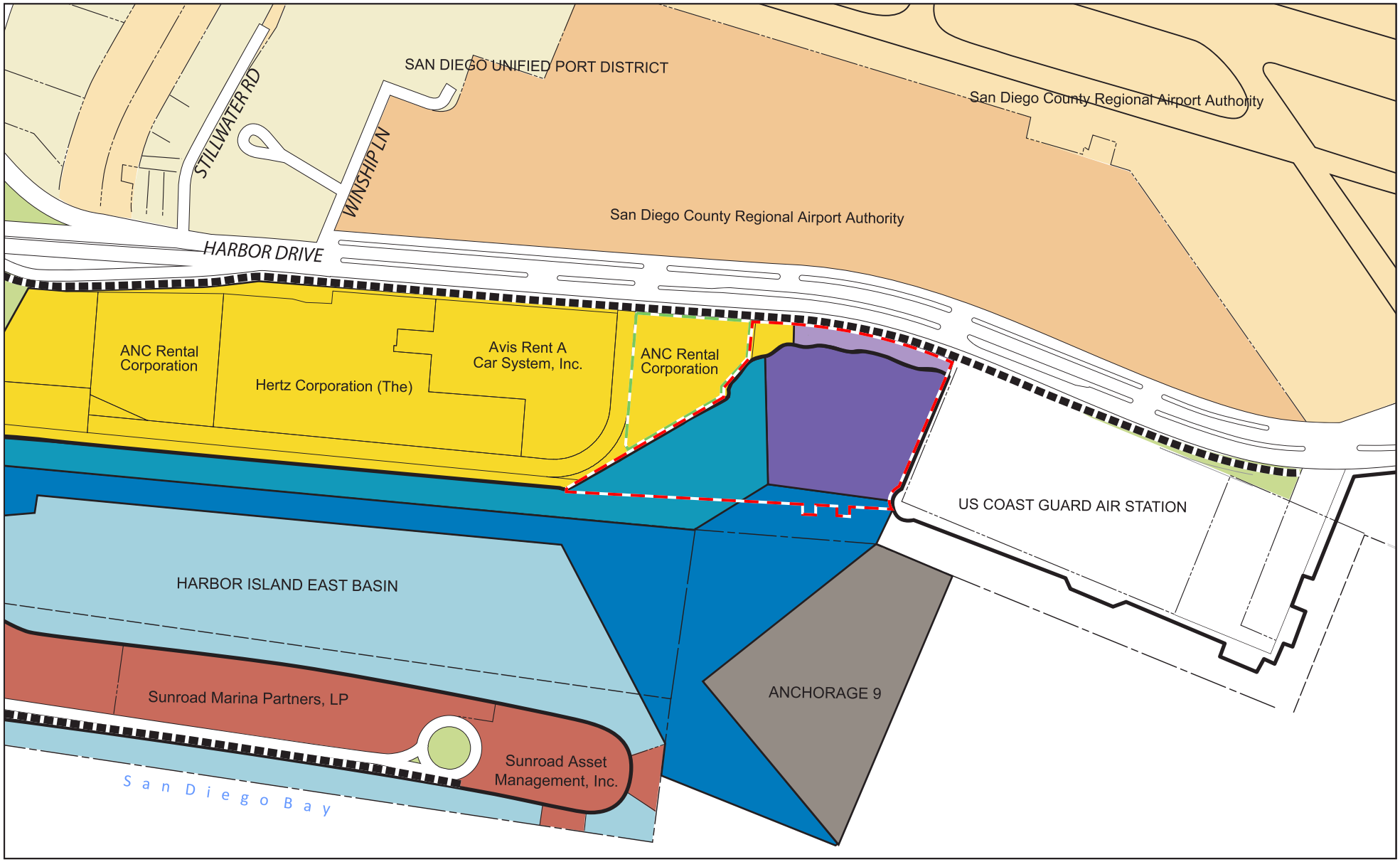
FIGURE 5-4

Convair Lagoon Alternative

Conceptual Design

Existing and Proposed Facilities

This page intentionally left blank



ATKINS

N

No Scale

SOURCE: San Diego Unified Port District 2011

LEGEND

- Convair Alternative Site Boundary
- Convair Alternative Staging Area
- SDUPD Limits
- US Pierhead Line
- US Bulkhead Line
- Pierhead/Bulkhead Line
- Lease Line

Water Use

- Open Bay
- Specialized Berthing
- Boat Navigation Corridor
- Boat Anchorage
- Harbor Services

Land Use

- Commercial Recreation
- Airport Related Commercial
- International Airport
- Aviation Related Industrial
- Industrial Business Park
- Promenade
- Open Space
- Harbor Services

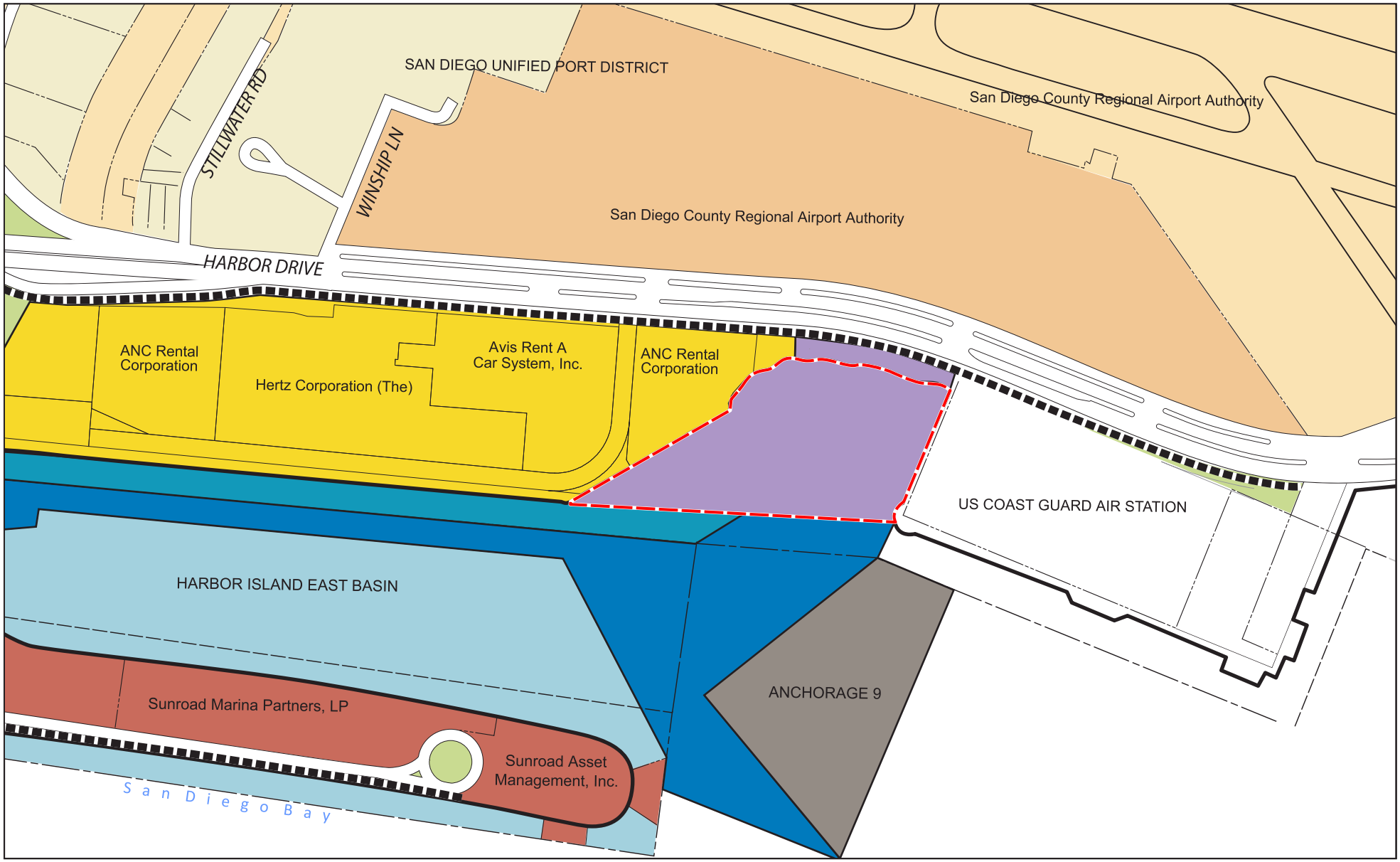
Note: Directions, dimensions and locations are approximate.

FIGURE 5-5

Convair Lagoon Alternative

Port Master Plan Land and Water Use Map

This page intentionally left blank



ATKINS

N

No Scale

LEGEND

- Convair Lagoon Alternative Port Master Plan Amendment Boundary
- SDUPD Limits
- US Pierhead Line
- US Bulkhead Line
- Pierhead/Bulkhead Line
- Lease Line

Water Use

- Open Bay
- Specialized Berthing
- Boat Navigation Corridor
- Boat Anchorage

Land Use

- Commercial Recreation
- Airport Related Commercial
- International Airport
- Aviation Related Industrial
- Industrial Business Park
- Promenade
- Open Space
- Harbor Services

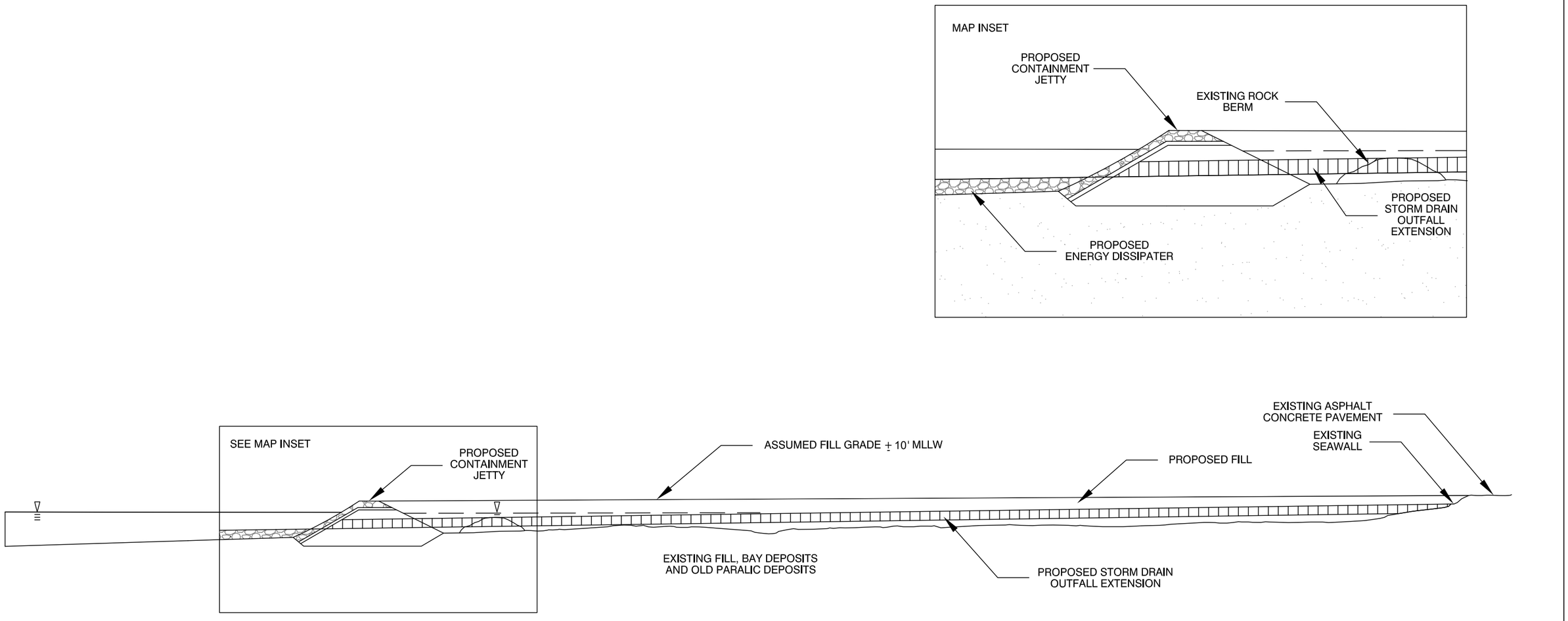
FIGURE 5-6

Convair Lagoon Alternative
Port Master Plan Amendment

SOURCE: San Diego Unified Port District 2011

Note: Directions, dimensions and locations are approximate.

This page intentionally left blank



ATKINS

FIGURE 5-7

N

Not to Scale

SOURCE: USGS 7.5' Quad - El Toro ('88)

Convair Lagoon Alternative

Containment Barrier Cross Section

This page intentionally left blank

5.10.2 Environmental Analysis Introduction

5.10.2.1 Introduction to the Analysis

Sections 5.10.3 through 5.10.10 of Chapter 5.10 contain a discussion of the potential significant environmental effects resulting from implementation of the Convair Lagoon Alternative, including information related to existing site conditions, analyses of the type and magnitude of individual environmental impacts, and feasible mitigation measures that could reduce or avoid environmental impacts.

Scope of the Analysis

Implementation of the Convair Lagoon Alternative could result in potentially significant impacts to the following environmental topics:

- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land and Water Use Compatibility

The Convair Lagoon Alternative would have either a less than significant impact or no impact associated with the following topics: Aesthetics, Agricultural and Forestry Resources, Mineral Resources, Population and Housing, Public Services, Recreation, Transportation and Traffic and Utilities and Service Systems. These topics are described within Chapter 5.10.11, Other Environmental Issues, of this alternative analysis.

5.10.2.2 Format of the Environmental Analysis

Each of the eight environmental topic sections in Chapter 5.10 includes the following subsections:

Existing Environmental Setting. According to CEQA Guidelines section 15125, an EIR must include a description of the existing physical environmental conditions in the vicinity of a project to provide the "baseline condition" against which impacts are compared. Normally, the baseline condition is the physical condition that exists when the NOP is published. The NOP for the Shipyard Sediment Site Project was published on November 11, 2009.

Regulatory Setting. This subsection provides a summary of regulations, plans, policies, and laws that are relevant to each environmental topic at the federal, state, and local levels.

Methodology. This subsection provides a summary of the methods that were used to evaluate the potential impacts occurring as a result of the Convair Lagoon Alternative.

Thresholds of Significance. Thresholds of significance are criteria used to assess whether potential environmental effects are significant. The thresholds of significance used in this analysis are primarily based upon the recommendations provided in Appendix G of the CEQA Guidelines. The threshold of significance defines the type, amount, and/or extent of impact that would be considered a significant adverse change in the environment. The thresholds of significance are intended to assist the reader in understanding how and why an EIR reaches a conclusion that an impact is significant or less than significant.

Impacts and Mitigation Measures. This subsection describes the potential environmental impacts of the Convair Lagoon Alternative and, based upon the thresholds of significance, concludes whether the environmental impacts would be considered less than significant, potentially significant or significant and unavoidable. The discussion of potential impacts is based upon the applicable threshold of significance for each issue. Where impacts are identified, mitigation measures are included to avoid or reduce the potential impact to a level below significance.

The analysis of environmental impacts considers both the construction and operational aspects associated with implementation of the Convair Lagoon Alternative. As required by CEQA Guidelines section 15126.2(a), direct, indirect, short-term, extended-term, on-site and/or off-site impacts are addressed, as appropriate, for the environmental issue being analyzed.

Less than Significant. This term is used to refer to 1) impacts resulting from implementation of the Convair Lagoon Alternative that are not likely to exceed the defined threshold of significance, and 2) potentially significant impacts that are reduced to a level that does not exceed the defined threshold of significance after implementation of mitigation measures.

Potentially Significant. This term is used to refer to impacts resulting from implementation of the Convair Lagoon Alternative that exceed the defined threshold of significance before identification of mitigation measures. A "significant effect" is defined by CEQA Guidelines section 15382 as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment [but] may be considered in determining whether the physical change is significant." For impacts that exceed a threshold of significance, mitigation measures that avoid or reduce the potential impact are identified.

Mitigation Measures. CEQA Guidelines section 15126.4 requires an EIR to "describe feasible measures which could minimize significant adverse impacts." The CEQA Guidelines define feasibility as capable of being accomplished in a successful manner within a reasonable period of time taking into account economic, legal, social, technological, or other considerations. This subsection lists the mitigation measures that could reduce the severity of impacts identified in the Impact Analysis subsection. Mitigation measures are the specific environmental requirements for construction or operation of the Convair Lagoon Alternative consistent with the findings of this analysis.

Cumulative Impacts. CEQA Guidelines section 15130 requires that an EIR address cumulative impacts of a project when the project's incremental effect would be cumulatively considerable. Cumulatively considerable means that the incremental effects of an individual project would be considerable when viewed in connection with the effects of past, current, or probable future projects. A cumulative effect is not deemed considerable if the effect would be essentially the same whether the Proposed Project is implemented or not.

The basis for the analysis of cumulative impacts is dependent on the nature of the issue. According to CEQA Guidelines section 15130, the discussion of cumulative effects "need not provide as great a detail as is provided for the affects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness." The evaluation of cumulative impacts will be based on "a list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside of the control of the agency." Present and probable future projects are addressed in this cumulative analysis, while past projects were considered as part of the existing setting and analyzed under each individual topic in Chapter 5.10. This analysis includes projects that require agency approval for an application that has been received by the reviewing agency at the time of the Draft EIR, but does not include information that became known or available after the completion of the Draft EIR.

In addition, reasonable mitigation measures for cumulatively significant impacts should be discussed; however, CEQA acknowledges, "with some projects, the only feasible mitigation for cumulative impacts may involve the adoption of ordinances or regulations rather than the imposition of conditions on a project-by-project basis."

Table 5-8 provides of a list of the past, present, and probable future projects within the vicinity of the Convair Lagoon Alternative known as of April 2011, which is the time of preparation of this analysis. Cumulative projects that are considered within the vicinity of the Convair Lagoon Alternative include those located in areas under the jurisdiction of the San Diego Unified Port District or the San Diego Regional Airport Authority, or in areas within a one-mile radius of the Convair Lagoon site.

Significant and Unavoidable. This term is used to refer to significant impacts resulting from implementation of the Convair Lagoon Alternative that cannot be eliminated or reduced to below significance through implementation of feasible mitigation measures.

Table 5-8: Cumulative Projects in the Vicinity of Convair Lagoon Alternative

ID #	Project Name	Location	Description	Schedule
1.	West Side - Terminal Project 1	San Diego International Airport (Lindbergh Field)	Expand existing Terminal 2 West with 10 new gates.	Construction timeline begins 2009 and ends 2013.
2.	West Side - Airfield Project 2	San Diego International Airport (Lindbergh Field)	Construct new aircraft parking and replacement Remain-Over-Night aircraft parking apron.	Construction timeline begins 2009 and ends 2013.
3.	West Side - Airfield Project 3	San Diego International Airport (Lindbergh Field)	Construct new apron and aircraft taxi lane.	Construction timeline begins 2009 and ends 2013.
4.	West Side - Ground Transportation Project 4	San Diego International Airport (Lindbergh Field)	Construct new second level road/curb and vehicle circulation.	Construction timeline begins 2009 and ends 2013.
5.	West Side - Ground Transportation Project 5	San Diego International Airport (Lindbergh Field)	Construct a new parking structure and vehicle circulation serving Terminal 2.	Construction timeline begins 2009 and ends 2013.
6.	West Side - Airport Facilities Project 6	San Diego International Airport (Lindbergh Field)	Utility Plan Expansion and Co-Generation Facility.	Construction timeline begins 2009 and ends 2013.
7.	West Side - Airport Facilities Project 7	San Diego International Airport (Lindbergh Field)	1,000 foot Displaced Threshold.	Construction timeline begins 2009 and ends 2013.
8.	North Side - Ground Transportation Project 1	San Diego International Airport (Lindbergh Field)	Relocate and reconfigure SAN Park Pacific Highway.	Construction timeline begins 2009 and ends 2013.
9.	North Side - Ground Transportation Project 2	San Diego International Airport (Lindbergh Field)	Construct a new access road to North Area facilities from Sassafras St./Pacific Highway intersection.	Construction timeline begins 2009 and ends 2013.
10.	North Side - Airport Support Project 3	San Diego International Airport (Lindbergh Field)	Construct new general aviation facilities including access, terminal hangers and apron on 12.4 acres.	Construction timeline begins 2009 and ends 2013.
11.	North Side - Ground Transportation Project 4	San Diego International Airport (Lindbergh Field)	Demolish the existing general aviation facilities	Construction timeline begins 2009 and ends 2013.
12.	North Side - Airfield Project 5	San Diego International Airport (Lindbergh Field)	Reconstruct Taxiway C and construct new apron hold pads and new Taxiway east of Taxiway D.	Construction timeline begins 2009 and ends 2013.
13.	Teledyne Ryan Demolition Project	2701 North Harbor Drive, adjacent to the San Diego International Airport	Removal of approximately 50 existing structures (totaling approximately one million square feet); removal and disposal of all paving materials, hazardous and contaminated demolition materials,	Expected completion date June 2012.

Table 5-8: Cumulative Projects in the Vicinity of Convair Lagoon Alternative

ID #	Project Name	Location	Description	Schedule
			chlorofluorocarbons; removal, replacement or relocation of underground piping and utility systems; capping storm drain and sanitary sewer laterals.	
14.	Thomas Jefferson School of Law	South side of Island Avenue between 11th Avenue and Park Boulevard	175,000 square foot law school.	Expected completion date January 2011.
15.	Commercial Fisheries Revitalization Plan	The two commercial fishing facilities on San Diego Bay: Driscoll's Wharf in America's Cup Harbor in the north bay and Tuna Harbor, at G Street Mole near downtown San Diego.	Comprehensive Plan that addresses how San Diego can support and increase commercial fishing.	Finalized in 2010.
16.	Sunroad Harbor Island Hotel	955 Harbor Island Drive, Harbor Island	The hotel, totalling approximately 117,000 square feet, would consist of up to 175 rooms, limited meeting space, common areas, and surface parking. The project would also include removal of the existing traffic circle and realignment of the road and lease lines.	Application pending. Completion date unknown.
17.	Marina Green Project	America's Cup Harbor in Shelter Island	Three buildings, a 50-slip marina, a 16,000-square foot park and a new shoreline promenade.	In progress. Completion date unknown.
18.	Lane Field Project	North side of Broadway, between North Harbor Drive and Pacific Highway	Two hotels (totaling 800 rooms), a hostel, parking facilities and retail uses on a 5.8-acre parcel formerly used as a parking lot.	Construction expected to begin in early 2013 and end in mid-2015.
19.	Main Library	Block bounded by 11th Avenue, K Street, Park Boulevard, and J Street	366,000 square foot library.	Construction schedule is unknown.
20.	North Embarcadero Port Master Plan Amendment	Area bordered by Market Street on the south, Laurel Street to the north, the railroad right of way to the east and the San Diego Bulkhead line (the bayward edge of land) to the west	The project includes amending the Port Master Plan for the North Embarcadero area to incorporate planning designation and a variety of use changes.	Construction expected to begin mid-2013 and end in mid-2018.
21.	North Embarcadero Visionary Plan Phase 1 Project	Area bordered by Market Street on the south, Laurel Street to the north, the railroad right of way to the east and the San Diego Bulkhead line (the bayward edge of land) to the west	Landscape and traffic improvements to West Broadway; Realign North Harbor Drive from B Street Pier to Navy Pier; Broadway Pier design enhancements; and Development of a public park/plaza on the Lane Field Development project site.	Undergoing project approval process and obtaining permits.
22.	Old Police Headquarters	Southeast corner of Harbor Drive and Pacific	Rehabilitation and adaptive reuse of historically designated Old Police	Construction expected to begin in early 2012

Table 5-8: Cumulative Projects in the Vicinity of Convair Lagoon Alternative

ID #	Project Name	Location	Description	Schedule
		Highway	Headquarters building with a mix of specialty retail, entertainment, and restaurant uses; reconfiguration with surrounding parking areas; and pedestrian access, plaza, and landscape improvements.	and end in mid 2013.
23.	Port Pavilion on Broadway Pier	Broadway Pier, intersection of North Harbor Drive and West Broadway	52,000 square foot cruise ship terminal at Broadway Pier.	Construction completed.
24.	San Diego Convention Center Phase III Expansion and Expansion Hotel Project	111 West Harbor Drive	Phase III Expansion includes: a two-story structure with varying heights up to 95 feet above grade adjacent to and southwesterly of the current facility including approximately 225,000 square feet of exhibit halls, 101,500 square feet of meeting rooms, 80,000 square feet of ballroom, 16,000 square feet of kitchen, an additional 22 truck docks, additional supporting circulation and pre-functional space, and up to 45,000 square feet of visitor-serving retail; a 35-foot wide pedestrian promenade immediately adjacent to the water's edge; a public street known as Convention Way immediately adjacent to, and inland of, the promenade; a pedestrian thoroughfare immediately adjacent to, and inland of, Convention Way; creation of approximately 5 acres of accessible public space for active and passive public use; a pedestrian bridge over Harbor Drive and rail rights-of-way connecting the existing Convention Center to downtown in the vicinity of Fourth Avenue; a Water Transportation Center, including a ticket booth, offices, public restrooms, bus drop-off, and parking. Expansion Hotel includes a podium and tower structure up to 400 ft above mean sea level containing between 250 to 500 guest rooms along with up to 50,000 square feet of banquet/conference rooms, ballrooms, restaurants, and retail shops.	Construction expected to begin in early 2013 and end in mid 2015.
25.	Ruocco Park	Area located along the waterfront west of Pacific Hwy and south of Harbor Drive and on portions of the Harbor Seafood Mart site	3.3 acres of public park/plaza areas, with landscape and aesthetic improvements such as a water feature, lawns, benches, enhanced paving, varieties of plant materials, and an outdoor sculpture. Project requires demolition of portions of the existing Harbor Seafood Mart building and reconfiguration of parking areas.	Construction is planned to begin in Spring 2011.

Table 5-8: Cumulative Projects in the Vicinity of Convair Lagoon Alternative

ID #	Project Name	Location	Description	Schedule
26.	San Diego Marriott Hotel & Marina Spa	333 West Harbor Drive	The San Diego Marriott Hotel & Marina proposes to convert a previous ground-level restaurant (formerly LC's Restaurant) into a full-service spa facility which would be utilized primarily by hotel guests.	Construction is expected to begin in mid-2012 and end in late-2012.
27.	United States Federal Courthouse	South side of Broadway between Union Street and State Street	426,000 square foot courthouse.	Construction began in May 2009 and is expected to be completed in December 2011.

Sources: SDCRAA, 2008; SDCRAA, 2009; District, 2011b

5.10.3 Air Quality

This section evaluates the potential for air quality impacts to occur from implementation of the Convair Lagoon Alternative. Potential impacts addressed in this section include consistency with applicable plans, violations of air quality standards, impacts to sensitive receptors, and objectionable odors. This section incorporates information and analyses provided in the *Air Quality Technical Report for the Shipyard Sediment Site Project Convair Lagoon Alternative,* authored by Atkins in May 2011. This report is provided as Appendix I of this EIR.

5.10.3.1 Existing Environmental Setting

Climate

Regional climate and local meteorological conditions influence ambient air quality. Convair Lagoon is located in the San Diego Air Basin (SDAB). The climate of the SDAB is dominated by a semi-permanent high pressure cell located over the Pacific Ocean. This cell influences the direction of prevailing winds (westerly to northwesterly) and maintains clear skies for much of the year. It also drives the dominant onshore circulation and helps create two types of temperature inversions, subsidence and radiation, that contribute to local air quality degradation.

Subsidence inversions occur during warmer months, as descending air associated with the Pacific high-pressure cell comes into contact with cool marine air. The boundary between the two layers of air represents a temperature inversion that traps pollutants below it. Radiation inversions typically develop on winter nights with low wind speeds, when air near the ground cools by radiation, and the air aloft remain warm. A shallow inversion layer that can trap pollutants is formed between the two layers.

In the vicinity of the Convair Lagoon Alternative site, the nearest climatological monitoring station is located at San Diego International Airport, which is located at 3665 North Harbor Drive, adjacent to the northern border of Convair Lagoon, across Harbor Drive. Climatological monitoring stations collect temperature and precipitation data. The normal daily maximum temperature is 76 degrees Fahrenheit (°F) in August, and the normal daily minimum temperature is 48 °F in January, according to the Western Regional Climate Center (WRCC, 2011). The normal precipitation in the project area is 10 inches annually, occurring primarily from December through March.

The nearest National Oceanic and Atmospheric Administration (NOAA) meteorological monitoring station to the Convair Lagoon Alternative site is also located at the San Diego International Airport. Meteorological monitoring stations collect data such as wind direction and wind speed, as well as air temperature and precipitation. The prevailing wind direction at this monitoring station is from the west (NOAA, 2004).

Health Effects Related to Air Pollutants

Federal and state laws regulate the air pollutants emitted into the ambient air by stationary and mobile sources. These regulated air pollutants are known as "criteria air pollutants" and are categorized as primary and secondary pollutants. Primary air pollutants are those that are emitted directly from sources. Carbon monoxide, volatile organic compounds (VOC), nitrogen oxides, sulfur dioxide, and most fine particulate matter including lead and fugitive dust (PM_{10} and $PM_{2.5}$) are primary air pollutants. Of these, carbon monoxide, SO_2, PM_{10}, and $PM_{2.5}$ are criteria pollutants. VOCs and nitrogen oxides are criteria pollutant precursors that go on to form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. Ozone and nitrogen dioxide (NO_2) are the principal secondary pollutants. Diesel particulate matter is a mixture of particles and is a component of diesel exhaust. The EPA lists diesel exhaust as a mobile source air toxic due to the cancer and non-cancer health effects associated with exposure to whole diesel exhaust.

Presented below is a description of each of the primary and secondary criteria air pollutants and their known health effects.

Carbon Monoxide (CO) is an odorless, colorless, and toxic gas. Because it is impossible to see, taste, or smell the toxic fumes, carbon monoxide can kill people before they are aware that it is in their homes. At lower levels of exposure, carbon monoxide causes mild effects that are often mistaken for the flu. These symptoms include headaches, dizziness, disorientation, nausea, and fatigue. The effects of carbon monoxide exposure can vary greatly from person to person depending on age, overall health, and the concentration and length of exposure (EPA, 2010). The major sources of carbon monoxide in the Basin are on-road vehicles, aircraft, and off-road vehicles and equipment.

Volatile Organic Compounds (VOCs) are defined as any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions. VOCs consist of non-methane hydrocarbons and oxygenated hydrocarbons. Hydrocarbons are organic compounds that contain only hydrogen and carbon atoms. Non-methane hydrocarbons are hydrocarbons that do not contain the un-reactive hydrocarbon, methane. Oxygenated hydrocarbons are hydrocarbons with oxygenated functional groups attached.

It should be noted that there are no state or national ambient air quality standards for VOCs because they are not classified as criteria pollutants. They are regulated, however, because a reduction in VOC emissions reduces certain chemical reactions that contribute to the formulation of ozone. VOCs are also transformed into organic aerosols in the atmosphere, which contribute to higher PM_{10} levels and lower visibility. Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations because of interference with oxygen uptake. In general, higher concentrations of VOCs are suspected to cause eye, nose, and throat irritation; headaches;

loss of coordination; nausea; and damage to the liver, kidneys, and central nervous system (EPA, 1999).

The major sources of VOCs in the SDAB are on-road motor vehicles and solvent evaporation. Benzene, a VOC and known carcinogen, is emitted into the air from gasoline service stations (fuel evaporation), motor vehicle exhaust, tobacco smoke, and from burning oil and coal. Benzene is also sometimes used as a solvent for paints, inks, oils, waxes, plastic, and rubber. It is used in the extraction of oils from seeds and nuts. It is also used in the manufacture of detergents, explosives, dyestuffs, and pharmaceuticals. Short-term (acute) exposure of high doses of benzene from inhalation may cause dizziness, drowsiness, headaches, eye irritation, skin irritation, and respiratory tract irritation. At higher levels, unconsciousness can occur. Long-term (chronic) occupational exposure of high doses by inhalation has caused blood disorders, including aplastic anemia and lower levels of red blood cells (EPA, 1999).

Nitrogen Oxides (NO_x) serve as integral participants in the process of photochemical smog production. The two major forms of nitrogen oxides are nitric oxide (NO) and NO_2. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. NO_2 is a reddish-brown, irritating gas formed by the combination of NO and oxygen. Nitrogen oxide acts as an acute respiratory irritant and increases susceptibility to respiratory pathogens. Nitrogen oxide is also an ozone precursor. A precursor is a directly emitted air contaminant that, when released into the atmosphere, forms, causes to be formed, or contributes to the formation of a secondary air contaminant for which a National Ambient Air Quality Standard (NAAQS) has been adopted, or whose presence in the atmosphere will contribute to the violation of one or more NAAQS. When nitrogen oxides and VOCs are released in the atmosphere, they chemically react with one another in the presence of sunlight to form ozone.

Ozone (O_3) is one of a number of substances called photochemical oxidants that are formed when VOCs and nitrogen oxides (both byproducts of the internal combustion engine) react with sunlight. Ozone is present in relatively high concentrations in the SDAB, and the damaging effects of photochemical smog are generally related to ozone concentrations. Ozone may pose a health threat to those who already suffer from respiratory diseases as well as healthy people. Additionally, ozone has been tied to crop damage, typically in the form of stunted growth and pre-mature death. Ozone can also act as a corrosive, resulting in property damage such as the embitterment of rubber products.

Lead (Pb) is a solid heavy metal that can exist in air pollution as an aerosol particle component. An aerosol is a collection of solid, liquid, or mixed-phase particles suspended in the air. Lead was first regulated as an air pollutant in 1976. Leaded gasoline was first marketed in 1923 and was used in motor vehicles until around 1970. The exclusion of lead from gasoline helped to decrease emissions of lead in the United States from 219,000 to

4,000 tons per year between 1970 and 1997. Even though leaded gasoline has been phased out in most countries, some, such as Egypt and Iraq, still use at least some leaded gasoline (United Nations Environment Programme, 2010). Lead ore crushing, lead-ore smelting, and battery manufacturing are currently the largest sources of lead in the atmosphere in the United States. Other sources include dust from soils contaminated with lead-based paint, solid waste disposal, and physical weathering of surfaces containing lead. The mechanisms by which lead can be removed from the atmosphere (sinks) include deposition to soils, ice caps, oceans, and inhalation.

Lead accumulates in bones, soft tissue, and blood and can affect the kidneys, liver, and nervous system. The more serious effects of lead poisoning include behavioral disorders, mental retardation, and neurological impairment. Low levels of lead in fetuses and young children can result in nervous system damage, which can cause learning deficiencies and low intelligence quotients (IQs). Lead may also contribute to high blood pressure and heart disease. Lead concentrations once exceeded the state and national air quality standards by a wide margin but have not exceeded these standards at any regular monitoring station since 1982. Lead is no longer an additive to normal gasoline, which is the main reason that concentration of lead in the air is now much lower. The Convair Lagoon Alternative would not emit lead; therefore, lead has been eliminated from further review in this analysis.

Sulfur Dioxide (SO_2) is a colorless, pungent gas. At levels greater than 0.5 parts per million (ppm), the gas has a strong odor, similar to rotten eggs. Sulfuric acid is formed from SO_2 and is an aerosol particle component that may lead to acid deposition. Acid deposition into water, vegetation, soil, or other materials can harm natural resources and materials. Although SO_2 concentrations have been reduced to levels well below state and national standards, further reductions are desirable because SO_2 is a precursor to sulfates. Sulfates are a particulate formed through the photochemical oxidation of SO_2. Long-term exposure to high levels of SO_2 can cause irritation of existing cardiovascular disease, respiratory illness, and changes in the defenses in the lungs. When people with asthma are exposed to high levels of SO_2 for short periods of time during moderate activity, effects may include wheezing, chest tightness, or shortness of breath.

Particulate Matter (PM) consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulate, also known as fugitive dust, are now recognized. Course particles, or PM_{10}, include that portion of the particulate matter with an aerodynamic diameter of 10 microns (i.e., 10 one-millionths of a meter or 0.0004 inch) or less. Fine particles, or $PM_{2.5}$, have an aerodynamic diameter of 2.5 microns, that is 2.5 one-millionths of a meter or 0.0001 inch or less. Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities; however, wind action on the arid landscape also contributes substantially to the local particulate loading. Both PM_{10} and $PM_{2.5}$ may adversely affect the human respiratory system, especially in those people who are naturally sensitive or susceptible to breathing problems.

Fugitive dust poses primarily two public health and safety concerns. The first concern is that of respiratory problems attributable to the suspended particulates in the air. The second concern is that of motor vehicle accidents caused by reduced visibility during severe wind conditions. Fugitive dust may also cause significant property damage during strong windstorms by acting as an abrasive material agent (similar to sandblasting activities). Finally, fugitive dust can result in a nuisance factor due to the soiling of proximate structures and vehicles.

Diesel particulate matter is a mixture of many exhaust particles and gases that is produced when an engine burns diesel fuel. Many compounds found in diesel exhaust are carcinogenic, including 16 that are classified as possibly carcinogenic by the International Agency for Research on Cancer. Diesel particulate matter includes the particle-phase constituents in diesel exhaust. Some short-term (acute) effects of diesel exhaust include eye, nose, throat, and lung irritation and exposure can cause coughs, headaches, light-headedness, and nausea. Diesel exhaust is a major source of ambient fugitive dust pollution as well, and numerous studies have linked elevated fugitive dust levels in the air to increased hospital admission, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems (OEHHA, 2001) diesel particulate matter in the SDAB poses the greatest cancer risk of all the toxic air pollutants.

Historical Air Pollutant Levels

The San Diego Air Pollution Control District (SDAPCD) operates a network of ambient air monitoring stations throughout San Diego County. The purpose of the monitoring stations is to measure ambient concentrations of air pollutants and determine whether the ambient air quality meets the NAAQS and the California Ambient Air Quality Standards (CAAQS). The closest ambient monitoring station to the Convair Lagoon Alternative site is the San Diego (Beardsley Street) station. Table 5-9 presents a summary of the ambient pollutant concentrations monitored at the San Diego station during the most recent three years for which data available (2007 through 2009). The corresponding NAAQS and CAAQS are also presented in Table 5-9. The SDAB is currently designated as a nonattainment area for the state standard for PM_{10}, $PM_{2.5}$, 1-Hour and 8-Hour ozone, and the Federal 8-Hour Standard for ozone.

As shown in Table 5-9, the 8-hour ozone concentration exceeded the state standard in 2007 and 2008. The federal standard was not exceeded during this period. The federal 24-hour $PM_{2.5}$ standard was violated nine days during 2007, four days in 2008, and three days in 2009. Neither the state nor federal standards for CO, PM_{10}, NO_2, or SO_2 were exceeded at any time between 2007 and 2009. The federal annual average NO_2 standard has not been exceeded since 1978 and the state one-hour standard has not been exceeded since 1988 (SDAPCD, 2007). With one exception during October 2003, the SDAB has not violated the state or federal standards for CO since 1990 (SDAPCD, 2007).

Attainment Status

The classifications for ozone non-attainment include and range in magnitude from marginal, moderate, serious, severe, and extreme. The SDAB is currently designated as a nonattainment area for the state standard for PM_{10}, $PM_{2.5}$, 1-Hour and 8-Hour ozone, and the Federal 8-Hour Standard for ozone, as shown in Table 5-10.

Table 5-9: Air Quality Monitoring Data

Pollutant	Monitoring Station	2007	2008	2009
Ozone				
Maximum 1-hour concentration (ppm)	1110 Beardsley Street, San Diego	0.087	0.087	0.085
Days above 1-hour state standard (>0.09 ppm)		0	0	0
Maximum 8-hour concentration (ppm)		0.073	0.073	0.063
Days above 8-hour state standard (>0.07 ppm)		1	1	0
Days above 8-hour federal standard (>0.075 ppm)		0	0	0
Carbon Monoxide				
Maximum 8-hour concentration (ppm)	1110 Beardsley Street, San Diego	3.01	2.6	2.77
Days above state or federal standard (>9.0 ppm)		0	0	0
Respirable Particulate Matter (PM_{10})				
Peak 24-hour concentration ($\mu g/m^3$)	1110 Beardsley Street, San Diego	111	59	60
Days above state standard (>50 $\mu g/m^3$)		24	24	18
Days above federal standard (>150 $\mu g/m^3$)		0	0	0
Fine Particulate Matter ($PM_{2.5}$)				
Peak 24-hour concentration ($\mu g/m^3$)	1110 Beardsley Street, San Diego	69.6	42	52.1
Days above federal standard (>35 $\mu g/m^3$)		9	4	3
Nitrogen Dioxide				
Peak 1-hour concentration (ppm)	1110 Beardsley Street, San Diego	0.098	0.091	0.078
Days above state 1-hour standard (0.18 ppm)		0	0	0
Sulfur Dioxide				
Maximum 24-hour concentration (ppm)	1110 Beardsley Street, San Diego	0.006	0.007	0.006
Days above 24-hour state standard (>0.04 ppm)		0	0	0
Days above 24-hour federal standard (>0.14 ppm)		0	0	0

PPM = parts per million, $\mu g/m^3$ = micrograms per cubic meter
Source: CARB, 2011

Table 5-10: Attainment Status for the San Diego Air Basin

Pollutant	State Status	Federal Status
Ozone (1-hour)	Non-attainment	Note (1)
Ozone (8-hour)	Non-Attainment	Non-attainment(2)
Respirable Particulate Matter (PM_{10})	Non-attainment	Attainment
Fine Particulate Matter ($PM_{2.5}$)	Non-attainment	Attainment
Carbon Monoxide	Attainment	Attainment
Nitrogen Dioxide (NO_2)	Attainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Lead (Pb)	Attainment	Attainment

Note (1) The federal 1-hour ozone standard was revoked in 2005 and is no longer in effect for the state of California.
Source: CARB, 2010b

Sensitive Receptors and Locations

The California Air Resources Board (CARB) defines sensitive receptors as residences, schools, day care centers, playgrounds, and medical facilities, or other facilities that may house individuals with health conditions that would be adversely affected by changes in air quality. Land uses surrounding Convair Lagoon generally consist of the San Diego International Airport, airport-related commercial and industrial land uses, and Coast Guard operations. These land uses are not sensitive receptors. The sensitive land uses closest to the alternative area are the residences located near the intersection of Kettner Boulevard and West Laurel Street, approximately 0.8 mile from the alternative site, and Spanish Landing Park, approximately 0.9 mile west of Convair Lagoon. Harbor Island Park is approximately 1.1 miles southwest of Convair Lagoon, but does not include play equipment and is not considered a sensitive land use.

5.10.3.2 Regulatory Setting

Federal

Clean Air Act. The Clean Air Act (CAA) of 1970 and the CAA Amendments of 1971 required the U.S. Environmental Protection Agency (EPA) to establish NAAQS with states retaining the option to adopt more stringent standards or to include other specific pollutants. On April 2, 2007, the Supreme Court found that greenhouse gases (GHGs), including carbon dioxide, are air pollutants covered by the CAA; however, no NAAQS have been established for GHGs.

These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those "sensitive receptors" most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant

concentrations considerably above these minimum standards before adverse effects are observed.

Current NAAQS are listed in Table 5-11. Areas that meet the ambient air quality standards are classified as "attainment" areas while areas that do not meet these standards are classified as "non-attainment" areas.

The CAA (and its subsequent amendments) requires each state to prepare an air quality control plan referred to as the SIP, or State Implementation Plan. The CAA Amendments dictate that states containing areas violating the NAAQS revise their SIPs to include extra control measures to reduce air pollution. The SIP includes strategies and control measures to attain the NAAQS by deadlines established by the CAA. The SIP is periodically modified to reflect the latest emissions inventories, plans, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The EPA has the responsibility to review all SIPs to determine if they conform to the requirements of the CAA.

Resource Conservation and Recovery Act (RCRA) of 1976, as amended by the Hazardous and Solid Waste Amendments of 1984. Federal hazardous waste laws are generally promulgated under the RCRA. These laws provide for the "cradle to grave" regulation of hazardous wastes. Any business, institution, or other entity that generates hazardous waste is required to identify and track its hazardous waste from the point of generation until it is recycled, reused, or disposed. DTSC is responsible for implementing the RCRA program as well as California's own hazardous waste laws, which are collectively known as the Hazardous Waste Control Law.

Table 5-11: National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]	Federal Standards [2]	
		Concentration[3]	Primary [3, 4]	Secondary [3, 5]
Ozone (O_3)	1-hour	0.09 ppm (180 µg/m^3)	--	Same as Primary Standards
	8-hour	0.070 ppm (137 µg/m^3)	0.075 ppm (147 µg/m^3)	
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m^3	150 µg/m^3	Same as Primary Standards
	Annual Arithmetic Mean	20 µg/m	--	
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard	35 µg/m^3	Same as Primary Standards
	Annual Arithmetic Mean	12 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	8-hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	None
	1-hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	53 ppm (100 µg/m^3)[6]	Same as Primary Standard
	1-hour	0.18 ppm (470 mg/m^3)	100 ppb (188 µg/m^3)[6]	None
Sulfur Dioxide (SO_2)	24 Hour	0.04 ppm (105 µg/m^3)	--	--
	3 Hour	--	--	0.5 ppm (1300 µg/m^3)[7]
	1-hour	0.25 ppm (655 µg/m^3)	75 ppb (196 µg/m^3)[7]	--
Lead[8]	30 Day Average	1.5 µg/m^3	--	--
	Calendar Quarter	--	1.5 µg/m^3	Same as Primary Standard
	Rolling 3-Month Average[9]	--	0.15 µg/m^3	

Visibility Reducing Particles	8-hour	Extinction coefficient of 0.23 per kilometer - visibility of 10 miles or more due to particles.	No Federal Standards
Sulfates	24 Hour	25 $\mu g/m^3$	No Federal Standards
Hydrogen Sulfide	1-hour	0.03 ppm (42 $\mu g/m^3$)	No Federal Standards
Vinyl Chloride[8]	24 Hour	0.01 ppm (26 $\mu g/m^3$)	No Federal Standards

[1] California standards for ozone, carbon monoxide, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, lead, hydrogen sulfide, and vinyl chloride standards are not to be equaled or exceeded.
[2] National standards, other than 1-hour ozone, 8-hour ozone, 24-hour PM_{10}, 24-hour $PM_{2.5}$, and those based on annual averages, are not to be exceeded more than once a year. The 1-hour ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the annual fourth-highest daily maximum 8-hour concentrations is below 0.08 ppm. The 24-hour PM_{10} standard is attained when the 3-year average of the 99th percentile 24-hour concentrations is below 150 $\mu g/m^3$. The 24-hour $PM_{2.5}$ standard is attained when the 3-year average of the 98th percentile 24-hour concentrations is below 65 $\mu g/m^3$.
[3] Concentration expressed first in units in which it was promulgated. Equivalent units given in parenthesis are based on a reference temperature of 25°C and a reference pressure of 760 mm of mercury (1,013.2 millibar). All measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 mm of mercury; parts per million (ppm) in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
[4] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
[5] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
[6] To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010). Note that the EPA standards are in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standards of 53 ppb and 100 ppb are identical to 0.053 ppm and 0.100 ppm, respectively.
[7] On June 2, 2010, the U.S. EPA established a new 1-hour SO2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. EPA also proposed a new automated Federal Reference Method (FRM) using ultraviolet technology, but will retain the older pararosaniline methods until the new FRM have adequately permeated state monitoring networks. The EPA also revoked both the existing 24-hour SO2 standard of 0.14 ppm and the annual primary SO2 standard of 0.030 ppm, effective August 23, 2010. The secondary SO2 standard was not revised at that time; however, the secondary standard is undergoing a separate review by EPA. Note that the new standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the new primary national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
[8] The CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
[9] National lead standard, rolling 3-month average: final rule signed October 15, 2008.
Source: CARB, 2010a.

State

California Clean Air Act. The CAA allows states to adopt ambient air quality standards and other regulations provided that they are at least as stringent as federal standards. The California Clean Air Act (CCAA) was signed into law in 1988 and spelled out in statute California's air quality goals, planning mechanisms, regulatory strategies, and standards of progress. The CCAA provides the state with a comprehensive framework for air quality planning regulation. Prior to passage of the CCAA, federal law contained the only comprehensive planning framework. The CAA requires attainment of state ambient air quality standards by the earliest practicable date (CARB, 2003). The CARB, a part of the California EPA (CalEPA) is responsible for the coordination and administration of both federal and state air pollution control programs within California, including setting the CAAQS. CARB also conducts research, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. The CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. The CARB

has primary responsibility for the development of California's SIP, for which it works closely with the federal government and the local air districts.

In addition to standards set for the six criteria pollutants, the state has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles (see Table 5-11). These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety. Further, in addition to primary and secondary AAQS, the state has established a set of episode criteria for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and particulate matter. These criteria refer to episode levels representing periods of short-term exposure to air pollutants that actually threaten public health.

Local

San Diego County Regional Air Quality Strategy and State Implementation Plan. The SDAPCD is the local agency responsible for the administration and enforcement of air quality regulations for the SDAB, which includes all of San Diego County. The SDAPCD regulates most air pollutant sources, except for motor vehicles, marine vessels, aircrafts, and agricultural equipment, which are regulated by the CARB or the EPA. State and local government projects, as well as projects proposed by the private sector, are subject to SDAPCD requirements if the sources are regulated by the SDAPCD. Additionally, the SDAPCD, along with the CARB, maintains and operates ambient air quality monitoring stations at numerous locations throughout San Diego County. These stations are used to measure and monitor ambient criteria and toxic air pollutant levels.

The SDAPCD and the San Diego Association of Governments (SANDAG) are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the SDAB. The San Diego County RAQS were initially adopted in 1991, and is updated on a triennial basis. The RAQS were updated in 1995, 1998, 2001, 2004, and most recently in April 2009. The RAQS outline the SDAPCD's plans and control measures designed to attain the state air quality standards for ozone. The SDAPCD has also developed the SDAB's input to the SIP, which is required under the CAA for pollutants that are designated as being in non-attainment of national air quality standards for the basin.

The RAQS rely on information from CARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in the county, to project future emissions and then establish the strategies necessary for the reduction of emissions through regulatory controls. The CARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends and land use plans developed by the cities and by the County of San Diego (County) as part of the development of their general plans. As such, projects that propose development consistent with the growth anticipated by the general plans would be consistent with the RAQS. In the event that a project would propose development which is less dense than anticipated within the general plan, the project would likewise be consistent with the RAQS. If a project proposes

development that is greater than that anticipated in the general plan and SANDAG's growth projections, the project might be in conflict with the RAQS and SIP, and might have a potentially significant impact on air quality.

The SIP relies on the same information from SANDAG to develop emission inventories and emission reduction strategies that are included in the attainment demonstration for the air basin. The SIP also includes rules and regulations that have been adopted by the SDAPCD to control emissions from stationary sources. These SIP-approved rules may be used as a guideline to determine whether a project's emissions would have the potential to conflict with the SIP and thereby hinder attainment of the NAAQS for ozone.

In addition to the RAQS and SIP, the SDAPCD adopted the *Measures to Reduce Particulate Matter in San Diego County* report in December 2005. This report is based on particulate matter reduction measures adopted by CARB. SDAPCD evaluated CARB's list of measures and found that the majority were already being implemented in San Diego County. As a result of the evaluation SDAPCD proposed measures for further evaluation to reduce particulate matter emissions from residential wood combustion and from fugitive dust from construction sites and unpaved roads.

Clean Air Program. The District implements a Clean Air Program, the goal of which is to voluntarily reduce air emissions from current District operations in advance of regulatory action through the identification and evaluation of feasible and effective control measures for each category of District operations. This comprehensive program provides a framework for reducing air emissions at the Cruise Ship Terminal, Tenth Avenue Marine Terminal and National City Marine Terminal. The 2007 Clean Air Program Report identifies control measures that can be implemented in the near-term and measures that are part of a long-term strategy to reduce air emissions, building upon regulatory and voluntary efforts. This program applies only to the operations of the District.

San Diego Air Pollution Control District Rule 55, Fugitive Dust Control. The SDAPCD requires that construction activities implement the measures listed in Rule 55 to minimize fugitive dust emissions. Rule 55 requires the following:

> i. No person shall engage in construction or demolition activity in a manner that discharges visible dust emissions into the atmosphere beyond the property line for a period or periods aggregating more than 3 minutes in any 60 minute period; and
>
> ii. Visible roadway dust as a result of active operations, spillage from transport trucks, erosion, or track-out/carry-out shall be minimized by the use of any of the equally effective trackout/carry-out and erosion control measures listed in Rule 55 that apply to the project or operation. These measures are: track-out grates or gravel beds at each egress point; wheel-washing at each egress during muddy conditions; soil binders, chemical soil stabilizers,

geotextiles, mulching, or seeding; and using secured tarps or cargo covering, watering, or treating of transported material for outbound transport trucks. Erosion control measures must be removed at the conclusion of each work day when active operations cease, or every 24 hours for continuous operations.

Title 22 of the California Code of Regulations & Hazardous Waste Control Law, Chapter 6.5. The DTSC regulates the generation, transportation, treatment, storage and disposal of hazardous waste under RCRA and the California Hazardous Waste Control Law. Both laws impose "cradle to grave" regulatory systems for handling hazardous waste in a manner that protects human health and the environment.

5.10.3.3 Methodology

The analysis in this section focuses on the nature and magnitude of the change in the air quality environment due to implementation of the Convair Lagoon Alternative.

Construction Emissions

Construction emissions for the Convair Lagoon Alternative construction phases are assessed using the Urban Emissions Model (URBEMIS, 2007, version 9.2.4) distributed by the CARB, with the exception of emissions from the tug boats required for barge transport. The URBEMIS 2007 model uses EMFAC 2007 emissions factors for vehicle traffic and Off-Road 2007 for construction equipment. Emissions from the Shipyard Sediment Site construction activities and tug boat emissions factors were provided by LSA Associates, Inc. in the Air Quality Analysis for the Shipyard Sediment Project, included as Appendix G to this EIR. The construction analysis includes modeling of the projected construction equipment that would be required during each phase of construction for the CDF and quantities or materials to be imported on site and exported off site. The analysis assesses maximum daily emissions from each individual phase of construction, including site preparation, jetty construction, sediment transportation and placement, and containment cap installation. To be conservative, where several construction options are being considered, the most conservative is assumed in order to analyze the worst case scenario. A complete listing of the assumptions used in the model and model output is provided in Appendix I. When construction at the Shipyard Sediment Site and Convair Lagoon construction activities are projected to overlap, construction emissions from both sites are added together to determine the total maximum daily emissions.

Operational Emissions

Operational impacts are discussed qualitatively due to the lack of operational emission sources associated with the Convair Lagoon Alternative.

5.10.3.4 Thresholds of Significance

Threshold 5.10.3.1: Consistency With Regional Plans. Based on Appendix G of the CEQA Guidelines, an impact related to consistency with applicable air quality plans would be considered significant if implementation of the Convair Lagoon Alternative would result in a conflict with, or obstruct implementation of, the RAQS or SIP.

Threshold 5.10.3.2: Conformance to Federal and State Ambient Air Quality Standards. Based on Appendix G of the CEQA Guidelines, an impact would be considered significant if the Convair Lagoon Alternative would violate any air quality standard or contribute substantially to an existing or projected air quality violation. The SDAPCD does not provide quantitative thresholds for determining the significance of construction or mobile source-related projects. Therefore, the following thresholds established in the *City of San Diego California Environmental Quality Act Significance Determination Thresholds* (January 2011) were used. The thresholds listed in the City's Guidelines are based on the SDAPCD's stationary source emission thresholds. Based on the criteria set forth in the City Guidelines, a project would have a significant impact with regard to construction or operational emissions if it would exceed any of the thresholds listed in Table 5-12. The City of San Diego does not have a threshold for $PM_{2.5}$; therefore, the EPA "Proposed Rule to Implement the Fine Particle National Ambient Air Quality Standards" published in 2005, which quantifies significant emissions as approximately 55 pounds per day, is used as the threshold.

Threshold 5.10.3.3: Sensitive Receptors. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant air quality impact if it would result in the exposure of sensitive receptors to substantial pollutant concentrations.

Threshold 5.10.3.4: Objectionable Odors. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant air quality impact if it would create objectionable odors that would affect a substantial number of people.

Table 5-12: City of San Diego Pollutant Thresholds

Pollutant	Pounds Per Day
Carbon monoxide (CO)	550
Nitrogen Oxides (NO_X)	250
Respirable Particulate Matter (PM_{10})	100
Fine Particulate Matter ($PM_{2.5}$)	55[(1)]
Oxides of Sulfur (SO_X)	250
Volatile Organic Compounds (VOC)	137

(1) USEPA "Proposed Rule to Implement the Fine Particle National Ambient Air Quality Standards" published September 2005.
Source: City of San Diego, 2011

5.10.3.5 Impacts and Mitigation Measures

Less Than Significant Impacts

Threshold 5.10.3.1: Consistency with Regional Plans. The air quality plans relevant to this discussion are the SIP and RAQS. As discussed above, the SIP includes strategies and tactics to be used to attain and maintain acceptable air quality in the Basin; this list of strategies is called the RAQS. Consistency with the RAQS is typically determined by two standards. The first standard is whether the Convair Lagoon Alternative would exceed assumptions contained in the RAQS. The second standard is whether the Convair Lagoon Alternative would increase the frequency or severity of existing air quality violations, contribute to new violations, or delay the timely attainment of air quality standards or interim reductions as specified in the RAQS.

The RAQS rely on information from the CARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in the County, to forecast future emissions and then determine the strategies necessary for the reduction of emissions through regulatory controls. The CARB mobile source emissions projections and the SANDAG growth projections are based on population and vehicle use trends and land use plans developed by the cities and the County as part of the development of the County's and cities' general plans. As such, projects that propose development consistent with, or less than, the growth projections anticipated by a general plan would be consistent with the RAQS. For this alternative the Port Master Plan is the document governing future land use that was considered as part of SANDAGs projections.

The proposed PMPA would result in changes to the 10 acres of water use designations on the site. Under the proposed PMPA, all existing water areas of the Convair Lagoon Alternative site would change their use designation to Harbor Services (land), as illustrated in Figure 5-6. The Harbor Services use category in the PMP identifies land and water areas devoted to maritime services and harbor regulatory activities of the District, including remediation and monitoring. As illustrated in Figure 5-5**,** the area within the proposed PMPA boundary would be designated as Harbor Services (water)(5 acres), Industrial Specialized Berthing (water) (4.5 acres), and Boat Navigation Corridor (water) (0.5 acre). The following provides a discussion of each of the land use designation changes and their consistency with the RAQS.

The change is land use designation from Harbor Services (water) to Harbor Services (land) would not result in a change that would affect SANDAG growth projections, because the description of uses allowed for this designation is the same whether it applies to water or land uses in the Port Master Plan.

The change in designation from Industrial Specialized Birthing (water) to Harbor Services (land) would change the allowable uses for this 4.5 acre area of the Port Master Plan from a variety of marine related commercial and industrial uses, such as ship building and repair,

water taxi, excursion and ferry craft, commercial fishing boat berthing, and other marine-related uses, to the proposed Harbor Services (land) designation which would only allow maritime services and harbor regulatory activities of the District, including remediation and monitoring. The proposed land use designation would therefore allow less intense development because marine services under the proposed Harbor Services designation would only allow service related activities, whereas the Industrial Specialized Birthing would allow more intense industrial and commercial related water uses. Therefore this change in land use designation would not result in development that would be greater than the growth projections developed by SANDAG.

The last land use designation that would be changed as part of the project would be the change from the 0.5-acre Boat Navigation Corridor designation (water) to Harbor Services (land). The existing designation is a water category for those water areas delineated by navigational channel markers or by conventional waterborne traffic movements. This category does not allow any land use development that would be part of the SANDAG's growth projections, whereas the proposed Harbor Services (land) designation would allow marine services development. However, the marine services use is less intense than the Industrial Specialized Birthing (water) designation that will also be changed to Harbor Services (land). Therefore the 0.5 acre increase in development intensity associated with the change from Boat Navigation Corridor is offset by the less intense development associated with the change from Industrial Specialized Birthing (water). The end result is that the proposed PMPA would be consistent with the SANDAG growth projections used in developing the RAQS.

The second standard is whether the Convair Lagoon Alternative would increase the frequency or severity of existing air quality violations, contribute to new violations, or delay the timely attainment of air quality standards or interim reductions as specified in the RAQS. This standard applies to long-term project operational emissions. Because nearly all of the Convair Lagoon Alternative generated air pollutant emissions are associated with short-term construction activities, this standard would not apply to this alternative.

Threshold 5.10.3.3: Impacts to Sensitive Receptors. CARB defines sensitive receptors as residences, schools, day care centers, playgrounds, and medical facilities, or other facilities that may house individuals with health conditions that would be adversely affected by changes in air quality. The two primary emissions of concern regarding health effects for land development are carbon monoxide and diesel particulates.

Carbon Monoxide Hotspots. Carbon monoxide is the criteria pollutant that is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere. Long-term adherence to ambient air quality standards is typically demonstrated through an analysis of localized carbon monoxide concentrations. Areas of vehicle congestion have the potential to create carbon monoxide hot spots. These hot spots typically occur at intersections where vehicle speeds are reduced and idle time is increased.

Intersections that tend to exhibit a significant carbon monoxide concentration typically operate at level of service (LOS) D or worse.

The Convair Lagoon Alternative would result in a temporary increase in vehicle trips on local roads during construction. However, similar to the Shipyard Sediment Site Project, construction of the Convair Lagoon Alternative would not change the number of long-term off-site vehicle trips. Upon completion of construction, the Convair Lagoon Alternative would consist of an undeveloped, above-ground parcel of land. No permanent traffic would occur from operation of the Convair Lagoon Alternative. Occasional vehicle trips for monitoring, maintenance, or repair of the cap would not impact the level of service of local intersections and would not result in a carbon monoxide hotspot. Therefore, no significant CO contributions would occur in the project vicinity.

Toxic Air Contaminants, Diesel Particulate Matter. Diesel trucks and other diesel engines are sources of diesel particulate matter. Similar to the Shipyard Sediment Site Project, construction of the CDF would require the use of heavy construction equipment and up to approximately 100 one-way diesel truck trips per day. Construction emissions would be temporary and would not result in a long-term increase in exposure to TAC emissions. Additionally, the LSA report included a health risk assessment of truck trips associated with the Shipyard Sediment Site Project. The Proposed Project would also result in a maximum of 100 truck trips per day and would result in greater total truck trips than the Convair Lagoon Alternative because all of the contaminated sediment would be transported by truck. The health risk assessment results indicated that the truck trips associated with the Shipyard Sediment Site project would not substantially increase cancer, chronic or acute health risks (LSA 2011). Following construction, the sand cap would not require diesel trucks for maintenance of the cap. Therefore, because the Proposed Project does not represent a health risk with respect to diesel particulate matter and the Convair Lagoon Alternative will result in fewer truck trips than the Proposed Project, diesel particulate matter emissions would be a less than significant health risk.

Toxic Air Contaminants, Contaminated Sediment. Mercury, zinc, copper, PAHs and PCBs bind to sediment and may be introduced to the air as part of dust (NOAA, 1996; ATSDR, 1996, 2001, 2004, and 2005). Therefore, if the contaminated sediment would be disturbed so that fugitive dust particles would be released into the air, exposure to these pollutants may occur. However, similar to construction activities for the Proposed Project, the Convair Lagoon Alternative would involve transport and placement of wet material. Similar to the Proposed Project, up to 15 percent of the dredged contaminated sediments would require dewatering prior to being transported to a landfill. The drying area would be surrounded by k-rails and sealed with foam and impervious fabric to form a confined area. As a result, little fugitive dust is expected to be generated by these operations (LSA 2011). In addition, the Convair Lagoon Alternative CDF includes a sand and asphalt cap to prevent contaminated sediment near the surface from becoming fugitive dust particles that would be released into the air following construction.

Additionally, construction activities would include several safeguards intended to protect water quality that would also minimize the potential release of contaminants during activities that would disturb the sediment. Silt and/or air curtains would be placed around the barges during barge loading operations, and unloading activities would utilize enclosed pipes or clamshell cranes to unload the sediment into the CDF. These measures would minimize the potential for sediment to be released into an area where the sediments have the potential to dry and become airborne. Transport and handling of the contaminated sediment would also be required to comply with numerous federal, state and local regulations that require strict adherence to specific guidelines regarding the use, transportation, and disposal of hazardous materials, including RCRA, which provides the 'cradle to grave' regulation of hazardous wastes, and CCR Title 22, which regulates the generation, transportation, treatment, storage and disposal of hazardous wastes. Therefore, potential exposure of sensitive receptors to air pollutants from transportation and handling of the contaminated sediment would be less than significant.

Toxic Air Contaminants, Stationary Sources. Stationary sources of TAC emissions identified in CARB's Air Quality and Land Use Handbook (2005) are freeways, rail yards, ports, refineries, dry cleaners, and large gas dispensing facilities. The Convair Lagoon Alternative would consist of an undeveloped, above-ground parcel of land. It would not result in a source of stationary TAC emissions. Additionally, the Convair Lagoon Alternative does not propose any new sensitive land uses. Therefore, the Convair Lagoon Alternative would not expose any sensitive receptors to a substantial pollutant concentration and impacts would be less than significant.

Potentially Significant Impacts

Threshold 5.10.3.2: Conformance to Federal and State Ambient Air Quality Standards.

Construction. Air pollutant emission sources during CDF construction would include exhaust and particulate emissions generated from construction equipment, tug boat operations during sediment transport, and truck trips to transport imported material from the Convair Lagoon site. As discussed above, construction of the Convair Lagoon Alternative is estimated to occur over a duration of approximately 15 months and would consist of five phases: 1) Site Preparation; 2) Containment Barrier Construction; 3) Storm Drain Outlet Extension; 4) Sediment Transport and Placement; and 5) Containment Cap Installation. Dump trucks with a capacity of 12.22 cubic yards (CY) were assumed for the importation and exportation of materials for all phases of construction (LSA 2011). During each construction phase, the Convair Lagoon Alternative would employ approximately ten construction workers. It is assumed that each worker would generate four trips per day, for a total of 40 average daily worker trips. Construction would occur Monday through Friday for eight hours during normal working hours. The phase-specific assumptions used to determine the emissions of each of these five construction phases are described below.

The Convair Lagoon Alternative would also require the construction activities associated with the preparation of the Shipyard Sediment Site for dredging, and dredging operations. Additionally, construction of a landside pad, pad operations, and covering of sediment would occur under the Convair Lagoon Alternative to prepare 15 percent of the sediment for disposal at the Kettleman Hills Landfill. All assumptions and calculated emissions associated with these construction phases are provided in the *Air Quality Analysis, Shipyard Sediment Project, California Regional Water Quality Control Board, San Diego Region* (LSA, 2011), included as Appendix G to this EIR.

Phase 1: Site Preparation. This phase of construction would include the demolition of the existing concrete pier, riprap, concrete mattress energy dissipaters, and the abandoned seaplane marine ramp. Excavation for the containment barrier is part of site preparation; however, it would occur concurrently with containment barrier construction. Therefore, emissions from excavation activities are addressed below under Phase 2. Removal of the pier would involve cutting the existing support piles to the approximate existing mud-level. In total, approximately 500 CY of materials would be demolished. Demolished facilities would be reused on site as fill material. Demolition would take approximately two months to complete. Demolition would be conducted from the existing shoreline using tracked excavators with breaker hammers, and loaders. Table 5-13 shows the maximum daily emissions that would occur from site preparation in comparison with the thresholds of significance. As shown in Table 5-13, site preparation related emissions would be below the significance thresholds.

Table 5-13: Site Preparation Maximum Daily Emissions

Construction Phase	Pollutant Emissions (pounds/day)					
	CO	**NO_X**	**VOC**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Site Preparation	19	38	5	0	2	2
Significance Threshold	**550**	**250**	**137**	**250**	**100**	**55**
Significant Impact?	No	No	No	No	No	No

Bold = Exceeds threshold
CO = carbon monoxide; NO_x = nitrogen oxides; VOC = volatile organic compounds; SO_x = sulfur oxides
PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter
Source: URBEMIS, 2007. See Appendix I for data sheets.

Phase 2: Containment Barrier Construction. Excavation for the containment barrier jetty would occur concurrently with construction of the barrier and would take approximately four months. To prepare the site for construction of the containment barrier, approximately three feet of existing sediment would be excavated within the footprint of the proposed barrier for a total of approximately 13,000 CY of excavated material. This excavated material would be stockpiled on the adjacent rental car parking lot and reused on site as fill material in shallow water portions of the site. The excavated material would be removed by dredging equipment from the shoreline, either hydraulically by pumped pressure, or by crane and clamshell. Based on the air quality analysis prepared for the Port of Los Angeles Channel Deepening

project (Port of Los Angeles, 2009), use of a crane and clamshell would be the worst-case scenario in this situation and is assumed for this analysis. Equipment would consist of a main hoist that consists of the crane and clamshell, and two large generators to remove the material and stockpile it in the rental car parking lot. Subsequent to completion of the containment barrier this material would moved to the CDF.

Rock and aggregate material used to construct the containment barrier would be imported from a nearby quarry located approximately 15 miles from the Convair Lagoon Alternative site. In total, the containment barrier would require the import of approximately 49,000 CY of materials, including 8,000 CY of armor rock material, 3,000 CY of underlayer rock material, and 38,000 CY of core aggregate material. The containment barrier would include an engineered filter on the north face, consisting of graded rock or geotextile fabric. The filter would be approximately 7,000 square yards and would be anchored to the containment barrier with 2,000 CY of imported rock. The jetty would also include two energy dissipaters for the extended storm drains, which would require 150 CY of imported material each. Therefore, a total of 51,300 CY would be imported during this phase. A weir would be constructed and would consist of a low crest in the containment barrier or a pipe in the structural fill of the barrier.

Construction of the containment barrier would occur using either the placement method or the end dumping method. Placement construction is considered the worst case scenario because it would require use of a barge and a crane, which would require towing by a tug boat. The crane would be used from both the land side for movement of material into a barge and from the barge for placement of rock and other material associated with the confinement barrier. Armor rock layers would require individual rock placement, using a crane mounted on a barge, to promote stress distribution and uniform coverage. The placement of core rock may include bottom dumping. It is assumed one barge would be used and the tug boat would operate for eight hours. Other construction equipment required for the construction of the containment barrier would include a front loader, hydraulic pumps, and cranes.

Table 5-14 shows the maximum daily emissions that would occur from excavation and jetty construction in comparison with the thresholds of significance. As shown in Table 5-14, related emissions would be below the significance thresholds.

Excavation and construction of the containment barrier may overlap with site preparation at the Convair Lagoon. Table 5-15 shows the maximum daily emissions that would occur from concurrent site preparation and containment barrier construction at Convair Lagoon. As shown in this table, simultaneous site preparation, excavation, and construction of the containment barrier at the Convair Lagoon would not exceed any significance thresholds.

Table 5-14: Barrier Construction Maximum Daily Emissions

Construction Phase	Pollutant Emissions (pounds/day)					
	CO	NO_X	VOC	SO_X	PM_{10}	$PM_{2.5}$
Excavation and Import and Export of Material	30	92	7	0	23	7

Installation of Jetty	22	28	4	0	2	1
Tug Boat Operation	15	81	3	1	3	2
Sum of Barrier Construction Emissions	*67*	*201*	*14*	*1*	*28*	*10*
Significance Threshold	**550**	**250**	**137**	**250**	**100**	**55**
Significant Impact?	No	No	No	No	No	No

CO = carbon monoxide; NO_x = nitrogen oxides; VOC = volatile organic compounds; SO_x = sulfur oxides
PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter
Source: URBEMIS, 2007, and LSA, 2011 See Appendix I for data sheets.

Table 5-15: Convair Lagoon Site Preparation and Containment Barrier Construction Maximum Daily Emissions

Construction Phase	Pollutant Emissions (pounds/day)					
	CO	**NO_X**	**VOC**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Site Preparation	19	38	5	0	2	2
Containment Barrier Construction	67	201	14	1	28	10
Total Phase 1 and Phase 2 Emissions	*86*	*239*	*19*	*1*	*30*	*12*
Significance Threshold	**550**	**250**	**137**	**250**	**100**	**55**
Significant Impact?	No	No	No	No	No	No

Bold = Exceeds threshold
CO = carbon monoxide; NO_x = nitrogen oxides; VOC = volatile organic compounds; SO_x = sulfur oxides
PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter
Source: URBEMIS, 2007. See Appendix I for data sheets.

Phase 3: Storm Drain Outlet Extension. Extension of two existing on-site storm drains to the face of the containment barrier would take two months and would occur concurrently with construction of the jetty. Extension would require installation of a gravel rock bed to support the storm drains. A total of 2,200 CY of material is assumed to be imported and placed using the end dumping construction method. The extension of storm drains and construction of energy dissipaters would require earthwork or marine machinery, including cranes and an excavator. According to the EPA, Category 1 marine equipment, which typically includes non-locomotive engines such as construction equipment, uses engines that are similar to land-based large earth moving machines (EPA, 1999). Therefore, land-based construction equipment including a grader and backhoe are used to estimate marine equipment emissions. Table 5-16 shows the maximum daily emissions that would occur from extension of the storm drains in comparison with the thresholds of significance. As shown in Table 5-16, storm drain extension emissions would be below the significance thresholds.

Table 5-16: Storm Drain Extension Construction Maximum Daily Emissions

Construction Phase	Pollutant Emissions (pounds/day)					
	CO	**NO_X**	**VOC**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Material Import	1	3	0	0	1	1
Construction of Rock Containments	22	28	4	0	2	1
Sum of Storm Drain Extension Emissions	*23*	*31*	*4*	*0*	*3*	*2*
Significance Threshold	**550**	**250**	**137**	**250**	**100**	**55**
Significant Impact?	No	No	No	No	No	No

CO = carbon monoxide; NO_x = nitrogen oxides; VOC = volatile organic compounds; SO_x = sulfur oxides
PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter
Source: URBEMIS, 2007. See Appendix I for data sheets.

Storm drain extension may occur concurrently with the end of excavation and construction of the containment barrier at the Convair Lagoon. Table 5-17 shows the maximum daily

emissions that would occur from concurrent storm drain extension and containment barrier construction at Convair Lagoon. As shown in these tables, simultaneous excavation and construction of the containment barrier and storm drain extension would not exceed any significance thresholds.

Table 5-17: Storm Drain Extension and Containment Barrier Construction Maximum Daily Emissions

Construction Phase	Pollutant Emissions (pounds/day)					
	CO	**NO_X**	**VOC**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Storm Drain Extension	23	31	4	0	3	2
Containment Barrier Construction	67	201	14	1	28	10
Total Phase 2 and Phase 3 Emissions	*90*	*232*	*18*	*1*	*31*	*12*
Significance Threshold	**550**	**250**	**137**	**250**	**100**	**55**
Significant Impact?	No	No	No	No	No	No

Bold = Exceeds threshold
CO = carbon monoxide; NO_x = nitrogen oxides; VOC = volatile organic compounds; SO_x = sulfur oxides
PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter
Source: LSA, 2011

Phase 4: Sediment Transport and Placement. Phase 4 of construction would involve the transport and placement of approximately 121,890 CY of contaminated marine sediment dredged from the Shipyard Sediment Site. It is assumed that the transport and placement phase would take six months. Dredged contaminated marine sediment from the Shipyard Sediment Site Project would be transported to the Convair Lagoon Alternative site via barges and placed within the submerged areas of the lagoon as hydraulic fill. The contaminated marine sediment would be transported via barges towed by 1,650 horsepower tug boats from the shipyard area to the Convair Lagoon Alternative site. It is assumed that a maximum of four tug boats and barges would be required per day and that each of the tug boats would be operating for eight hours per day, which is consistent with the assumptions used for the proposed Shipyard Sediment Site Project. The contaminated sediment would be transferred from the barges to the CDF through the use of pumps, pipelines and hoses, or clamshell cranes. For this phase of construction the use of pumps represents the worst case scenario based on information provided in the *Final EIS for the Proposed Homeporting of Additional Surface Ships at Naval Station Mayport, Florida*. This EIS identified offloading dredged sediment from barges, using pumps that would be powered by a 50 horsepower diesel engine, with two pumps required per barge (NAVFAC, 2008). In addition to the sediment placed in the CDF, this alternative includes approximately 24,737 CY of sediment that would be hauled by truck from the Shipyard Sediment Site dewatering area to Kettleman Hills Landfill, located approximately 480 miles round trip from the dewatering area.

The sediment from the Shipyard Sediment Site may include elevated levels of copper, mercury, zinc, PAHs, and PCBs (LSA 2011). PAHs are not VOCs (ATSDR 1996); therefore, heavy metals and PAHs in the sediment are not criteria pollutants. Some PCBs may exist as vapor; however, in water PCBs bind strongly to organic particles and bottom

sediments (ATSDR, 2001). Therefore, the PCBs associated with the wet shipyard sediment would be bound to the sediment and would not result in additional VOC emissions. The potential for sensitive receptors to be exposed to these pollutants is discussed in Section 5.10.3.5.1, Threshold 5.10.3.3, Impact to Sensitive Receptors.

Table 5-18 shows the maximum daily emissions that would occur from the transfer and placement of sediment in comparison with the thresholds of significance. As shown in Table 5-18, all emissions would be below the significance thresholds, with the exception of emissions of nitrogen oxides.

Table 5-18: Sediment Transport and Placement Maximum Daily Emissions

Construction Phase	Pollutant Emissions (pounds/day)					
	CO	**NO_X**	**VOC**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Tug Boat Operations	61	325	13	5	10	10
Material Placement	35	40	7	0	3	2
Kettleman Hills Landfill Disposal Truck Trips	54	155	11	0	7	6
Sum of Phase 4 Emissions	*150*	***520***	*31*	*5*	*20*	*18*
Significance Threshold	**550**	**250**	**137**	**250**	**100**	**55**
Significant Impact?	No	**Yes**	No	No	No	No

Bold = Exceeds threshold
CO = carbon monoxide; NO_x = nitrogen oxides; VOC = volatile organic compounds; SO_x = sulfur oxides
PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter
Source: URBEMIS, 2007, and LSA, 2011. See Appendix I for data sheets.

Sediment transport and placement of the contaminated sediment in the CDF would occur concurrently with construction activities at the Shipyard Sediment Site. Site preparation would occur prior to dredging and pad construction activities. However, dredging would potentially overlap with landside pad construction and operation, and covering of the sediment near structures. The total maximum daily emissions that would result from sediment transport and placement in the CDF concurrently with the Shipyard Sediment Site preparation are shown in Table 5-19. The total maximum daily emissions that would result from sediment transport and placement concurrently with Shipyard Sediment Site dredging, pad construction and operation, and covering of sediment are shown in Table 5-20. As shown in these tables, emissions of nitrogen oxides would exceed significance thresholds during any phase of Shipyard Sediment Site construction concurrent with sediment transfer and placement in the CDF.

Table 5-19: Convair Lagoon Sediment Transfer and Placement and Shipyard Sediment Site Debris and Pile Removal Maximum Daily Emissions

Construction Phase	Pollutant Emissions (pounds/day)					
	CO	**NO_X**	**VOC**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Sediment Transport and Placement	150	**520**	31	5	20	18
Debris and Pile Removal	54	148	8	5	5	5
Total Emissions	*204*	***668***	*39*	*10*	*25*	*23*
Significance Threshold	**550**	**250**	**137**	**250**	**100**	**55**
Significant Impact?	No	**Yes**	No	No	No	No

Bold = Exceeds threshold
CO = carbon monoxide; NO_x = nitrogen oxides; VOC = volatile organic compounds; SO_x = sulfur oxides
PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter
Source: URBEMIS, 2007, and LSA, 2011 See Appendix I for data sheets.

Table 5-20: Sediment Transport and Placement and Shipyard Sediment Site Construction Maximum Daily Emissions

Construction Phase	Pollutant Emissions (pounds/day)					
	CO	**NO_X**	**VOC**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Sediment Transport and Placement	150	**520**	31	5	20	18
Dredging of Shipyard Sediment Site[(1)]	10	16	1	4	1	1
Landside Operations – Pad Construction	83	164	14	20	9	8
Landside Operations – Operation[(1)]	20	39	3	7	2	2
Covering Sediment Near Structures	31	105	6	4	4	4
Total Emissions	*294*	***844***	*55*	*40*	*36*	*33*
Significance Threshold	**550**	**250**	**137**	**250**	**100**	**55**
Significant Impact?	No	**Yes**	No	No	No	No

[(1)] These emissions do not include the tug boat emissions and truck trips associated with sediment transport for the Shipyard Sediment Site Project because these trips would not occur under the Convair Lagoon Alternative. Barge and truck haul trip emissions that would occur under the Convair Lagoon Alternative are included in the emissions in Table 5-18.
Bold = Exceeds threshold
CO = carbon monoxide; NO_x = nitrogen oxides; VOC = volatile organic compounds; SO_x = sulfur oxides
PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter
Source: LSA, 2011

Phase 5: Containment Cap Construction. Containment cap construction would involve the import and installation of a one-foot thick containment cap consisting of sand and asphalt. This construction phase would have a duration of approximately four months. The engineered cap would consist of clean sand placed over the contaminated fill material, then paved with asphalt, to isolate the contaminated material from the community. During this phase of construction, approximately 12,000 CY of sand 4,000 CY of asphalt would be imported to the site and placed above the contaminated sediment by unloading the sand directly from the trucks. Construction equipment required for Phase 5 would include trucks and earthwork equipment such as a graders and loaders. Following placement of the sand cap, the cap would be paved with asphalt. Table 5-21 shows the maximum daily emissions

that would occur from the construction of the cap in comparison with the thresholds of significance. As shown in Table 5-21, all cap construction emissions would be below the significance thresholds.

Table 5-21: Containment Cap Construction Maximum Daily Emissions

Construction Phase	Pollutant Emissions (pounds/day)					
	CO	**NO_X**	**VOC**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Import of Material	3	9	1	0	1	1
Construction of Cap	25	30	4	0	2	2
Paving	15	11	3	0	1	1
Sum of Emissions	*43*	*50*	*8*	*0*	*4*	*4*
Significance Threshold	**550**	**250**	**137**	**250**	**100**	**55**
Significant Impact?	No	No	No	No	No	No

Bold = Exceeds threshold
CO = carbon monoxide; NO_x = nitrogen oxides; VOC = volatile organic compounds; SO_x = sulfur oxides
PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter
Source: URBEMIS, 2007. See Appendix I for data sheets.

Summary. None of the individual phases of construction would exceed the significance thresholds for any pollutant, with the exception of the sediment transfer and placement phase. Sediment transfer and placement would exceed the significant thresholds for nitrogen dioxide. Additionally, this phase of construction would occur concurrently with construction activities at the Shipyard Sediment Site, which would result in additional nitrogen oxide emissions. Therefore, this impact would be potentially significant.

Operational. Upon completion of construction, the site would consist of undeveloped land with an elevation of approximately 10 feet MLLW. The Convair Lagoon Alternative does not include the development of any buildings or structures on the converted site and no permanent dewatering would be required. Therefore, the CDF does not propose any stationary sources of criteria air pollutants. Occasional vehicle trips may be required for monitoring, maintenance, and, repair of the cap, which would require minimal vehicles trips and equipment. Therefore, these activities would not result in emissions that would exceed significance thresholds. Operational emissions associated with the CDF would be less than significant.

Threshold 5.10.3.4: Objectionable Odors. Construction associated with implementation of the Convair Lagoon Alternative could result in minor amounts of odor compounds associated with diesel heavy equipment exhaust. According to the Ventura County Air Pollution Control District (VCAPCD), stationary land uses that generate objectionable odors may create a nuisance to receptors up to two miles away from the source (VCAPCD 2003) include wastewater treatment plants, petroleum refineries, and dairy and feed lots, among other industrial and agricultural uses. Construction emissions do not result in odors

nearly as strong as these land uses; therefore, a two mile screening threshold is conservative for this analysis. The nearest existing sensitive receptor to the construction site are the residences located approximately 0.8 mile from the Alternative site, and the Spanish Landing Park, located approximately 0.9 mile west of Convair Lagoon, that may be exposed to temporary nuisance odors from construction. Not all construction equipment would be operating at once, and would be located throughout the construction and staging areas, so that the potential for a particular receptor to be exposed to odors during construction may not occur. Therefore, nuisance odors would be intermittent and would cease upon the completion of construction. Additionally, visitors to the park would only be exposed to odors for the short period of time while they are using the park facilities. The residences are currently exposed to sources of exhaust odors from the major roadways between the residences and the Alternative site, including Pacific Highway and Interstate 5. Therefore, construction would not expose a substantial number of people to new nuisance odors. Land uses immediately surrounding the construction area are the San Diego International Airport, the United States North Harbor Drive Coast Guard Facility, and a rental car parking lot. These land uses would not be sensitive to intermittent diesel odors because they are not considered sensitive receptors. Therefore, similar to the Proposed Project, impacts associated with nuisance odors from diesel exhaust would not be significant under the Convair Lagoon Alternative.

Similar to the proposed project, approximately 15 percent of dredged contaminated sediment would require dewatering as part of the Convair Lagoon Alternative. Additionally, dredged sediment from the Convair Lagoon Site for containment barrier construction would be stockpiled during construction of the barrier. It is anticipated that the dredged sediment from both sites will contain organic materials and that the decomposition of the organic matter may generate unpleasant odors. Therefore, similar to the Proposed Project, the dredged material may result in a significant temporary odor impact in the vicinity of the dredging and dredge drying operations.

The CARB's Air Quality and Land Use Handbook identifies a list of the most common sources of odor complaints received by local air districts. Typical sources of odor complaints include facilities such as sewage treatment plants, landfills, recycling facilities, petroleum refineries, and livestock operations. The Convair Lagoon Alternative includes the development of a CDF. The contaminated sediment contains organic matter that may emit odors if it would be exposed to the air and allowed to decay. However, upon completion of CDF construction, the sediment would be completely contained within an asphalt-paved, undeveloped parcel of land located approximately 10 feet MLLW. Paved lots do not generate objectionable odors. Therefore, the Convair Lagoon Alternative would not generate objectionable odors and odor impacts would be less than significant.

Mitigation Measures

The following mitigation measures are required to reduce significant impacts to nitrogen oxide emissions and objectionable odors. The measures are organized to correlate to the various significant impacts identified above by threshold.

Threshold 5.10.3.2: Conformance to Federal and State Ambient Air Quality Standards. Mitigation Measure 1 through Mitigation Measure 9 described in the Air Quality Analysis for the Shipyard Sediment Project (Appendix G) would also be required for the Convair Lagoon Alternative. Additionally, mitigation measure 5.10.3.1 would reduce impacts related to emissions of nitrogen oxides during the barge transfer of shipyard sediment to the CDF. The Convair Lagoon Alternative would not exceed the significant thresholds during any other phase of construction, or during operation; therefore, no mitigation measures are required for the other phases of construction or operational emissions.

Mitigation Measure 5.10.3.1: **Prohibit Tug Boat Idling**. The applicant responsible for the tug boat operation shall ensure that tug boats not be allowed to idle during any barge loading and unloading activities, unless the tug boat is actively engaged in operations.

Threshold 5.10.3.4: Objectionable Odors. Implementation of Shipyard Sediment Site Mitigation Measure 10 described in the Air Quality Analysis for the Shipyard Sediment Project (Appendix G) would require the application of a mixture of Simple Green and water to the excavated sediment as part of odor management to accelerate the decomposition process and shorten the duration of odor emissions. Dewatering would take place in the same location as the Proposed Project; therefore, potential odor impacts as a result of the Convair Lagoon Alternative are also expected to be less than significant due to the distance between the proposed dewatering pad areas from the nearest sensitive receptors (see Section 4.6, Air Quality for information about the proposed project). However, similar to the Proposed Project, this impact would remain a temporary significant and unavoidable impact because it is difficult to predict the nature and duration of odor emissions from decomposition.

Cumulative Impacts

Threshold 5.10.3.1: Consistency with Applicable Air Quality Plans. The geographic context for the analysis of cumulative impacts relative to criteria air pollutants is the SDAB. The RAQS and SIP are intended to address cumulative impacts in the SDAB based on future growth predicted by SANDAG in the 2030 Regional Growth Forecast Update. SANDAG uses growth projections from the local jurisdictions' adopted general plans; therefore, development consistent with the applicable general plan would be generally consistent with the growth projections in the air quality plans. Cumulative development would generally not be expected to result in a significant impact in terms of conflicting with RAQS because the cumulative projects would be required to demonstrate that the proposed development is consistent with local planning documents. However, some projects would involve plan

amendments that would exceed the growth assumptions in the planning document and RAQS. For example, the North Embarcadero Port Master Plan Amendment, listed in Table 5-8, Cumulative Projects in the Vicinity of the Convair Lagoon Alternative, is a Port Master Plan Amendment that proposes a variety of land uses changes. Therefore, cumulative development in the SDAB would have the potential to exceed the growth assumptions in the RAQS and result in a conflict with applicable air quality plans. The Convair Lagoon Alternative includes a PMPA amendment that would change the land uses over the 10-acre water portion of the site. However, the analysis of the PMPA, described above under Section 5.10.3.5.1, concluded that it would not exceed the SANDAG growth projections. Therefore, the Convair Lagoon Alternative would not result in a cumulatively considerable contribution to a potentially significant cumulative impact.

Threshold 5.10.3.2: Consistency with Air Quality Standards. The geographic context for the analysis of cumulative impacts relative to criteria air pollutants is the SDAB. As noted within Section 5.10.3.1.4, the SDAB is designated as being in non-attainment for PM_{10}, $PM_{2.5}$, and ozone. Therefore, the baseline cumulative impact to the SDAB due to air pollution from stationary and mobile source emissions associated with basin-wide polluting activities is significant.

The San Diego Water Board does not have thresholds for air quality standards; therefore, thresholds from the City of San Diego were considered. The City of San Diego recommends applying the CAAQS as the significance threshold for cumulative impacts where accepted methodology exists. However, the city has no accepted methodology nor has the District or the San Diego Water Board recommended a methodology for determining a project's impacts related to the CAAQS. However, the County of San Diego has adopted a methodology for addressing cumulative impacts in its Guidelines for Determining Significance – Air Quality, which will be used for this analysis. The County's cumulative impact methodology states that a project's construction emissions would be considered cumulatively considerable if the project would result in significant direct emissions of PM_{10}, $PM_{2.5}$, VOCs, or NO_x, or if the proposed project's emissions would combine with emissions from a nearby simultaneous construction project to exceed the direct impact significance thresholds for these pollutants. The significance thresholds for PM_{10}, $PM_{2.5}$, VOCs, and NO_x are listed in above in Table 5-12.

Based on the Localized Significance Thresholds (LST) established by the SCAQMD (SCAQMD, 2009), NO_x emissions decrease approximately 95 percent beyond approximately 675 meters (2,195 feet). Therefore, cumulative projects 2,195 feet from Convair Lagoon are excluded from the cumulative NO_x analysis. According to the LSTs, $PM_{2.5}$ and PM_{10} decrease approximately 95 percent by 500 meters (1,625 feet). SCAQMD has not established an LST for VOCs. However, VOCs disperse quickly (California Indoor Air Quality, 2011); therefore, it is assumed that VOC emissions would decrease by 95 percent beyond 500 meters, similar to PM_{10} and $PM_{2.5}$. Therefore, cumulative projects 1,625 feet from Convair Lagoon are excluded from the cumulative PM_{10}, $PM_{2.5}$, and VOC analysis. As a result, cumulative projects within 675 meters (2,195 feet) of Convair Lagoon are considered in the analysis of cumulative

construction emissions. During operation, a project would result in a significant cumulative impact if it would conflict with the RAQS or SIP during operation, or exceed the significance thresholds listed in Table 5-12.

The projects that are located within 2,195 feet of the Convair Lagoon Site are the North Side - Airfield Project 5 and West Side - Ground Transportation Project 5 at the San Diego International Airport, the Teledyne Ryan Demolition Project, and the Sunroad Harbor Island Hotel. The cumulative projects would require the use of heavy construction equipment and truck trips throughout the duration of the construction that would result in emissions of NOx, VOCs, PM_{10}, and $PM_{2.5}$. The proposed Alternative's direct impact would exceed the significance threshold for NO_x during the sediment transport and placement phase. Therefore, the proposed Alternative, individually and in combination with the proposed cumulative projects, would result in cumulatively considerable NO_x emissions.

Two cumulative projects are located within 1,625 feet of the Convair Lagoon Site: the Teledyne Ryan Demolition Project and the Sunroad Harbor Island Hotel. As discussed in Section 5.10.3.5.2, Threshold 5.10.3.2, Consistency with Air Quality Standards, none of the phases of Alternative construction would exceed the significance thresholds for PM_{10}, $PM_{2.5}$, or VOCs. However, due to the heavy equipment and truck trips that would be required at the cumulative project sites, if construction of either project would occur simultaneously with the Convair Lagoon Alternative, PM_{10}, $PM_{2.5}$, and VOC emissions in the area between the sites, where emissions from both projects would combine, would have the potential to exceed the significance thresholds for PM_{10}, $PM_{2.5}$, or VOCs and result in a significant cumulative impact.

Shipyard Sediment Site Mitigation Measures 1 through 9 and mitigation measure 5.10.3.1 would reduce criteria pollutant emissions, but not to a level less than cumulatively considerable. Therefore, similar to the Proposed Project, the Convair Lagoon Alternative would result in a cumulatively considerable contribution to a significant cumulative construction impact related to emissions of PM_{10}, $PM_{2.5}$, VOC, and NO_x emissions.

As discussed in Section 5.10.3.5.2, Threshold 5.10.3.2, Consistency with Air Quality Standards, operational emissions associated with the Convair Lagoon Alternative would be negligible and would not violate any air quality standard. Additionally, as discussed in Section 5.10.3.5.1, Threshold 5.10.3.1, Consistency with Applicable Air Quality Plans, the Convair Lagoon Alternative would not conflict with the RAQS or the SIP. Therefore, the Convair Lagoon Alternative would comply with the applicable air quality standards and air quality plans. The potential air emissions associated with operation of the Convair Lagoon Alternative would not adversely impact the ability of the SDAB to meet the CAAQS and NAAQS. Therefore, the Convair Lagoon Alternative would not result in a cumulatively considerable operational contribution to the local cumulative impact area.

Threshold 5.10.3.3: Sensitive Receptors.

Carbon Monoxide Hotspots. The geographic context for the analysis of cumulative impacts relative to exposure of sensitive receptors to carbon monoxide hot spots would be the nearby intersections along Harbor Drive. The Convair Lagoon site and most of the cumulative projects listed in Table 5-8, Cumulative Projects in the Vicinity of the Convair Lagoon Alternative, would be located on or close to Harbor Drive. Therefore, cumulative project traffic would generally be concentrated on Harbor Drive. Implementation of the cumulative projects would have the potential to reduce intersection operations on Harbor Drive to an LOS D or worse. However, as discussed in Section 5.10.3.5.1, Threshold 5.10.3.3, Impact to Sensitive Receptors, the Convair Lagoon Alternative would only result in a temporary increase in traffic on Harbor Drive and would not contribute to long-term carbon monoxide levels. Similar to the Proposed Project, the Convair Lagoon Alternative would not result in a cumulatively considerable contribution to cumulative impact related to carbon monoxide hot spots.

Toxic Air Contaminants. The cumulative projects in the Convair Lagoon vicinity, listed in Table 5-8, Cumulative Projects in the Vicinity of the Convair Lagoon Alternative, include hotels and expansion of the Convention Center, which would require diesel truck trips to deliver supplies such as food for hotel restaurants. Expanded operational capacity at the airport may also result in an increase in truck trips. However, truck trips to hotel and convention center uses would be intermittent and would not substantially increase diesel particulate emissions. The airport improvements do include new gates, but generally consist of demolition of facilities and providing new access routes and parking facilities. These improvements would not substantially increase truck trips above existing conditions. Construction of the CDF and construction activities at the Shipyard Sediment Site would require diesel equipment and truck trips during construction only. Up to approximately a maximum of 100 daily truck trips would be required during construction at the Convair Lagoon and Shipyard Sediment Sites. However, construction emissions would be temporary and would not result in a long term increase in exposure to TAC emissions. Additionally, the HRA prepared for the Proposed Project determined that a temporary increase of 100 daily truck trips would not exceed the SDAPCD criterion for cancer or chronic or acute health risks. Therefore, a cumulative impact to sensitive receptors from diesel particulate emissions would not occur.

Stationary sources of TAC emissions identified in CARB's Air Quality and Land Use Handbook (2005) are freeways, rail yards, ports, refineries, dry cleaners, and large gas dispensing facilities. Projects at the San Diego International Airport include expansion of a utility plant and co-generation facility. Several cumulative projects would also increase operations in the District, including the Commercial Fisheries Revitalization Plan and Port Pavilion on Broadway Pier Project. Therefore, the cumulative projects would have the potential to result in an increase in TAC emissions and a potentially significant cumulative impact would occur. However, the Convair Lagoon Alternative would consist of an undeveloped, above-ground parcel of land. It would not result in a new source of stationary TAC emissions. Therefore, the Convair Lagoon Alternative would not result in a cumulatively considerable contribution to a significant cumulative impact.

Threshold 5.10.3.4: Objectionable Odors. Similar to the Proposed Project, odors resulting from the treatment of decomposing sediments under the Convair Lagoon Alternative could result in temporary odor impacts. However, impacts relative to objectionable odors are limited to the area immediately surrounding the odor source and are not cumulative in nature because the air emissions that cause odors disperse beyond the their source. As the emissions disperse, the odor becomes less and less detectable. Additionally, as discussed above in Section 3.1.5.2, Threshold 5.10.3.4, Objectionable Odors, following construction the CDF would consist of undeveloped land and would not result in a source of odors. None of the proposed cumulative projects propose development that is a typical source of odor complaints. Therefore, the Convair Lagoon Alternative, in combination with other cumulative projects, would not result in a cumulatively significant impact associated with objectionable odors.

Level of Significance After Mitigation

No quantification for the emissions reduction associated with Mitigation Measures 1 through 9 is provided in the Air Quality Analysis for the Shipyard Sediment Project (Appendix G); however, these measures would minimize nitrogen oxide emissions by requiring the use of high-efficiency equipment, proper maintenance of equipment, shutting off engines when not in use, timing construction activities to not coincide with peak-hour traffic, and encouraging ridesharing and transit use. In addition, Mitigation Measure 5.10.3.1 would limit tug boat operation to four hours per day per tug boat. The maximum daily emissions during sediment transport and Shipyard Sediment Site construction activities with implementation of mitigation measure 5.10.3.1 are shown in Table 5-22. As shown in this table, implementation of mitigation measure 5.10.3.1 would reduce emissions of nitrogen oxides during Phase 4 of Convair Lagoon Alternative construction, but not to a less than significant level. Since it is unknown whether the Shipyard Sediment Site mitigation measures would reduce this impact to a less than significant level, this temporary impact would remain significant and unavoidable.

Table 5-22: Sediment Transfer Daily Maximum Emissions with Implementation of Mitigation Measure 5.10.3.1

Construction Phase	Pollutant Emissions (pounds/day)					
	CO	NO_X	VOC	SO_X	PM_{10}	$PM_{2.5}$
Tug Boat Operations	61	325	13	5	10	10
Material Placement	35	40	7	0	3	2
Kettleman Hills Landfill Disposal Truck Trips	54	155	11	0	7	6
Dredging of Shipyard Sediment Site[(1)]	10	16	1	4	1	1
Landside Operations – Pad Construction	83	164	14	20	9	8
Landside Operations – Operation[(1)]	20	39	3	7	2	2
Covering Sediment Near Structures	31	105	6	4	4	4

Total Unmitigated Emissions	*294*	***844***	*55*	*40*	*36*	*33*
Reduction in Tug Boat Emissions from Implementation of Mitigation Measure 5.10.3.1	(- 31)	(-163)	(-7)	(-2)	(-5)	(-5)
Total Emissions with Mitigation Measure 5.10.3.1	*263*	***681***	*48*	*38*	*31*	*28*
Significance Threshold	**550**	**250**	**137**	**250**	**100**	**55**
Significant Impact?	No	**Yes**	No	No	No	No

Bold = Exceeds threshold
CO = carbon monoxide; NO_x = nitrogen oxides; VOC = volatile organic compounds; SO_x = sulfur oxides
PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter
Source: URBEMIS, 2007, and LSA, 2011. See Appendix I for data sheets.

Similar to the Proposed Project, Shipyard Sediment Site Project Mitigation Measure 10 described in the Air Quality Analysis for the Shipyard Sediment Project (Appendix G) would reduce the duration of odor impacts, but not to a less than significant level. This impact would be a temporarily significant and unavoidable.

Significant Unavoidable Adverse Impacts

Implementation of Mitigation Measures 1 though 10 described in the Air Quality Analysis for the Shipyard Sediment Project (Appendix G) and Mitigation Measure 5.10.3.1 for this alternative would reduce temporary impacts related to nitrogen oxide emissions and odors during Phase 4 of Convair Lagoon Alternative construction, but not to a less than significant level. These temporary impacts would be significant and unavoidable.

5.10.4 Biological Resources

This section evaluates the potential for biological resource impacts to occur from implementation of the Convair Lagoon Alternative. The term "biological resources" refers to marine plant and animal communities within the Convair Lagoon Alternative site. Potential impacts addressed in this section include direct and indirect impacts to sensitive plant and wildlife species, sensitive natural communities, wetlands, wildlife movement corridors, and conflicts with local policies or ordinances. This section incorporates information and analyses provided in the *Shipyard Sediment Alternative Analysis Convair Lagoon Confined Disposal Facility Alternative Marine Biological Resources Technical Report,* written by Merkel and Associates in May 2011. This report is provided as Appendix J of this EIR.

5.10.4.1 Existing Environmental Setting

Habitat Types

The Convair Lagoon Alternative site is located near the border of the north ecoregion and north-central ecoregion of the San Diego Bay. Four general types of habitats occur in the site:

- Upland (>+7.79 ft Mean Lower Low Water (MLLW))
- Intertidal (+7.79 to -2 ft MLLW)

- Shallow Subtidal (-2 to -12 ft MLLW)
- Moderately Deep and Deep Subtidal (below -12 ft MLLW)

Table 5-23 summarizes the acreage of these habitat types, and subhabitats, within the Convair Lagoon Alternative site. Figure 5-8 identifies the location of these habitats within the Convair Lagoon Alternative site. The various habitats described below include their approximate topographic location, which is generally expressed as above or below MLLW (approximately sea level).

Uplands. Upland habitats on the Convair Lagoon Alternative site are illustrated in Figure 5-8. Upland habitat generally occurs above the areas influenced by tidal action, or above +7.8 ft MLLW. The urban disturbed upland habitat in the Convair Lagoon Alternative site consists of man-modified features, such paved surfaces, concrete debris, and rip-rap revetment and accounts for approximately 0.64 acres. Disturbed uplands consist primarily of nonnative grasslands and disturbed, weedy areas, and account for approximately 0.46 acres. The majority of the native upland habitats that once occurred around San Diego Bay have long since been replaced by development.

Intertidal. Intertidal habitats on the Convair Lagoon Alternative site are illustrated in Figure 5-8. Subhabitats include intertidal beach, coastal salt marsh, intertidal flats and lower intertidal habitat.

Table 5-23: Habitat Types within the Convair Lagoon Alternative Site

Habitat Type	Acres
Upland (>+7.8 ft MLLW)	
Urban Disturbed (Man-Modified)	0.64
Disturbed Upland	0.46
Intertidal (+7.8 to -2 ft MLLW)	
Intertidal Beach (+7.8 to +2.3 ft MLLW)	0.83
Coastal Salt Marsh (+7.8 to +2.3 ft MLLW)	0.11
Intertidal Flats (+2.3 to 0 ft MLLW)	1.65
Lower Intertidal (0 to -2 ft MLLW)	1.42
Man Modified	1.12
Total (Non Man Modified)	4.01
Shallow Subtidal (-2 to -12 ft MLLW)	
Man Modified	0.19
Total (Non Man Modified)	4.49
Total Non-Man-Modified Habitat (Intertidal and Subtidal)	8.50
Moderately Deep and Deep Subtidal (below -12 ft MLLW)	0.31

Source: Merkel and Associates, 2011

Intertidal beach habitat occurs between the depths of +7.8 to +2.3 ft MLLW and generally occurs in the northeastern part of the site and covers approximately 0.83 acres. Coastal salt marsh habitat is composed of salt tolerant vegetation and occurs in the upper intertidal zone. Coastal salt marsh occurs between regular (daily) to irregular (less than daily) tidal inundation and is exposed more than inundated. Tidal circulation is the most important water source for the coastal salt marsh habitat and tides carry necessary nutrients into this habitat. Approximately 0.11 acres of coastal salt marsh habitat are present on site between the depths of +7.8 to +2.3 ft MLLW in the northeast and northcentral part of the site.

Intertidal flats include mudflats and sand flats and consist of various combinations of clay, silt, sand, shell fragments, and organic debris. The water levels on the intertidal flats are determined by the daily tidal cycles, which submerge or expose the surface approximately twice per day. Approximately 1.65 acres of intertidal flats are present on the site between the depths of +2.3 to 0 ft MLLW. Intertidal mudflats contain abundant organic matter and microorganisms, but not at the level found in eelgrass beds or salt marsh habitat. On the Convair Lagoon Alternative site, the lower intertidal zone is generally inundated for the majority of the day, and is only exposed during periods of extreme low tides. The substrate is similar to intertidal flats, and is considered the upper limit for eelgrass beds within San Diego Bay. Approximately 1.42 acres of lower intertidal habitat is present on the site between the depths of 0 to -2 ft MLLW, some of which supports eelgrass.

Shallow Subtidal. The majority of the open waters in the Convair Lagoon Alternative site are classified as shallow subtidal habitat. This habitat is defined as continually submerged shallow water habitat that extends from -2 to -12 ft MLLW. In San Diego Bay, shallow subtidal habitat supports an abundance of fish and bird abundance and diversity is higher in this habitat than in any other subtidal habitats in the bay, possibly due to the higher abundance of fish (INRMP, 2007). On the Convair Lagoon Alternative site, approximately 4.49 acres of shallow subtidal habitat is present.

Moderately Deep Subtidal. Moderately deep subtidal habitat on site occurs between the depths of -12 ft to -20 ft MLLW. Moderately deep subtidal habitat represents areas that generally have been dredged in the past but are not maintained as navigational channels. On the Convair Lagoon Alternative site, approximately 0.31 acres of moderately deep subtidal habitat is present.

Flora and Fauna

Eelgrass. Extensive eelgrass beds are present on the Convair Lagoon Alternative site, as shown in Figure 5-8. Eelgrass (*Zostera marina*) vegetated habitats are an essential component of southern California's coastal marine environment. Eelgrass beds function as important habitat for a variety of invertebrate, fish, and avian species. For many species,

eelgrass beds are an essential biological habitat component for at least a portion of their life cycle, providing resting and feeding sites for avian species and nursery sites for numerous species of fish. On the Convair Lagoon Alternative site, eelgrass beds extend from +1 ft to -12 ft MLLW and cover approximately 5.64 acres. An additional 0.37 acres of eelgrass are located directly adjacent to the southern boundary of the Convair Lagoon Alternative site.

Vegetation. In addition to eelgrass, vegetation on site is represented by pickleweed (*Salicornia* spp.), saltbush (*Atriplex semibaccata*), salt grass (*Distichlis spicata*), as well as numerous weedy species characteristic of disturbed habitat.

Algae. Limited algal growth is present on the Covair Lagoon Alternative site with common algae found attached to artificial structures such as the existing pier and seaplane launch ramp. Algae species present on site include diatoms, blue-green algae, *Corallina pinnatifolia*, *Gelidium coulteri*, *Gelidium robustum*, *Laurencia pacifica*, *Sargassum muticum*, *Polisiphonia* sp., and sea lettuce (*Ulva* sp).

Fish. Rip-rap structures and seawalls within the San Diego Bay are known to attract and support a variety of fish. Rip-rap structures and seawalls within the San Diego Bay have also been reported as good lobster diving and sport fishing sites, as they provide refuge and feeding areas for certain juvenile and predator fishes, such as perches, basses, dogfish, opaleye, and croaker.

The Convair Lagoon Alternative is located between the north ecoregion and north-central ecoregion of the San Diego Bay. The last fish collection sampling for the north ecoregion and north-central ecoregion occurred in 2008. During this sampling, 33 fish species were found to occur in the north ecoregion of the San Diego Bay. Fish species with the greatest presence in numbers within the north ecoregion of the San Diego Bay included slough anchovy (*Anchoa delicatissima*), top smelt (*Atherinops affinis*), salema (*Xenistius californiensis*), arrow goby (*Clevelandia ios*), and giant kelpfish (*Heterostichus rostratus*). During the 2008 sampling for the north-central ecoregion, 27 species fish species were found to occur. Within the north-central ecoregion of the San Diego Bay, fish species with the greatest presence in numbers included slough anchovy, topsmelt, giant kelpfish, and bay pipefish (*Syngnathus leptorhynchus*).

In a 2011 field survey of the Convair Lagoon Alternative site by Merkel and Associates (Appendix J of this EIR), the round stingray (*Urobattus halleri*) was the only fish observed on site. However, other fish species such as barred and spotted sand bass (*Paralabrax nebulifer* and *P. maculatofasciatus*), and midshipman (*Porichthys myriaster*) are likely to use the Convair Lagoon Alternative site for habitat.

Birds. Between March 2006 and February 2007, avian surveys were conducted within San Diego Bay. One sampling point for this survey was located in the southeastern portion of the Convair Lagoon Alternative site, along the rip-rap/seawall. Forty-four bird species were observed at the Convair Lagoon Alternative site during this avian survey. Table 5-24 identifies these bird species. Only one of these species, the California least tern (*Sternula antillarum browni*), is listed as both state endangered and federal endangered.

Mammals. Marine mammal species known to regularly occur within the north San Diego Bay include the California sea lion (*Zalophus californianus*) and the coastal bottlenose dolphin (*Tursiops truncatus*). Species that are known to occasionally frequent the north channels of San Diego Bay include the Pacific harbor seal (*Phoca vitulina*) and the gray whale (*Eschrichtius robustus*). Convair Lagoon Alternative site is not considered a major seal or sea lion haul out area.

Other. Burrowing invertebrates, tube dwelling anemones, arthropods (e.g., ghost shrimp, *Callianassa*), and bivalves occur within the Convair Lagoon Alternative site, in areas of unvegetated, soft-bottom habitat. These species were found primarily on artifical structures, including rip-rap, concrete seawalls, the peir and the seaplane launch ramp. Invertebrates found within the Convair Lagoon Alternative site includecolonial tunicates (i.e., *Botryllus* sp.), oysters (*Ostrea lurida*), sponges (*Leucilla nuttingi*), mussels (*Mytilus* sp.), feather duster worms (Sabillidae), colonial ascidians (*Botrylloides* sp.), solitary tunicates (e.g., *Ciona* sp., *Styela plicata*), bryozoans (i.e., *Eurystomella* sp.), snails, crabs, polychaete worms, and the non-native bryozoan *Zoobotryon verticillatum*. Within the intertidal zone, barnacles (*Chthamalus* spp., *Balanus* sp.) were the most common invertebrates on the bulkhead walls or rip-rap.

Table 5-24: Birds Observed at the Convair Lagoon Alternative Site during Falling and Peaking Tide from March 2006 to February 2007

Common Name	Scientific Name	Total
1. Western gull	*Larus occidentalis wymani*	172
2. Marbled godwit	*Limosa fedoa fedoa*	142
3. Least sandpiper	*Calidris minutilla*	114
4. Bufflehead	*Bucephala albeola*	45
5. Willet	*Tringa semipalmata inornatus*	44
6. Western grebe	*Aechmophorus occidentalis occidentalis*	37
7. Double-crested cormorant	*Phalacrocorax auritus*	30
8. Black-bellied plover	*Pluvialis squatarola*	21
9. Eared grebe	*Podiceps nigricollis californicus*	19
10. Surfbird	*Aphriza virgata*	17
11. Lesser scaup	*Aythya affinis*	16
12. Semipalmated plover	*Charadrius semipalmatus*	15
13. Mallard	*Anas platyrhynchos platyrhynchos*	12

Table 5-24: Birds Observed at the Convair Lagoon Alternative Site during Falling and Peaking Tide from March 2006 to February 2007

Common Name	Scientific Name	Total
14. Scaup sp.		11
15. Spotted sandpiper	*Actitis macularius*	10
16. Great blue heron	*Ardea herodias wardi*	9
17. Surf scoter	*Melanitta perspicillata*	9
18. Snowy egret	*Egretta thula thula*	6
19. Killdeer	*Charadrius vociferus vociferus*	5
20. Ruddy turnstone	*Arenaria interpres*	5
21. Belted kingfisher	*Ceryls alcyon*	5
22. Brown pelican	*Pelecanus occidentalis californicus*	4
23. Ring-billed gull	*Larus delawarensis*	4
24. Pied-billed grebe	*Podilymbus podiceps podiceps*	4
25. American crow	*Corvus brachyrhynchos hesperis*	3
26. Forster's tern	*Sterna forsteri*	3
27. Caspian tern	*Hydroprogne caspia*	3
28. Heermann's gull	*Larus heermanni*	3
29. Long-billed curlew	*Numenius americanus*	2
30. Mourning dove	*Zenaida macroura marginella*	2
31. California least tern	*Sternula antillarum browni*	2
32. Anna's hummingbird	*Calypte anna*	2
33. House finch	*Carpodacus mexicanus frontalis*	2
34. Sanderling	*Calidris alba*	2
35. European starling	*Sturnus vulgaris vulgaris*	2
36. Black phoebe	*Sayornis nigricans semiatra*	1
37. Common raven	*Corvus corax clarionensis*	1
38. Horned grebe	*Podiceps auritus cornutus*	1
39. European starling	*Sturnus vulgaris vulgaris*	1
40. Western sandpiper	*Calidris mauri*	1
41. Greater yellowlegs	*Tringa melanoleuca*	1
42. Northern mockingbird	*Mimus polyglottos polyglottos*	1
43. Ruddy duck	*Oxyura jamaicensis rubida*	1
44. Herring gull	*Larus argentatus smithsonianus*	1

Source: Merkel and Associates 2011

Exotic marine species are also present in San Diego Bay and potentially within the Convair Lagoon Alternative site. Exotic marine species have arrived in these areas through direct and indirect means, for intentional and unintentional purposes. Invasion risks stem from ballast water exchanges and hull fouling, as well as from aquarium, pet, nursery, aquaculture, and seafood industry trade. During the 1998 Regional Bight Survey of the San Diego Bay, the nonindigenous bivalve *Musculista senhousia* was present in more than 70 percent of the samples, making it the most widely distributed trawl caught invertebrate in the bay. *Musculista senhousia* together with another nonindigenous species *Microcosmus squamiger*, accounted for over 50 percent of the total catch. The green alga, *Caulerpa taxifolia*, has also

been eradicated from several regional water bodies and may occur within the bay and the Convair Lagoon Alternative site.

Sensitive Species

Certain plants and animals have been listed as threatened or endangered under the state or federal Endangered Species Act. Other species have not been formally listed, but declining populations or habitat availability are reasons for concern in regard to their long-term viability. These species are included in lists compiled by resource management agencies or private conservation organizations. For the purposes of this EIR, "special status" species include those species that have been recognized by either federal or state resource management agencies or conservation organizations as having special management needs due to limited distribution, limited numbers, or significant population declines associated with natural or manmade causes. Special status species include those designated as endangered, threatened, rare, protected, sensitive, or species of special concern according to the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG), or applicable regional plans, policies, or regulations. Special status plant and wildlife species that have the potential to occur on the Convair Lagoon Alternative site are discussed below.

California least terns. The California least tern (*Sternula antillarum browni*) is a state endangered and federal endangered species. California least terns were observed on the Convair Lagoon Alternative site during the 2006/2007 San Diego Bay avian survey. The closest nesting site for California least terns is located at the San Diego International Airport (SDIA), approximately 0.25 miles north of Convair Lagoon Alternative site. These nesting areas include three sites that are protected with a seven-inch tall plastic fence to keep least tern chicks from wandering onto the taxiways. The nesting site is managed by the San Diego County Regional Airport Authority.

Colony size and reproductive success of the least tern located at the SDIA nesting site have varied widely from year to year depending on prey availability, predation and predator presence, and human disturbance. In 2010, at least 161 chicks from 88 nests hatched successfully at the SDIA nesting site. That same year, approximately 29 to 38 young fledged from the SDIA nesting site. Predators observed in the SDIA nesting area include ants, peregrine, kestrel, and raven. Possible predators include opossum, rats, raccoon, cat, great blue heron, night-heron, Cooper's hawk, gulls, barn owl, crow, and starlings.

The western snowy plover (*Charadrius alexandrinus nivosus*), a federally threatened subspecies, has not been observed at the Convair Lagoon Alternative site but was observed on the mudflats west of the nesting site at D Street Fill area in south San Diego Bay. The small sandy beach habitat on the Convair Lagoon Alternative site precludes extensive use of the site by the plover species, and none have been observed during past surveys.

The only turtle found in San Diego Bay is the east Pacific green sea turtle (*Chelonia mydas*), which is listed as endangered under the federal Endangered Species Act. The east Pacific green sea turtle does not breed or nest in San Diego Bay, and is associated with a breeding population on Islas Revillagigedos, Mexico. However, adults and juveniles have been sighted in the Bay, with individuals seen year round in the channel at the South Bay Power Plant, in the South Bay, and around Naval Air Base Coronado.

5.10.4.2 Regulatory Setting

Federal

Federal Endangered Species Act. The federal Endangered Species Act (ESA), administered by the USFWS, provides the legal framework for the listing and protection of species (and their habitats), which are identified as being endangered or threatened with extinction. Actions that jeopardize endangered or threatened species and the habitats upon which they rely are considered a "take" under the ESA. Section 9(a) of the ESA defines take as, "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." Sections 10(a) and 7 of the federal ESA allow actions that could adversely affect endangered or threatened species to move forward, provided certain requirements are met.

Clean Water Act. Under section 404 of the Clean Water Act, the Army Corps of Engineers (ACOE) regulates the disposal of dredged and fill materials into "waters of the United States." Waters of the U.S. include intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, and wetlands adjacent to any water of the U.S. (CFR 33 Part 328). The ACOE also regulates navigable waters under section 10 of the Rivers and Harbors Act. A permit from the ACOE must be obtained for any dredge or fill activities within jurisdictional waters of the U.S. During the permit review process the ACOE determines the type of permit appropriate for the project based on the extent of impacts and type of fill activities.

In addition to the section 404 permit, section 401 of the Clean Water Act requires that a 404 permit applicant obtain a certificate from the appropriate state agency stating that the fill is consistent with the state's water quality standards and criteria. In California, the authority to grant certification or waive the requirement for permits under section 401 is delegated by the State Water Resource Control Board (State Water Board) to the Regional Water Quality Control Board (San Diego Water Board).

Migratory Bird Treaty Act. The Migratory Bird Treaty Act (MBTA) of 1918 (16 United States Code 703-711) implements an international treaty for the conservation and management of bird species that may migrate through more than one country. It is enforced in the United States by the USFWS, and makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21).

Disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young) may be considered a "take" and is potentially punishable by fines and/or imprisonment. In 1972, the MBTA was amended to include protection for migratory birds of prey (raptors). Generally, applicants who obtain an ESA section 10(a) permit simultaneously receive a three-year MBTA permit for ESA listed migratory birds.

Magnuson-Stevens Fishery Conservation and Management Act. Under the provisions of the 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act, the amendments require the delineation of Essential Fish Habitat (EFH) for all managed species. EFH has been designated over all tidal marine waters in southern California. Federal action agencies which fund, permit, or carry out activities that may adversely impact EFH are required to consult with the National Marine Fisheries Service (NMFS) regarding the potential effects of their actions on EFH, and respond in writing to the NMFS's recommendations.

State

California Coastal Act. The California Coastal Act (CCA) provides for the protection of environmentally sensitive habitat identified by the CDFG from adjacent developments in the coastal zone. The Convair Lagoon Alternative site lies within the coastal zone. The CCA identifies environmentally sensitive habitat areas 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. The site is not considered an environmentally sensitive habitat area under the California Coastal act because habitats on site are too fragmented to support any listed species or species considered to be rare (M&A 2011). Section 30240 of the CCA provides protection for environmentally sensitive habitat areas, as stated:

"Environmentally sensitive habitat areas; adjacent developments:

- 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."

Compliance with these and other requirements in the CCA is ensured for specific development projects in the coastal zone through issuance of coastal development permits.

California Fish and Game (CFG) Code. The CFG Code regulates the taking or possession of birds, mammals, fish, amphibians, and reptiles, as well as natural resources such as wetlands and waters of the state. It includes the CESA (sections 2050-2115) and Streambed Alteration Agreement regulations (sections 1600-1616), which are both discussed in more detail below, as well as provisions for legal hunting and fishing, and tribal agreements for activities involving take of native wildlife. The CFG Code also includes protection of birds (sections 3500 *et seq*.) and the California Native Plant Protection Act (NPPA) of 1977 (sections 1900-1913), which directed CDFG to carry out the Legislature's intent to "preserve, protect and enhance rare and endangered plants in this state."

California Endangered Species Act. The California Endangered Species Act (CESA) authorizes the California Fish and Game Commission to designate endangered, threatened, and rare species and to regulate the taking of these species (sections 2050-2098, Fish and Game Code). CESA defines "endangered" species as those whose continued existence in California is jeopardized. State listed "threatened" species are those not presently threatened with extinction, but which may become endangered in the foreseeable future. Protection of special-status species is detailed in sections 2050 *et seq*. of the Fish and Game Code. The California Code of Regulations (Title 14, section 670.5) lists animal species considered endangered and threatened by the state. Title 14, section 670.2 of the California Code of Regulations lists plant species considered endangered and threatened by the state. Formal consultation must be initiated with the CDFG for projects that may have an adverse effect on a state-listed species.

Section 2080 of the California Fish and Game Code prohibits the taking of state listed plant and animals. The CDFG also designates "fully protected" or "protected" species as those that may not be taken or possessed without a permit from the Fish and Game Commission and/or the CDFG. Species designated as fully protected or protected may or may not be listed as endangered or threatened.

Lake and Streambed Alteration Program. Section 1602 of the CFG Code requires any person, state, or local governmental agency to provide advance written notification to CDFG prior to initiating any activity that would: 1) divert or obstruct the natural flow of, or substantially change or remove material from the bed, channel, or bank of any river, stream, or lake; or 2) result in the disposal or deposition of debris, waste, or other material into any river, stream, or lake. The state definition of "lakes, rivers, and streams" includes all rivers or streams that flow at least periodically or permanently through a bed or channel with banks that support fish or other aquatic life, and watercourses with surface or subsurface flows that support or have supported riparian vegetation.

Porter-Cologne Water Quality Control Act. The Porter-Cologne Water Quality Control Act provides for statewide coordination of water quality regulations. The Act established the State Water Board as the statewide authority and nine separate Regional Water Quality

Control Boards to oversee smaller regional areas within the state. The Act authorizes the State Water Board to adopt, review, and revise policies for all waters of the state (including both surface and ground waters); and directs the Regional Water Quality Control Boards to develop regional Basin Plans. Section 13170 of the California Water Code also authorizes the State Water Board to adopt water quality control plans on its own initiative. The Basin Plan for the San Diego Region is designed to preserve and enhance the quality of water resources in the San Diego region for the benefit of present and future generations. The purpose of the plan is to designate beneficial uses of the Region's surface and ground waters, designate water quality objectives for the reasonable protection of those uses, and establish an implementation plan to achieve the objectives.

Regional

Southern California Eelgrass Mitigation Policy. The Southern California Eelgrass Mitigation Policy, adopted in 1991, offers specific guidelines for appropriate responses and mitigation measures for activities that threaten eelgrass vegetated habitats. This policy was developed by the federal and state resource agencies: NMFS, U.S. Army Corps of Engineers (ACOE), U.S. Fish and Wildlife Service (USFWS), and California Department of Fish and Game (CDFG). The Southern California Eelgrass Mitigation Policy requires pre- and post-construction surveys within 30 days of project commencement and completion. These surveys are then used to determine potential mitigation. The Southern California Eelgrass Mitigation Policy requires that impacts to eelgrass be mitigated by restoration at a 1.2:1 area ratio.

San Diego Bay Integrated Natural Resources Management Plan. The San Diego Bay Integrated Natural Resources Management Plan is a long-term strategy sponsored by two of the major managers of the San Diego Bay: the US Navy and the San Diego Unified Port District (District). Its intent is to provide direction for the good stewardship of natural resources, while also supporting the ability of the Navy and the District to meet their missions and continue functioning within the Bay. The ecosystem approach reflected in the Plan considers the interconnections among all of the natural resources and human uses of the Bay, across ownership and jurisdictional boundaries. San Diego Bay is viewed as an ecosystem rather than as a collection of individual species or sites or projects. The core strategies of the Plan are to: 1) manage and restore habitats, populations, and ecosystem processes; 2) plan and coordinate projects and activities so that they are compatible with natural resources; 3) improve information sharing, coordination and dissemination; 4) conduct research and long-term monitoring that supports decision-making; and 5) put in place a Stakeholder's Committee and Focus Subcommittees for collaborative, ecosystem-based problem-solving in pursuit of the goal and objectives.

5.10.4.3 Methodology

Biological resource information within the Convair Lagoon Alternative site is based on a recent habitat survey conducted by Merkel and Associated on March 29, 2011. The habitat survey also included a literature review for specific resources such as fish, avian species. Supplemental information was derived from the San Diego Bay Integrated Natural Resources Management Plan.

The ichthyofauna in San Diego Bay was previously studied by Merkel and Associates (2000) and other various researchers. The Shipyard Sediment Alternative Analysis Convair Lagoon Confined Disposal Facility Alternative Marine Biological Resources Technical Report (Appendix J) for the Convair Lagoon Alternative site made extensive use of a 1999 data set for the San Diego Bay regarding fish because the data set was both recent and comprehensive. Surveys used in the analysis were completed quarterly for five and a half years, at four stations throughout San Diego Bay, using six sampling gear types with a total of 78 species identified. Other research studies used in this analysis were used primarily to confirm the presence of fish species and to identify any additional species.

5.10.4.4 Thresholds of Significance

Threshold 5.10.4.1 : Candidate, Sensitive or Special Status Species. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would substantially and adversely affect, either directly or through habitat modifications, 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 (including any flora or fauna of rare and/or endangered status, depleted or declining species, species and habitat types of unique or limited distribution, and/or visually prominent vegetation).

Threshold 5.10.4.2 : Riparian Habitat and Other Sensitive Communities. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would result in a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFG or USFWS.

Threshold 5.10.4.3: Jurisdictional Waters. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would result in a substantial adverse effect on federally protected wetlands as defined by section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means.

Threshold 5.10.4.4: Wildlife Movement Corridors. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would

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.

Threshold 5.10.4.5: Local Policies and Ordinances. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would conflict with any local plans, policies or ordinances protecting biological resources or habitat conservation.

5.10.4.5 Impacts and Mitigation Measures

Less Than Significant Impacts

Threshold 5.10.4.4: Wildlife Movement Corridors. According to the USFWS, the entire California Coast, including San Diego Bay, is part of the Pacific Flyway (USFWS, 2010). The Pacific Flyway is one of four geographical patterns in the United States that represent the major migratory patterns of waterfowl through the continent. Flyway is a useful geographic term that describes four regions of the United States: Atlantic, Mississippi, Central and Pacific. Although migratory birds fly through many narrow migration corridors, the flyways fairly accurately represent the major north-south migration pathways. Implementation of the Convair Lagoon Alternative, which is located along the Pacific Flyway, would transform the entire existing marine habitat on site to upland habitat. The conversion of this habitat would alter the local circulation patterns of birds in the immediate vicinity of the site by reducing the amount of surface bay water available for foraging activities. However, this change in local circulation patterns from habitat alteration would not represent a significant impact because construction activities associated with the Convair Lagoon Alternative would not degrade water quality in the region to the extent that migrating wildlife would be negatively affected. Furthermore, the bay area surrounding the Convair Lagoon Alternative site contains a large presence of armored shoreline which is used by migrating birds. Implementation of the Convair Lagoon Alternative would not change any adjacent shorelines and migratory birds would continue to frequent these area. No significant impacts to wildlife movement corridors would occur from implementation of the Convair Lagoon Alternative. Refer to Section 4.5, Marine Biological Resources, of this EIR for impacts related to wildlife movement corridors from dredging and dewatering activities at the Shipyard Sediment Site.

Potentially Significant Impacts

Threshold 5.10.4.1: Candidate, Sensitive or Special Status Species. Direct impacts to candidate, sensitive or special status species include those associated with direct destruction or displacement of sensitive plants or natural habitats during construction activities such as excavation, placement of rock, placement of dredged sediment, installation of a sand cap and asphalt paving. Indirect impacts are those that are not a result of direct land disturbance activities. Indirect impacts include impacts such as decreased water quality, increased

fugitive dust and noise, and increased human activity. Indirect impacts would occur during all stages of construction.

Construction of the Convair Lagoon Alternative would transform the entire existing on-site marine habitat to upland habitat. This conversion of marine habitat to upland habitat would result in the direct loss of small, less mobile marine species that use the Convair Lagoon Alternative site, such as invertebrates, algae and eelgrass. Larger and more mobile species may be able to avoid direct losses, but would be forced to relocate to surrounding habitats. Species required to relocate may be affected by an increased demand on resources in adjacent areas, as well as other development in the area. Impacts related to less mobile marine species, such as invertebrates and algae, are considered less than significant because these species are not identified as candidate, sensitive or special status by the CDFG or USFWS. Impacts to larger marine mammals and sea turtles are not considered significant because most are transitory in the vicinity of the Convair Lagoon Alternative site, and tracking data on sea turtles indicate that movement is limited to areas south of the Coronado Bridge. Impacts to eelgrass habitat are discussed below under Issue 2, Riparian Habitat and Other Sensitive Communities.

Of all the species with the potential to occur on the Convair Lagoon Alternative site, the California least tern is the only species that is considered a special status species. The California least tern is listed as both a state and federal endangered species. California least terns were observed foraging on the Convair Lagoon Alternative site between March 2006 and February 2007 during a San Diego Bay avian survey. The closest nesting site to the lagoon was found located at the San Diego International Airport (SDIA), approximately 0.25 miles north of the Convair Lagoon Alternative site.

The conversion of marine habitat to upland habitat from implementation of the Convair Lagoon Alternative would not directly impact the California least tern because this species dwells on land, rather than a marine environment. However, the California least tern would have the potential to be indirectly impacted by construction activities associated with the placement of dredged materials and the construction of the sand cap. These construction activities would result in short-term increases in water turbidity within the vicinity of the Convair Lagoon Alternative site. Increased turbidity in this area would result in a reduction in foraging opportunities for the SDIA California least terns. This would be a significant impact. Refer to Section 4.5, Marine Biological Resources, of this EIR for impacts related to candidate, sensitive or special status species from dredging and dewatering activities at the Shipyard Sediment Site.

Threshold 5.10.4.2: Riparian Habitat and Other Sensitive Communities. Construction of the Convair Lagoon Alternative would transform the entire existing marine habitat on site to upland habitat. This conversion of habitat would result in a direct loss of eelgrass and would reduce the amount of available San Diego Bay surface water that is used by waterbirds for foraging. Direct impacts to eelgrass and San Diego Bay surface water are discussed separately below. Refer to Section 4.5, Marine Biological Resources, of this EIR for impacts

related to riparian habitat or other sensitive communities from dredging and dewatering activities at the Shipyard Sediment Site.

There is no riparian habitat on the site, as identified by the CDFG or USFWS. Therefore, impacts to riparian habitat from implementation of the Convair Lagoon Alternative would be less than significant.

Construction of the Convair Lagoon Alternative has the potential to impact other sensitive natural communities in the site vicinity from bottom disturbance activities that could result in the spread of invasive species. The ecological ramifications of exotic species to sensitive communities off site could range from minor to very significant, depending on local conditions and natural competition. One species that would have significant local impacts to sensitive communities in the site vicinity includes the green alga *Caulerpa taxifolia*, which has been eradicated from several regional water bodies. Without implementation of a survey for invasive seaweeds in the genus *Caulerpa* prior to construction, construction of the Convair Lagoon Alternative could result in the spread of invasive species, which would result in a significant impact to sensitive natural communities.

Eelgrass Loss. Eelgrass vegetated areas are recognized as important ecological communities in shallow bays and estuaries because of their multiple biological and physical values. Eelgrass habitat functions as an important structural environment for resident bay and estuarine species, offering both predation refuge and a food source. Eelgrass functions as a nursery area for many commercially and recreational important finfish and shellfish species, including those that are resident within bays and estuaries, as well as oceanic species that enter estuaries to breed or spawn. Eelgrass also provides a unique habitat that supports a high diversity of non-commercially important species whose ecological roles are less well understood.

Eelgrass is also a major food source in nearshore marine systems, contributing to the system at multiple trophic levels. Eelgrass provides the greatest amount of primary production of any nearshore marine ecosystem, forming the base of food webs and providing a food source for organisms that feed directly on eelgrass leaves, such as migrating waterfowl. Eelgrass is also a source of secondary production, supporting epiphytic plants, animals, and microbial organisms that are grazed upon by other invertebrates, larval and juvenile fish, and birds.

In addition to habitat and resource attributes, eelgrass serves beneficial physical roles in bays and estuaries. Eelgrass beds dampen wave and current action, trap suspended particulates, and reduce erosion by stabilizing the sediment. They also improve water clarity, cycle nutrients, and generate oxygen during daylight hours (NOAA, 2005).

Implementation of the Convair Lagoon Alternative would transform the entire existing marine habitat on site to upland habitat. As shown in Figure 5-9, this conversion of habitat would result in a direct loss of approximately 5.64 acres of eelgrass. An additional 0.37 acres of eelgrass is located adjacent to the Convair Lagoon Alternative site and could be

indirectly impacted from sediment turbidity during construction of the containment barrier, placement of fill and installation of the sand cap. In total, approximately 6.01 acres of eelgrass would be significantly impacted by implementation of the Convair Lagoon Alternative. Direct and indirect impacts to eelgrass from implementation of the Convair Lagoon Alternative would be a significant impact.

The loss of eelgrass is protected under the Southern California Eelgrass Mitigation Policy. Compliance with the Southern California Eelgrass Mitigation Policy is discussed below under Issue 5, Local Policies and Ordinances.

Bay Surface Loss. The majority of the existing Convair Lagoon Alternative site is San Diego Bay surface water. Within the bay area of the site, four marine habitats occur: 1) Disturbed Upland; 2) Intertidal; 3) Shallow Subtidal and 4) Moderately Deep and Deep Subtidal. Implementation of the Convair Lagoon Alternative would convert all existing marine habitats on site to upland habitat and would reduce the amount of surface water present within the San Diego Bay as a whole. Impacts to the marine habitats within the Convair Lagoon Alternative site are described individually below.

Upland. As shown in Table 5-23, approximately 1.1 acres of upland habitat currently exists on the Convair Lagoon Alternative site. The disturbed upland area consists primarily of bare soil, man-modified or the rip-rap shoreline above the highest high tide line, and paved surfaces. Sparse weedy vegetation occurs along this upland fringe between the existing property line and shore. Implementation of the Convair Lagoon Alternative would convert all 1.10 acres of the existing disturbed upland habitat to an above ground, undeveloped, paved parcel of upland habitat with no structures. Disturbed upland habitat is not considered sensitive or biologically important and this modification of habitat would not substantively alter the existing biology of the site. Additionally, the construction of the containment barrier would result in the creation of some upland habitat, as shown in Figure 5-9. Therefore, impacts to disturbed upland habitat would be less than significant.

Intertidal. As shown in Table 5-23, approximately 4.01 acres of non-man modified intertidal habitat, including 0.11 acres of salt marsh habitat, occurs on the Convair Lagoon Alternative site. Implementation of the Convair Lagoon Alternative would result in the direct loss of all 4.01 acres of intertidal habitat, including coastal salt marsh, from the placement of dredge sediment, installation of a sand cap, and asphalt paving. Although some intertidal habitat would be created from the construction of the containment barrier, as shown in Figure 5-9, the direct loss of intertidal habitat would be considered significant due to the presence of eelgrass within this habitat, which is considered an important ecological community and is protected under the Southern California Eelgrass Mitigation Policy. Additionally, intertidal habitats are preferentially used by shorebirds, wading birds, and some diving birds and waterfowl. Finally San Diego Bay is facing a declining trend in marsh and intertidal habitat. Therefore, the direct loss of intertidal habitat from implementation of the Convair Lagoon Alternative site would be a significant impact.

Shallow Subtidal. As shown in Table 5-23, approximately 4.49 acres of shallow subtidal habitat is present on the Convair Lagoon Alternative site. The shallow subtidal habitat includes the existing rip-rap and seawalls on site. The presence of these hard, heterogeneous substrates creates habitat for a diverse assemblage of marine fauna and flora. Implementation of the Convair Lagoon Alternative would result in the direct loss of all 4.49 acres of this shallow subtidal habitat, including 0.19 acres of man-modified shallow subtidal habitat through the placement of dredge sediments, installation of a sand cap, and asphalt paving. Although some intertidal habitat would be created from the construction of the containment barrier, as shown in Figure 5-9, the direct loss of shallow subtidal habitat would be considered significant due to the presence of eelgrass within this habitat, which is considered an important ecological community and is protected under the Southern California Eelgrass Mitigation Policy. The direct loss of man modified shallow subtidal habitat would also be considered a significant impact due to the high value of this habitat type. In addition, the San Diego Bay is facing a declining trend in shallow subtidal habitat. Therefore, the direct loss of shallow subtidal habitat from implementation of the Convair Lagoon Alternative site would be a significant impact.

Moderately Deep and Deep Subtidal. As shown in Table 5-23, approximately 0.31 acres of moderately deep and deep subtidal habitat are present on the Convair Lagoon Alternative site. Implementation of the Convair Lagoon Alternative would result in the direct loss of 0.31 acres of this habitat from the placement of dredge, installation of a sand cap, and asphalt paving. This direct loss of habitat would not be considered significant due to the relative abundance of moderately deep subtidal habitat within San Diego Bay and that this direct loss represents a very small amount (approximately 0.01 percent) of moderately deep and deep subtidal habitat within the Bay.

Threshold 5.10.4.3: Jurisdictional Waters. Waterways, water bodies and wetlands are protected by the Clean Water Act. Specifically, small streams that feed into larger streams, rivers, bays and coastal waters are protected under the Clean Water Act. Additionally, wetlands that filter pollution and help protect communities from flooding are also protected under the Clean Water Act. Discharging pollution or filling protected waters (jurisdictional waters) or wetlands requires a permit from the ACOE. According to the *Marine Biological Resources Technical Report for the Convair Lagoon Site,* written by Merkel and Associates and included as Appendix J of this EIR, 9.85 acres of jurisdictional waters are present on the Convair Lagoon Alternative site and protected under the Clean Water Act. Implementation of the Convair Lagoon Alternative would result in direct impacts to all 9.85 acres of jurisdictional waters from construction activities that would result in the conversion of marine habitat to upland habitat. Direct impacts to jurisdictional waters would be a significant impact. Refer to Section 4.5, Marine Biological Resources, of this EIR for impacts related to jurisdictional waters from dredging and dewatering activities at the Shipyard Sediment Site.

Threshold 5.10.4.5: Local Policies and Ordinances. Local biological resource policies and ordinances relevant to the Convair Lagoon Alternative include the Port Master Plan, the Southern California Eelgrass Mitigation Policy and the Magnuson-Stevens Fishery Conservation and Management Act. Consistency with these policies is discussed below. The Convair Lagoon Alternative site is not subject to the local ordinances in the city of San Diego because the project site is within the jurisdiction of the District, and outside the jurisdiction of the City of San Diego. Refer to Section 4.5, Marine Biological Resources, of this EIR for impacts related to conflicts with local policies and ordinances from dredging and dewatering activities at the Shipyard Sediment Site.

Port Master Plan. The District has established goals to protect, preserve, and enhance natural resources in San Diego Bay in section II of the Port Master Plan (PMP), Planning Goals. Applicable PMP Planning Goals within section II include Goal V, Goal VII, Goal VIII, Goal X and Goal XI. Consistency with these plans are described below.

Southern California Eelgrass Mitigation Policy. The Southern California Eelgrass Mitigation Policy offers specific guidelines and mitigation measures for activities that threaten eelgrass vegetated habitats. Approximately 5.64 acres of eelgrass would be directly lost from construction of the Convair Lagoon Alternative. An additional 0.37 acres of eelgrass is located adjacent to the project site and has the potential to be indirectly impacted from sediment turbidity during construction activities. In total, approximately 6.01 acres of eelgrass would be impacted by implementation of the Convair Lagoon Alternative. This direct loss represents a conflict with the Southern California Eelgrass Mitigation Policy. This conflict would be a significant impact and is also identified above under Issue 2 for the loss of eelgrass.

Port Master Plan, Section II Applicable Goals	Convair Lagoon Alternative Consistency Evaluation
Goal V. The District will take particular interest in and exercise extra caution in those uses or modifications of the bay and tidelands, which constitute irreversible action of loss of control. 1. Bay fills, dredging and the granting of long-term leases will be taken only when substantial public benefit is derived.	The Convair Lagoon Alternative would permanently convert 10 acres of water to upland habitat. The 10 acres of land would remain under District control and would be designated as Harbor Services (land) use under the PMP. Although the site would be permanently converted from water to land, the site would continue to be under the control of the District and designated as Harbor Services in the PMP, which identifies areas devoted to maritime services and harbor regulatory activities of the District. The alternative would require filling a portion of the bay. However, this action is consistent with this goal because implementation of the Convair Lagoon Alternative would protect the quality of the waters of San Diego Bay for use and enjoyment by the people of the state through execution of a contaminated sediment cleanup project consistent with the provisions of Tentative CAO No. R9-2011-0001. This CAO was issued to minimize adverse effects to several beneficial uses identified for San Diego Bay. These include: Chapter 3 Aquatic life beneficial uses, including Estuaring Habitat (EST), Marine Habitat (MAR), and Migration of Aquatic Organisms (MIGR). Chapter 4 Aquatic-dependent wildlife beneficial uses, including Wildlife Habitat (WILD), Preservation of Biological Habitats of Special Significance (BIOL), and Rare, Threatened, or Endangered Species (RARE). Chapter 5 Human health beneficial uses, including Contact Water Recreation (REC-1), Non-contact Water Recreation (REC-2), Shellfish Harvesting, and Commercial and Sport Fishing (COMM). The Convair Lagoon Alternative would therefore provide substantial public benefit by facilitating a contaminated sediment cleanup project and would not conflict with Section II PMP Goal V.
Goal VII. The District will remain sensitive to the needs, and cooperate with adjacent communities and other appropriate governmental agencies in bay and tideland development.	As discussed in Section, 5.10.10, Land/Water Compatibility, the conversion of the Convair Lagoon Alternative site from water to land is consistent with the surrounding community use because the surrounding lands are industrial in nature and an undeveloped, paved lot would therefore result in a compatible land use. Additionally, the District has coordinated with the San Diego Water Board, and other appropriate governmental agencies with regard to the design and planning of the Convair Lagoon Alternative. For each issue analyzed in Chapter 5.10, potential substantial adverse environmental impacts are identified and mitigation measures are provided to minimize these impacts to the extent feasible. No disproportionate impacts to adjacent jurisdictions would occur from implementation of the alternative. Therefore, the Convair Lagoon Alternative would not conflict with Section II PMP Goal VII.
Goal VIII. The District will enhance and maintain the Bay and Tidelands as an attractive physical and biological entity. 1. Each activity, development and construction should be designed to best facilitate its particular function, which function should be integrated with and related to the site and surroundings of that activity. 2. Views should be enhanced through view corridors, the preservation of panoramoas, accentuation of vistas, and	Approximately three-quarters of the water area associated with the Convair Lagoon Alternative site currently functions as a remediation site for contaminated sediment and is not considered an attractive physical or biological entity because the habitats on site are too fragmented to support any listed species or species considered to be rare and the site is not considered an environmentally sensitive habitat area under the California Coastal Act (M&A, 2011). Implementation of the alternative would continue the existing function of the site for remediation use. In addition, as described in Section 5.10.10, Land Use, this alternative land use would be compatible with existing Port Master Plan adjacent designated land uses. As described in Section 5.10.11, Other Environmental Issues, implementation of the Convair Lagoon Alternative would not impact any existing view corridors, conflict with the visual

Port Master Plan, Section II Applicable Goals	Convair Lagoon Alternative Consistency Evaluation
shielding of the incongruous and inconsistent. 3. Establish guidelines and standards facilitating the retention and development of an aesthetically pleasing tideland environment free of noxious odors, excessive noise and hazards to the health and welfare of the people of California.	character of the community or result in excessive operational noise. As described in Section 5.10.3, Air Quality, implementation of the Convair Lagoon Alternative would not result in significant noxious odor impacts. Additionally, implementation of the Convair Lagoon Alternative would reduce hazards to the health and welfare of the people of California by protecting the quality of the waters of San Diego Bay for use and enjoyment by the people of the state through execution of a contaminated sediment cleanup project consistent with the provisions of Tentative CAO No. R9-2011-0001. Therefore, the Convair Lagoon Alternative would not conflict with PMP Goal VIII.
Goal X. The quality of water in San Diego Bay will be maintained at such a level as will permit human water contact activities.	Implementation of the Convair Lagoon Alternative would protect the quality of the waters of San Diego Bay for use and enjoyment by the people of the state by implementing a contaminated sediment cleanup project consistent with the provisions of Tentative CAO No. R9-2011-0001 and the improvement of several beneficial uses listed above regarding consistency with Goal V of the PMP. Additionally, implementation of the Convair Lagoon Alternative would not result in unmitigated water quality impacts that would prevent human water contact activities. Refer to Section 5.10.9, Hydrology and Water Quality, for a full analysis of water quality impacts related to implementation of the Convair Lagoon Alternative. Therefore, the Convair Lagoon Alternative would not conflict with PMP Goal X.
Goal XI. The District will protect, preserve and enhance natural resources, including natural plant and animal life in the Bay as a desirable amenity, and ecological necessity, and a valuable and usable resource.	Approximately three-quarters of the water area associated with the Convair Lagoon Alternative site is currently used for remediation and monitoring activities and is not considered a desirable ecological amenity or resource because the habitats on site are too fragmented to support any listed species or species considered to be rare and the site is not considered an environmentally sensitive habitat area under the California Coastal Act (M&A, 2011). Although eelgrass is present on the site, implementation of mitigation measures 5.10.4.1 through 5.10.4.4 would off-set the loss of this habitat by creating similar habitat in an alternative location. Implementation of the Convair Lagoon Alternative would continue the site use for remediation and any impacts to natural resources from implementation of the Convair Lagoon Alternative, including plants and animals, would be mitigated to a level below significant with implementation of mitigation measures 5.10.4.1 through 5.10.4.4. Implementation of specified mitigation measures would minimize harmful effects to coastal resources and waters. Additionally, the Convair Lagoon Alternative is not located in PMP Planning Districts 7, 8, or 9, which contain areas identified for conservation purposes by the District. Finally, this alternative would implement Tentative CAO No. R9-2011-0001. This CAO was issued to minimize adverse effects to several beneficial uses identified for San Diego Bay. These include: iii. Aquatic life beneficial uses, including Estuaring Habitat (EST), Marine Habitat (MAR), and Migration of Aquatic Organisms (MIGR). iv. Aquatic-dependent wildlife beneficial uses, including Wildlife Habitat (WILD), Preservation of Biological Habitats of Special Significance (BIOL), and Rare, Threatened, or Endangered Species (RARE). Therefore, the Convair Lagoon Alternative would not conflict with Goal XI of the PMP.

Magnuson-Stevens Fishery Conservation and Management Act. The Magnuson-Stevens Fishery Conservation and Management Act require the delineation and preservation of Essential Fish Habitat for all managed species. Within the Convair Lagoon Alternative site, on-site rip-rap is considered Essential Fish Habitat. Implementation of the Convair Lagoon Alternative would result in the direct loss of approximately 0.19 acres of this Essential Fish Habitat. However, this loss would be offset by the construction of the containment barrier jetty, which would create approximately 0.39 acres of similar habitat. The construction of the containment jetty would result in an additional 0.20 acres of subtidal man-made habitat on the site, which would reduce impacts to less than significant.

Mitigation Measures

The following mitigation measures are required to reduce significant direct and indirect impacts to the California least tern, eelgrass habitats, jurisdictional waters and San Diego Bay surface water to a level below significance. The measures are organized to correlate to the various significant impacts identified above by issue area.

Threshold 5.10.4.1: Candidate, Sensitive or Special Status Species Indirect Impacts

Mitigation Measure 5.10.4.1: **California Least Tern.** In order to reduce increases in water turbidity which may affect foraging opportunities for the California least tern, the construction contractor shall implement mitigation measures 5.10.9.1 through 5.10.9.1.5 found in Section 5.10.9, Hydrology and Water Quality, of this EIR.

Threshold 5.10.4.2, 5.10.4.3, and 5.10.4.5: Invasive Species, Eelgrass & Bay Surface Water; Jurisdictional Waters; Local Policies and Ordinances

Mitigation Measure 5.10.4.2: Prior to the start of any phase of construction, a pre-construction survey for the invasive alga, *Caulerpa taxifolia*, shall be performed by a qualified biologist retained by the construction contractor. This survey shall be conducted in conformance with the *Caulerpa* Control Protocol version 3 (National Marine Fisheries Service 2007), prior to any bottom disturbing events. If *Caulerpa taxifolia* is not found, then construction can proceed. If it is found, then the following shall be undertaken by the project applicant to eradicate this species in the construction area prior to beginning any bottom disturbing activities, including but not limited to:

a) The disturbing activity 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;

b) National Oceanic and Atmospheric Administration (NOAA) Fisheries/CDFG Contacts shall be notified within 24 hours of the discovery;

c) Within 96 hours of notification, the extent of the *Caulerpa* infestation within the site APE shall be fully documented. *Caulerpa* eradication activities shall be undertaken using the best available technologies at the time and will depend upon the specific circumstances of the infestation. This activity may include in situ treatment using contained chlorine applications, and may also incorporate mechanical removal methods. The eradication technique is subject to change at the discretion of NOAA Fisheries and CDFG and as technologies are refined.

Mitigation Measure 5.10.4.3: **Eelgrass and Local Policy Conflicts.** In accordance with the current Southern California Eelgrass Mitigation Policy, approximately 7.22 acres of eelgrass shall be replaced by the construction contractor and a qualified biologist through a transplant method to achieve a 1.2:1 replacement ratio for the loss of 6.01 acres of existing eelgrass, through the following methods. Prior to implementation of these methods, a pre- and post-construction survey shall be conducted by a qualified biologist, retained by the construction contractor, within 30 days of project commencement and completion. These surveys shall be used to determine specific mitigation:

a) Mitigation methods for eelgrass shall include creating eelgrass habitat at one or more locations within the San Diego Bay by raising the bay floor elevation to approximately -5 ft MLLW with dredged materials and planting eelgrass on the elevated plateau. Replacement mitigation for eelgrass may occur in one or more of the following locations, as approved by the resource agencies NMFS, USFWS, EPA, CDFG and ACOE: 1) Naval Training Center (NTC) channel; 2) Harbor Island – West Basin; 3) Adjacent to Convair Lagoon; 4) A-8 Anchorage; 4) South Bay Borrow Site; 5) South Bay Power Plant Channel; 6) South Bay Power Plant; and 7) Emory Cove Channel. Brief descriptions of

these potential mitigation sites are described in Table 5-25 below.

b) An eelgrass mitigation plan shall be prepared and approved by the ACOE, acting in conjunction with the resource agencies, including NMFS, USFWS, EPA, and the CDFG. The plan shall include details and descriptions regarding the chosen mitigation site, transplant methods, program schedule, 5-year monitoring program, success criteria, and actions to undertake for failed mitigation goals, consistent with the Southern California Eelgrass Mitigation Policy. Transplantation of eelgrass shall occur only with the written approval of the CDFG.

Table 5-25: Potential Mitigation Sites for Eelgrass Loss

Potential Eelgrass Mitigation Site	Description
Former Naval Training Center Channel	The former Naval Training Center (NTC) Channel is located north of North Harbor Drive Boulevard. The channel extends approximately 1 mile and covers approximately 54 acres. The sides of the NTC channel consist of rip-rap, and the majority of the substrate consists of soft bay muds. The average depth of the channel is approximately -12 to -14 ft MLLW; however, the edges of the channel are shallow and support extensive eelgrass beds. Common fauna associated with shallow bay mud habitat include tube dwelling anemones, arthropods (e.g., ghost shrimp, *Callianassa*), round stingray (*Urobatis halleri*), barred and spotted sand bass (*Paralabrax nebulifer* and *P. maculatofasciatus*), and midshipman (*Porichthys myriaster*). However, this mitigation site would accomplish only part of the 7.22 mitigation requirement, due to a navigational hazard constraint that would occur from narrowing the navigational NTC channel.
Harbor Island – West Basin	The west basin of Harbor Island habitat includes shoreline stabilized with rip-rap and adjacent subtidal bay mud habitat. The average depth within the basin is approximately -10 to -12 ft MLLW, with extensive eelgrass beds in the northern portion and marina development along the south and eastern portions of the basin. The placement of suitable dredge material at the Harbor Island – West Basin could be designed to accommodate eelgrass habitat (to -5 ft MLLW). However, this mitigation site would likely accomplish only part of the 7.22 mitigation requirement, due to navigational hazard constraints that would occur from narrowing the navigational channel associated with Harbor Island West Marina.
Adjacent to Convair Lagoon	Adjacent to Convair Lagoon, the habitat area includes shoreline stabilized with rip-rap and adjacent subtidal bay mud habitat. The average depth in the area is approximately -10 to -12 ft MLLW, with eelgrass beds just offshore of the Coast Guard facility, and patchy eelgrass located further offshore. The placement of suitable dredge material could be designed to accommodate eelgrass habitat (to -5 ft MLLW). However, this mitigation site would likely accomplish only part of the 7.22 mitigation requirement, due to navigational hazard constraints associated with the A-9 Anchorage.

Table 5-25: Potential Mitigation Sites for Eelgrass Loss

Potential Eelgrass Mitigation Site	Description
A-8 Anchorage	A-8 Anchorage is an approximately 80 acre area adjacent to the Sweetwater Channel and was the only long-term free anchorage area available on the west coast. In June 2006, the San Diego Board of Port Commissioners authorized the closure of the A-8 Anchorage, and complete closure occurred on October 1, 2008. The water depth within A-8 Anchorage ranges from -10 to -12 ft MLLW, and the substrate generally consists of soft-bottom mud habitat. The area does not currently support eelgrass. The soft mud-bottomed site has been the focus of extensive debris mapping and clean up. In general, the site lacks substantive marine epibenthic activity although sunken vessel hulls provide hard structure and relief that supports a greater aggregation of fish and invertebrates than the otherwise featureless bottom. Barred sand bass are relatively common around the sunken vessel hulls, *Sargassum* growing on the hulls supports use by giant kelpfish. Opaleye are found in small schools around a few portions of the site. Pacific seahorse is also represented in the hard structure debris fields. The placement of suitable dredge material at the A-8 Anchorage could be designed to accommodate the 7.7 acres of eelgrass habitat (to -5 ft MLLW) required for mitigation.
South Bay Borrow Site	The South Bay Borrow Site was created as mitigation for eelgrass impacts from the National City Marine Terminal Extension Project, and is a 20-acre sediment borrow pit within south San Diego Bay, partially filled with sandy material to create a suitable eelgrass mitigation area. The eelgrass mitigation area was completed in early 2004. Investigations of the site following construction indicate that most of the borrow pit was filled to elevations of -6 ft MLLW, although there were several areas where the depths were greater than -9 ft MLLW. Routine monitoring conducted in the area of the borrow pit in February 2006, revealed that the transplant site was performing poorly and signaled the need for a supplemental transplant. Additional planting was completed in May 2006, and was subsequently surveyed for eelgrass coverage and density at the 24-month post-transplant mark. During a 36-month monitoring survey, a total of 0.03 acres of eelgrass was mapped within the control site, but there was no eelgrass identified within either the Mitigation Bank Site or the Mitigation Site. The site is not performing as desired at the present time, however, future efforts and a change in environmental conditions may allow the eelgrass to establish and then serve its intended purpose. This site could accommodate the mitigation requirement of 7.7 acres of eelgrass habitat.
South Bay Power Plant	The South Bay Power Plant (SBPP) is a non-operational electric power generating facility located on the southeastern shoreline of San Diego Bay. The aquatic habitats in the vicinity of the SBPP are characteristic of protected inshore marine environments. The flora and fauna of the region consists of communities living above, on, and within soft benthic substrates. Benthic substrates are composed mostly of alluvial sediments, including fine-grained sand, silt, and clay. Some expanses of bottom along the western shoreline of the bay, however, are dominated by larger-grained sand. Because of the absence of freshwater inflow, plant and animal communities are typical of marine and higher salinity estuarine environments. Aquatic habitats include subtidal areas, eelgrass beds, mudflats, and salt marshes. This site could accommodate the mitigation requirement of 7.7 acres of eelgrass habitat.
South Bay Power Plant Intake Channel	The intake channel to the SBPP is located north of the Chula Vista Wildlife Refuge and consists of slightly deeper water (approximately -10 to -12 ft MLLW) than the surrounding areas that support extensive eelgrass beds. The placement of suitable dredge material could be designed to accommodate eelgrass habitat (to -5 ft MLLW), mimicking the surrounding area. This site could accommodate the mitigation requirement of 7.7 acres of eelgrass habitat.
Emory Cove Channel	Emory Cove, an inlet in the southwest corner of San Diego Bay, served as an anchorage until 1987 when the District began enforcing rules making it unlawful to anchor, moor, make fast to the bottom, strand or ground (any) vessel or structure within South San Diego Bay, including Emory Cove. The Emory Cove anchorage was subsequently cleaned up in the early 1990s. The channel approaching Emory Cove is slightly deeper (approximately -10 ft MLLW) than the adjacent area that supports extensive eelgrass beds. The placement of suitable dredge material could be designed to accommodate eelgrass habitat and is large enough to meet the entire mitigation requirement.

Mitigation Measure 5.10.4.4: **Jurisdictional Waters and San Diego Bay Surface Loss.** New bay habitat shall be created within an alternative location of the San Diego Bay via excavation of shoreline and creation of tidal influence in previously non-tidal areas. The mitigation ratio for the loss of 8.5 acres of intertidal and subtidal habitats would occur at a 1:1 ratio. The coastal salt marsh habitat shall be mitigated at a 4:1 ratio (i.e., creation of 0.44 acres of salt marsh habitat for 0.11 acres impact). This shall include:

a. The removal and disposal or reuse of historic fills;

b. Grading the site to a desired hydrologic condition of channels, subtidal basins, and intertidal flats in order to support desired compensatory habitat; and

c. Planting pilot vegetation plots to allow for natural expansion of marshland vegetation.

The creation of new bay surface water habitat may occur in one or more of the following locations, as approved by the resource agencies NMFS, USFWS, EPA, CDFG and ACOE: 1) Grand Caribe Isle in the Coronado Cays; 2) D Street Fill just across the Sweetwater Channel from the National City Marine Terminal; 3) the South Bay Power Plant; 4) the Salt Works; and/or; 5) Pond 20 adjacent to the Salt Works. The approved mitigation site shall be lowered from upland elevations to create intertidal and subtidal habitats, except for the South Bay Power Plant, which would require filling the existing intake and discharge channels of the power plant to create tidal lands. The mitigation ratio for intertidal and subtidal habitats would occur at a 1:1 ratio; however, the coastal salt marsh habitat would have to be mitigated at a 4:1 ratio. These ratios would require the replacement of approximately 3.9 acres of intertidal habitat, 4.49 acres of shallow subtidal habitat, 0.31 acres of moderately deep and deep subtidal habitat (which would most likely be replaced as intertidal habitat due to habitat value) and 0.44 acres of coastal salt marsh habitat. Brief descriptions of the potential mitigation locations for jurisdictional and San Diego Bay surface loss impacts are described Table 5-26.

Table 5-26: Potential Mitigation Sites for San Diego Bay Surface Water Loss

Potential Surface Bay Loss Mitigation Site	Description
Grand Caribe Isle	The Grand Caribe Isle is located on South Grand Caribe Isle in the Coronado Cays. The South Grand Caribe Isle site is a disturbed upland area that would be regraded to accommodate wetland, intertidal marsh, and subtidal habitat. This area is located adjacent to a small passive use native plant park and has recently been used as a borrow site for the former Campbell Shipyard sediment remediation project sediment sand cap. The on-site soil consists of loamy sand from marine deposits. The Bay surrounds the site, with the peninsular connection being isolated from other native upland habitats by the Coronado Cays residential development. The biological resources on the site are dominated by common, widely distributed species, many of which are representative of disturbed lands. Species well represented on the site include salt heliotrope (*Heliotropium curvassavicum*), slender-leaved iceplant (*Mesembryanthemum nodiflorum*), garland (*Chrysanthemum coronarium*), and red-stem filaree (*Erodium cicutarium*).
D Street Fill	D Street Fill is located immediately south of the National City Marine Terminal (NCMT) across the Sweetwater River channel. The site is routinely cleared/disked in an effort to provide nesting habitat for the California least tern (*Sterna antillarum browni*). As a result, the area is mostly devoid of vegetation. Plant species that occur are limited to native and non-native species that are typical of disturbed sandy soils found in the area. These species include opportunistic native species such as woolly lotus (*Lotus heermannii* var. *heermannii*), salt heliotrope, beach evening primrose (*Camissonia cheiranthifolia* ssp. *suffruticosa*), coyote brush (*Baccharis pilularis*), coast woollyheads (*Nemacaulis denudata* var. *dunudata*), and fragrant everlasting (*Pseudognaphalium beneolens*). Non-native plant species include hottentot-fig (*Carpobrotus edulis*), slender-leaved iceplant, garland, pineapple weed (*Amblyopappus pusillus*), and red-stem filaree. Bird species that utilize this area for foraging and/or nesting include horned lark (*Eremophila alpestris*); Northern rough-winged swallow (*Stelgidopteryx serripennis*); and during the winter, American pipet (*Anthus rubescens*) (pers.com Robert Patton). The gull-billed tern (*Sterna nilotica*), a species that predates on California least tern young, is also known to forage over the site.
Salt Works	Marsh lands around the mouth of the Otay River in the shallow, south end of San Diego Bay were converted to salt evaporation ponds in the late 1800s. Over the past century, various internal berms have been constructed, repaired, and removed by operational changes and flooding. These changes have resulted in changing topographic conditions that have resulted in a number of distinct pond cells. The salt ponds consist of shallow, open water cells of different salinity levels interspersed with mudflats, dry dikes, and salt marsh. The salt pond levees consist primarily of unvegetated uplands. The lack of vegetation on many of the levee tops is the result of ongoing maintenance activities associated with the salt operation, as well as the high salinities that exist in the vicinity of the levees. The nature of the salt extraction process has facilitated use of this artificial habitat by many shorebirds, sea birds, and waterfowl. It represents one of the few large feeding, roosting, and nesting areas remaining along the urbanized southern California coast.
Pond 20	The Pond 20 site, located south of the Salt Works is defined by internal dikes that include three smaller pond cells (Ponds 20A, 20B, and 20C). Pond 20 is isolated from tributary fresh or saltwater surface input and experiences occasional storm runoff from the internal pond basin and a roadway surface drain from Palm Avenue. Seasonally, water levels in the pond fluctuate significantly and waters are highly saline due both to the pond's history as a salt concentrator and the continued closed system evaporative processes occurring in the pond today. Years of drought and heavy rainfall influence the levels of standing water in the pond and the rates of fluctuation of water surface levels. At present, limited standing water is found along the lower-lying "channels" that parallel the dike and generally below a nearly complete salt crust. These deeper channels are believed to be borrow areas for the reconstruction and repair of the pond containment dikes. These channels also historically enhanced water collection for pumped transfers within the salt pond system.

Impacts and Mitigation for Biological Resources Mitigation Measure Implementation. The implementation of the biological resources mitigation measures, described above as 5.10.4.3 and 5.10.4.4, would result in potential environmental impacts. The impacts anticipated include:

1. Air pollutant emissions associated with excavation and fill placement construction activities;
2. Water quality impacts to San Diego Bay through the placement of fill to create plateaus for eel grass beds depending on the mitigation site or sites selected;
3. Indirect impacts to the endangered California least tern for the D Street Fill, Pond 20 and Salt Works intertidal, subtidal and surface water creation sites; and
4. Indirect impacts to the endangered Pacific green sea turtle from water turbidity impacts.

Each of these impacts and mitigation measures are briefly discussed below.

Air Pollutant Emissions. Air Pollutant emissions from construction activities include excavation to create intertidal, subtidal and surface water creations sites, and placement of fill to create eel grass beds. The assumptions for these activities include 8 hours a day for an excavator, a tug boat pulling a barge and a clam shell crane. The daily emissions associated with these activities and greenhouse gas emissions are discussed below.

Tidal and Salt Marsh Habitat Creation. Mitigation for tidal and salt habitat would involve the creation of 4.2 acres of intertidal habitat, 4.5 acres of shallow subtidal habitat, and 0.44 acres of coastal salt marsh habitat, for a total of 9.14 acres of habitat creation. A total of 274,000 cubic yards (cy) of sediment would be excavated. 82,000 cy would be transferred to a barge using a crane. This sediment would be used to create eel grass habitat and would be stored on the barges until the commencement of eel grass habit construction. 192,000 cy of sediment would be transported via truck to the Otay landfill. Construction would take approximately nine months. Maximum daily construction emissions that would result from habitat construction are shown in Table 5-27. As shown in this table, creation of tidal and salt marsh habitat would not exceed the significance thresholds for any criteria pollutants. All air pollutant emissions would be less than significant.

Eelgrass Habitat Creation. Creation of 7.2 acres of eelgrass habitat would require the import of approximately 82,000 cy of dirt to create a bay bottom that is a suitable depth for eel grass. The dirt would be transported by barge from the tidal and salt marsh habitat excavation sites. One tug boat would be required per day and would travel four hours to and from the site, for a total of 8 hours of operation. A clamshell crane would be used to transfer the dirt from the barge to the habitat site. Construction would take approximately five months. Maximum daily construction emissions that would result from eelgrass habitat

construction are shown in Table 5-28. As shown in this table, creation of eelgrass habitat would not exceed the significance thresholds for any criteria pollutants. All air pollutant emissions would be less than significant.

Table 5-27: Tidal and Salt Marsh Habitat Creation Maximum Daily Emissions

Construction Phase	Pollutant Emissions (pounds/day)					
	CO	**NO_X**	**VOC**	**SO_X**	**PM_{10}[(1)]**	**$PM_{2.5}$[(1)]**
Tidal and Salt Marsh Habitat Construction	26	60	6	0	63	15
Significance Threshold	**550**	**250**	**137**	**250**	**100**	**55**
Significant Impact?	No	No	No	No	No	No

CO = carbon monoxide; NO_x = nitrogen oxides; VOC = volatile organic compounds; SO_x = sulfur oxides
PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter

1. Estimates of particulate emissions take into account application of soil stabilizers to inactive areas during grading in mandatory compliance with San Diego Air Pollution Control District (SDAPCD) Rule 55.

Source: URBEMIS, 2007. See Appendix J for data sheets.

Table 5-28: Eelgrass Creation Maximum Daily Emissions

Construction Phase	Pollutant Emissions (pounds/day)					
	CO	**NO_X**	**VOC**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Construction Equipment Operation	2	6	1	0	1	1
Tug Boat Operation	15	81	3	1	3	2
Total Emissions	*17*	*87*	*4*	*1*	*4*	*3*
Significance Threshold	**550**	**250**	**137**	**250**	**100**	**55**
Significant Impact?	No	No	No	No	No	No

CO = carbon monoxide; NO_x = nitrogen oxides; VOC = volatile organic compounds; SO_x = sulfur oxides
PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter
Source: URBEMIS, 2007. See Appendix A for data sheets.

Greenhouse Gas Emissions. Greenhouse gas (GHG) emissions from construction of mitigation habitat are calculated based on the construction assumptions described above. Total GHG emissions are shown in Table 5-29. Construction of the salt and tidal marsh habitat would result in 935 metric tons (MT) carbon dioxide equivalent (CO_2e). Construction of eel grass habitat would result 446 MT CO_2e. Total GHG emissions from habitat construction would be 1,381 MT CO_2e. As discussed in Section 5.10.7, Greenhouse Gas Emissions/Climate Change, GHG emissions from construction should be amortized over a 30 year period to determine the long-term annual contribution to the GHG inventory. As shown in Table 5-29, the annual GHG contribution of GHGs from habitat construction would be 46 MT CO_2e. Therefore, construction GHG emissions would not exceed the 900 MT CO_2e threshold established by the County of San Diego. Impacts would be less than significant.

Water Quality. The water quality impacts to San Diego Bay are associated with the placement of material to create subsurface plateaus to plant eelgrass. These impacts would be mitigated through implementation of the water quality mitigation measures 5.10.9.1 through 5.10.9.5, in Section 5.10.9, Hydrology and Water Quality, and mitigation measures 4.2.1 through 4.2.13, in Section 4.2, Water Quality.

Table 5-29: Estimated Annual GHG Emissions from Habitat Construction

Emission Source	GHG Emissions (Metric Tons CO_2e)
Tidal and Salt Marsh Habitat Creation	935
Eel Grass Habitat Creation	446
Total Construction Emissions	**1,381**
Amortized Construction Emissions	**46**

Source: URBEMIS 2007, EPA 2009
Note: Amortization is based on a 30 year lifetime.

California Least Tern Indirect Impacts. Mitigation for indirect impacts associated with construction activities include the water quality mitigation measures identified above, which reduce sediment turbidity through the use of silt curtains and other BMPs.

Pacific Green Turtle Indirect Impacts. The indirect construction related water quality impacts to the endangered Pacific Green Turtle would be mitigated through the implementation of the water quality mitigation measures 5.10.9.1 through 5.10.9.5, in Section 5.10.9, Hydrology and Water Quality, and mitigation measures 4.2.1 through 4.2-13, in Section 4.2, Water Quality.

Cumulative Impacts

The geographic scope of the cumulative impact analysis for biological resources varies depending on the type of biological resource that could be impacted. The geographic scope for each of the five biological resource topic areas is described below as part of the cumulative impact discussion for each of the topics.

Threshold 5.10.4.1: Candidate, Sensitive or Special Status Species. The geographic scope of the cumulative impact analysis for candidate, sensitive or special status species is the San Diego Bay. Past and present cumulative projects in the region, some of which are identified in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon Alternative, have resulted in development that has caused the direct loss of plant and animal species. In combination, these impacts resulted in the populations of many plant and animal species to drop below self-sustaining levels. These plants and animals have since been identified as candidate, sensitive, or special status by the CDFG, USFWS and local and regional plans and

policies. As indicated by their sensitive status, a significant cumulative impact has already occurred from the loss of sensitive plant and animal populations as a result of development of past and present cumulative projects. Future cumulative projects also have the potential to further impact sensitive species. For example, 12 of the 27 cumulative projects identified in Table 5-8 are located on the San Diego International Airport Property and have the potential to directly or indirectly impact least tern's, which nest on the San Diego International Airport site. Therefore, a significant cumulative impact would occur to candidate, sensitive or special status species.

As discussed above, implementation of the Convair Lagoon Alternative would result in indirect impacts to the California Least Tern, a federally endangered and state endangered species. Therefore, the Convair Lagoon Alternative would result in indirect impacts to a special status species. However, with implementation of mitigation measure 5.10.4.1, the alternative's indirect impacts would be reduced to a level below significance and the alternative's contribution to the regional impact would not be cumulatively considerable because it is a fully mitigated indirect impact.

Threshold 5.10.4.2: Riparian Habitat and Other Sensitive Communities. The geographic scope of the cumulative impact analysis for riparian habitat and other sensitive communities is San Diego Bay. Past and present cumulative projects in the geographic scope of the cumulative impact analysis, some of which are identified in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon Alternative, have resulted in development that caused the disturbance or direct loss of riparian habitat and sensitive natural communities, including surface water and eelgrass beds that support sensitive plant and wildlife species. In combination, these impacts resulted in the loss or disturbance of habitat communities so that areas of these communities are no longer able to support viable populations of sensitive or characteristic plant and wildlife species. Due to their importance to biodiversity in the region, a significant cumulative impact has occurred from the loss of riparian habitat and other sensitive natural communities, including surface water and eelgrass beds, from past development. Future development also has a potential to further impact sensitive natural communities. For example, the Commercial Fisheries Revitalization Plan, identified as a cumulative project in Table 5-8, would support and increase commercial fishing operations in the bay and could result in direct or indirect impacts to sensitive natural marine communities or eelgrass from an increase in coastal public access facilities and the expansion of commercial fishing facilities, such as docks. Therefore, a significant cumulative impact would occur to other natural communities.

As discussed above, implementation of the Convair Lagoon Alternative would result in the direct loss of San Diego Bay surface water and eelgrass, which are considered sensitive communities. Therefore, the Convair Lagoon Alternative would result in a significant cumulative impact to these communities. However, with implementation of mitigation measures 5.10.4.2 through 5.10.4.4, the alternative's direct impacts would be reduced to a level below significance and the alternative's contribution to the regional impact would not be cumulatively considerable.

Threshold 5.10.4.3: Jurisdictional Waters. The geographic scope of the cumulative impact analysis for jurisdictional waters is the San Diego Bay because it is part of a defined aquatic ecosystem. Past and present cumulative projects in the geographic scope of the cumulative impact analysis, identified in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon Alternative, have resulted in development that caused substantial adverse effect on wetlands, waters, or riparian resources under the jurisdiction of ACOE, CDFG, and/or San Diego Water Board through direct removal, filling, hydrological interruption, or other means. In combination, these impacts resulted in the loss or disturbance of wetland resources so that these communities are no longer able to support viable populations of characteristic riparian species, which is considered a significant cumulative impact. Future cumulative development also has a potential to further impact jurisdictional waters. For example, the Marina Green Project would create a new shoreline promenade that could potentially directly or indirectly impact jurisdictional waters from water related construction activities such as dredging and filling. Therefore, a significant cumulative impact would occur to jurisdictional waters.

As discussed above, implementation of the Convair Lagoon Alternative would result in direct impacts to 9.85 acres of jurisdictional waters, protected under the Clean Water Act. Therefore, impacts to jurisdictional waters from the Convair Lagoon Alternative would be significant. However, with implementation of mitigation measures 5.10.4.2 through 5.10.4.4, the alternative's direct impacts would be reduced to a level below significance and the alternative's contribution to the regional impact would not be cumulatively considerable.

Threshold 5.10.4.4: Wildlife Movement Corridors. The geographic scope of the cumulative impact analysis for wildlife movement corridors includes a 1-mile radius surrounding the project site, within the San Diego Bay. According to the USFWS, the entire California Coast, including San Diego Bay, is part of the Pacific Flyway (USFWS, 2010). The Pacific Flyway is one of four geographical patterns in the United States that represent the major migratory patterns of waterfowl through the continent. Past development in the geographic scope of the cumulative impact analysis has resulted in development that has restricted wildlife access between habitats, directly by removing habitat and indirectly through increases in traffic that create a barrier to wildlife. In combination, past development resulted in the loss of wildlife movement corridors, which are important to the viability of wildlife species populations by ensuring the exchange of genes between populations to maintain genetic diversity and providing access to habitat suitable for the reproduction of species. Future cumulative development within the geographic scope of cumulative analysis, identified in Table 5-8, are located in a highly developed urban area that consists mainly of industrial and commercial land uses. Future cumulative projects in this area would result in the redevelopment of already disturbed areas, and would not result in the loss of any natural, undeveloped land that functions as a significant wildlife movement corridor. Therefore, future cumulative projects within the geographic scope of cumulative impact analysis would not result in a significant cumulative impact to wildlife movement corridors because a

significant cumulative impact to wildlife movement corridors already occurred due to past development in the area and this alternative would not result in a considerable contribution to this existing cumulative impact.

As discussed above, implementation of the Convair Lagoon Alternative would not interfere substantially with the movement of regional wildlife species because a large presence of armored shoreline exists in the area surrounding the Convair Lagoon Alternative site. Cumulative impacts to local wildlife movement corridors would be less than significant from the Convair Lagoon Alternative because it would not result in a cumulatively considerable contribution to this cumulative impact.

Threshold 5.10.4.5: Local Policies and Ordinances. The geographic scope of the cumulative impact analysis for local policies and ordinances includes lands under the jurisdiction of the San Diego Unified Port District. Cumulative projects would be required to demonstrate compliance with the applicable local biological resource policies and ordinances as part of the CEQA process prior to project approval. Therefore, a significant cumulative impact would not occur.

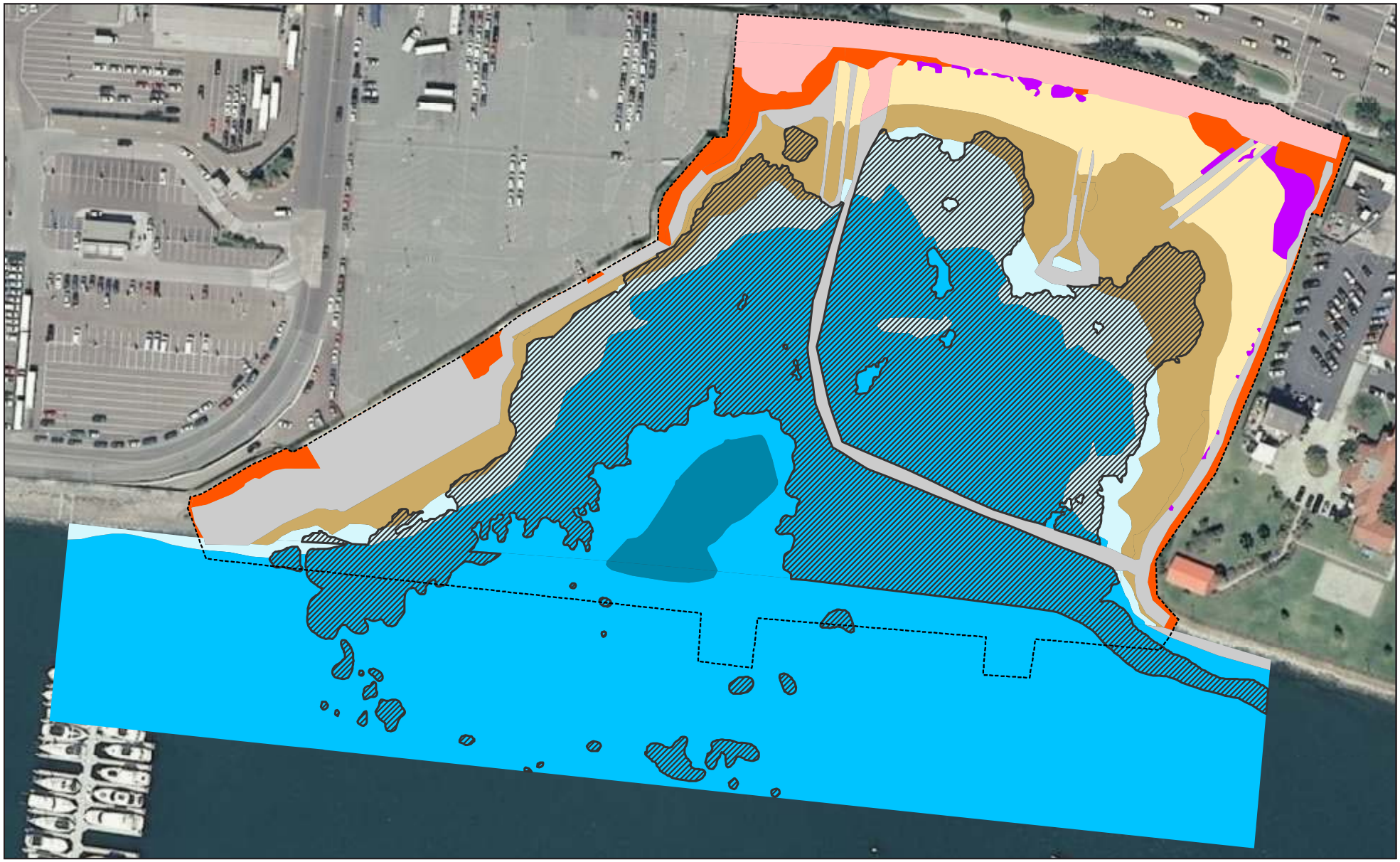
As discussed above, the Convair Lagoon Alternative would result in a conflict with the Southern California Eelgrass Mitigation Policy, which would result in a significant impact. However, with implementation of mitigation measure 5.10.4.2 through 5.10.4.4, impacts would be reduced to a level below significance. Therefore, the Convair Lagoon Alternative would not contribute to a significant cumulative impact.

Level of Significance After Mitigation

Upon implementation of mitigation measures 5.10.4.1, 5.10.4.2, 5.10.4.3, and 5.10.4.4 all significant impacts related to biological resources would be reduced to a level below significance.

Significant Unavoidable Adverse Impacts

There are no significant and unavoidable adverse impacts to biological resources from implementation of the Convair Lagoon Alternative.



ATKINS

N

0 75 150

FEET

SOURCE: Merkel & Associates 2011

LEGEND

- Site Boundary
- coastal salt marsh
- intertidal beach
- intertidal flats
- lower intertidal
- shallow subtidal
- moderately deep and deep subtidal
- man-modified
- disturbed upland
- urban disturbed
- eelgrass

Note: Directions, dimensions and locations are approximate.

FIGURE 5-8

Convair Lagoon Alternative

Existing Habitat Map

This page intentionally left blank

ATKINS

N

0 75 150

FEET

SOURCE: Merkel & Associates 2011

LEGEND

- Site Boundary
- direct eelgrass impacts
- indirect eelgrass impacts
- upland impacts
- water impacts
- created upland
- created intertidal
- created shallow subtidal

Note: Directions, dimensions and locations are approximate.

FIGURE 5-9

Convair Lagoon Alternative

Biological Resource Impacts

This page intentionally left blank

5.10.5 Cultural Resources

This section addresses cultural and paleontological resources on the Convair Lagoon Alternative site. Cultural resources include both archaeological and historic sites, buildings, structures, objects and human remains. Paleontological resources include the remains and/or traces of prehistoric life (exclusive of human remains, artifacts or features), including the localities where fossils were collected and the sedimentary rock formations in which they were formed. This section identifies existing cultural and paleontological resources, analyzes the potential impacts that may occur under the Convair Lagoon Alternative, recommends mitigation measures to reduce or avoid impacts to these resources and examines levels of significance after mitigation. The information in this section is based on the *Convair Lagoon Architectural Resources Evaluation and Assessment of Effects* prepared by ASM Affiliated in April 2011, which is included as Appendix K to this EIR.

5.10.5.1 Existing Environmental Setting

The following discussion identifies the archeological, historical and paleontological resources that currently exist on the Convair Lagoon Alternative site.

Archeological Resources

The prehistory of San Diego County provides a background for understanding the archeology of the general area surrounding the Convair Lagoon Alternative site. The earliest accepted archeological manifestation of Native Americans in the San Diego area is the Paleoindian San Dieguito complex, dating to approximately 10,000 years ago. The material culture of the San Dieguito complex consists primarily of scrapers, scraper planes, choppers, large blades, large projectile points and crescentic stones. Tools and debitage made of fine-grained green metavolcanic material, locally known as felsites, were found at many San Dieguito sites. Often these artifacts were heavily patinated. Felsite tools, especially patinated felsites, came to be seen as an indicator of the San Dieguito Complex. Sleeping circles, trail shrines and rock alignments have also been associated with early San Dieguito sites.

The traditional view of San Diego prehistory has the San Dieguito complex followed by the Archaic state La Jolla complex at least 7,000 years ago, possibly as long as 9,000 years ago. The La Jolla complex is part of the Encinitas tradition. The Encinitas tradition is generally recognized by milling assemblages in shell middens, often near sloughs and lagoons. Crude cobble tools, especially choppers and scrapers, characterize the La Jolla complex. Basin mutates, manos, discoidals, a small number of Pinto series and Elko series points, and flexed burials are also characteristic.

The Late Prehistoric period is represented by the San Luis Rey complex in northern San Diego County and the Cuyamaca complex in the southern portion of the county. The Cuyamaca complex represents the Yuman forebarers of the Kumeyaay. The Cuyamaca complex is represented by defined cemeteries away from living areas, the use of grave markers, cremations placed in urns, use of specially made mortuary offerings, cultural

preference for side-notched points, substantial numbers of scrapers and scraper planes, wide range of ceramic forms and items, steatite industry, clay lined hearths, and a high frequency of milling stones.

The Convair Lagoon region is within lands that have traditionally been inhabited by the Kumeyaay Indians, also known as Diegueno or Ipai/Tipai. Two enthohistoric village sites associated with Mission San Diego de Alcala existed in Mission Valley: Cosou and Nipaquay. Mission Valley lies approximately two miles north of the Convair Lagoon site (Affinis, 2006).

Historic Resources

The general area near the Convair Lagoon site was once home to major aircraft manufacturing companies such as Teledyne-Ryan Aeronautical Company and Convair. The following section provides information on San Diego's aviation history, in addition to providing detailed information on two on-site features, a seaplane ramp and a pier.

San Diego's Aviation History. The Convair Lagoon is located directly south of the San Diego International Airport, formerly Lindbergh Field. Lindbergh Field was formed in part from the development of an independent airline company called Ryan Airlines. Ryan Airlines operated an airline taxi service between San Diego and Los Angeles in 1924 and began the first year-round, scheduled airline service in the U.S. Shortly after, Ryan Airlines shifted their focus from airline taxi service to aircraft manufacturing. They subsequently constructed the *Spirit of St. Louis,* which was flown by Charles Lindbergh and in the spring of 1927 across the Atlantic Ocean. Shortly after the famous flight that made aviation history, the City of San Diego dredged an area next to the San Diego Bay and constructed Lindbergh Field. As a result, many aircraft companies re-located to the Lindbergh Field area from the 1920s to the late 1990s, including Convair.

San Diego was a major player in the aircraft industry in the mid-twentieth century and one of the largest employers in the city was Convair. Convair was founded in 1923 in Rhode Island and specialized in developing and designing aircraft vessels for the early aeronautics industry. Convair (formerly Consolidated) designed the first line of Long-Range flying boats called the XPY-1. Flying boats were an innovative technology in the early history of aircraft manufacturing and entailed an aircraft vehicle that had the ability to navigate water. The XPY-1 was known as the "largest flying boat built in the U.S.A." Convair designed and redesigned several flying boat models for the military.

Convair relocated from the east coast to San Diego in 1935. Its first buildings were constructed along Pacific Coast Highway next to Sassafras Street. The demand for military aircraft in World War II (WWII) proved to be a boon for the aircraft industry and for Convair, the seaplane industry was a particularly lucrative niche. By 1943, the company had 13 locations throughout the U.S. and a payroll of 101,637. In 1954, Convair merged with and became a division of General Dynamics. The San Diego Convair complex was primarily

located west of the Convair Lagoon and south of Harbor Drive and Lindbergh Field, with a few buildings located elsewhere on the northern side of the air strip.

According to Sanborn maps and the San Diego Air & Space Museum online photo archives, sometime around 1957, the seaplane ramp and pier were constructed in the Convair Lagoon as part of a larger project that involved dredging up the bay to construct an area of land south of N. Harbor Drive on which the seaplane ramp is located. Harbor Island was dredged and constructed as an extension to this project in 1961. The pier and seaplane ramp appear to be the only structures that remain from the Convair complex today. A separate Teledyne-Ryan complex was located north of the Convair complex, on the northern side of Harbor Drive. Redevelopment in this area has resulted in the demolition of the majority of the buildings and structures from both of these complexes.

Convair Lagoon Pier. Figure 5-10 identifies the existing, on-site Convair Lagoon Pier. The Convair Lagoon Pier was constructed by the Convair aviation company circa 1957 and is located south of N. Harbor Drive on the San Diego Bay. It was likely constructed when the neighboring seaplane ramp located to the west of the pier was constructed circa 1957. It is a concrete pier approximately 120 feet (ft.) long and 10 ft. wide. Scored concrete walls support most of the pier length. At the outer end of the pier (waterside), four concrete pilings support the pier. There is one narrow projection on the east side of the pier, supported by two concrete pilings. Two large metal sheets cover a portion of the base of the pier walkway.

Convair Seaplane Ramp. Figure 5-10 identifies the existing, on-site Convair Seaplane Ramp. The Convair Seaplane Ramp was constructed by Convair circa 1957 and is located near the southwest corner of the site. It is currently located adjacent to a rental car lot, behind a chain link fence. The ramp is approximately 65 ft. long (from top of ramp to sea level) and 195 ft. wide. It is made of concrete. The seaplane ramp is intact but is no longer in use. According to a historic photograph from circa 1957, there was originally a narrow ancillary structure used for watercraft and possibly as a parking facility for seaplanes, which was attached to the ramp via a narrow driveway that jutted out into the bay. This ancillary structure no longer exists. Historically, the seaplane ramp was used as a transport connector between the San Diego Bay and the aircraft road surface/runway on land.

Paleontological Resources

The Convair Lagoon Alternative site was originally mudflats and open water of the San Diego Bay. Decades of dredging and placement of fill soils have built the surrounding areas to its current topography. The near-surface soil layers of the Convair Lagoon site consist of imported sand as fill used to cap PCB contaminated sediments. Recent bay deposits underlie the sand cap and PCB contaminated sediment. Bay deposit materials typically consist of interlayered dark gray, wet, loose, fine silty sand and silt and soft, sandy clay. Old paralic deposits underlie the bay deposits and typically consist of medium dense sand and stiff clay.

Both bay deposits and old paralic deposits have a high potential for paleontological resources to occur (CSD, 2007).

5.10.5.2 Regulatory Setting

Cultural and paleontological resources in the region are protected through a number of regulations at the federal, state, and local levels. Below is a listing and brief description of some of the various regulations and standards that relate to cultural and paleontological resources within the region.

Federal

Historic Sites, Buildings, Objects, and Antiquities Act. The Historic Sites, Buildings, Objects, and Antiquities Act of 1935 states that it is the national policy to preserve for the public use historic sites, properties, buildings, and objects of national significance. It gives the National Park Services (NPS) broad powers to execute the policy on both federal and non-federal lands. The Act also set up an advisory board to aid the Secretary of the Interior in implementing the Act. The National Natural Landmarks (NNL) Program was established in 1962 to recognize and encourage the conservation of outstanding examples of the country's natural history. NNLs are designated by the Secretary of the Interior, with the owner's concurrence, as being of national significance, defined as being one of the best examples of a biological community or geological feature within a natural region of the U.S.

National Historic Landmarks Program. The National Historic Landmarks Program, developed in 1982, identifies and designates National Historic Landmarks, and encourages the long range preservation of nationally significant properties that illustrate or commemorate the history and prehistory of the U.S. These regulations set forth the criteria for establishing national significance and the procedures used by the Department of the Interior for conducting the National Historic Landmarks Program.

National Historic Preservation Act (NHPA). The NHPA was passed in 1966 and set the foundation for much of the more specific legislation that guides cultural resource protection and management in local jurisdictions such as the County of San Diego. The Act established an Advisory Council on Historic Preservation to help implement and monitor it. Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and afford the Advisory Council a reasonable opportunity to comment on such undertakings. The goal of the section 106 process is to identify historic and prehistoric properties potentially affected by the undertaking, assess its effects and seek ways to avoid, minimize or mitigate any adverse effects on historic or prehistoric properties.

National Register of Historic Places (NRHP). Developed in 1981, the NRHP is an authoritative guide to be used by federal, state, and local governments, private groups and citizens to identify the nation's cultural resources and to indicate what properties should be considered for protection from destruction or impairment. Listing of private property on the NRHP does not prohibit under federal law or regulation any actions which may otherwise be taken by the property owner with respect to the property.

Native American Graves Protection and Repatriation Act (NAGPRA). Enacted in 1990, NAGPRA conveys to American Indians of demonstrated lineal decent, the human remains and funerary or religious items that are held by federal agencies and federally supported museums, or that have been recovered from federal lands. It also makes the sale or purchase of American Indian remains illegal, whether or not they derive from federal or Indian lands.

The Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation. The purpose of the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation of 1983 is to: 1) to organize the information gathered about preservation activities; 2) to describe results to be achieved by federal agencies, states, and others when planning for the identification, evaluation, registration and treatment of historic properties; and 3) to integrate the diverse efforts of many entities performing historic preservation into a systematic effort to preserve the nation's culture heritage.

State

State Historical Landmarks Program. The State Historical Landmarks Program places an emphasis on well-known places and events in California history. The goals of the program include the preservation and maintenance of registered landmarks, most of which include missions, early settlements, battles, and gold rush sites.

State Points of Historical Interest Program. The State Points of Historical Interest Program was established in the effort to accommodate local historic properties not able to meet the restrictive criteria of the State Historical Landmarks Program. The Points of Historical Interest Program requires the participation of local governmental officials, such as the chairperson of the Board of Supervisors, in the approval process.

California Register of Historical Resources (CRHR). The CRHR is an authoritative guide for use by state and local agencies, private groups, and citizens to identify the state's historical resources. A historical resource can include any object, building, structure, site, area, or place that is determined to be historically or archaeologically significant. The CRHR also identifies historical resources for state and local planning purposes, and determines eligibility for state historic preservation grant funding.

California Native American Graves Protection and Repatriation Act (Cal NAGPRA). The Cal NAGPRA 2001 conveys to American Indians of demonstrated lineal descent, the human remains and funerary items that are held by state agencies and museums.

California Public Resources Code (PRC) 5079–5079.65 – California Heritage Fund. PRC sections 5079–5079.65 outline the appropriate uses of the California Heritage Fund. The fund shall be available, upon appropriation by the state Legislature, to implement laws providing for historical resource preservation, including, but not limited to, section 5028 and Executive Order W-26-92, under criteria developed by the Office of Historic Preservation and adopted by the State Historical Resources Commission.

California PRC 5097–5097.6 – Archaeological, Paleontological and Historical Sites. PRC sections 5097–5097.6 outline the requirements for cultural resource analysis prior to the commencement of any construction project on state lands. This section provides that the unauthorized disturbance or removal of archaeological, historical, or paleontological resources located on public lands is a misdemeanor. It prohibits the knowing destruction of objects of antiquity without a permit (expressed permission) on public lands, and provides for criminal sanctions. This section was amended in 1987 to require consultation with the California Native American Heritage Commission (NAHC) whenever Native American graves are found. Violations for the taking or possessing remains or artifacts are felonies.

California PRC 5097.9–5097.991 – Native American Heritage. PRC sections 5097.9–5097.991 provide that no public agency, and no private party using or occupying public property, or operating on public property, under a public license, permit, grant, lease, or contract made on or after July 1,1977, shall in any manner whatsoever interfere with the free expression or exercise of Native American religion as provided in the U.S. Constitution and the California Constitution; nor shall any such agency or party cause severe or irreparable damage to any Native American sanctified cemetery, place of worship, religious or ceremonial site, or sacred shrine located on public property, except on a clear and convincing showing that the public interest and necessity so require it. In addition, this section details the composition and responsibilities of the NAHC. The NAHC strives for the preservation and protection of Native American human remains, associated grave goods, and cultural resources. The NAHC has developed a strategic plan to assist the public, development community, local and federal agencies, educational institutions and California Native Americans to better understand problems relating to the protection and preservation of cultural resources and to serve as a tool to resolve these problems and create an awareness among lead agencies and developers of the importance of working with Native Americans. PRC sections 5097.91 and 5097.98 were amended by State Assembly Bill 2641 in 2006. This bill authorizes the NAHC to bring an action to prevent damage to Native American

burial grounds or places of worship and establishes more specific procedures to be implemented in the event that Native American remains are discovered.

California Government Code (GC) Section 25373. GC section 25373 gives authority to local governments to acquire property for the preservation or development of a historical landmark. In addition, local governments may provide special conditions or regulations for the protection, enhancement, perpetuation, or use of places, sites, buildings, structures, works of art and other objects having a special character or special historical or aesthetic interest or value.

California GC Section 27288.2. GC section 27288.2 requires the County Recorder to record a certified resolution establishing a historical resources designation issued by the State Historical Resources Commission or a local agency. For previously designated properties, the county may record the certified resolution establishing the historical resources designation upon submission.

California GC Sections 50280–50290 – Mills Act. The Mills Act provides for reduced property taxes on eligible historic properties in return for the property owner's agreement to maintain and preserve the historic property. Preservation of properties is to be in accordance with the standards and guidelines set forth by the Secretary of the Interior. In order to be designated, a building must meet qualifying criteria such as significant architecture, association with a historically significant event or person, or location in a historic district.

California Health and Safety Code (HSC) Sections 18950-18961 – State Historic Building Code. HSC sections 18950 through 18961 provide alternative building regulations and building standards for the rehabilitation, preservation, restoration (including related reconstruction), or relocation of buildings or structures designated as historic buildings. Such alternative building standards and building regulations are intended to facilitate the restoration or change of occupancy so as to preserve their original or restored architectural elements and features, to encourage energy conservation and a cost-effective approach to preservation, and to provide for the safety of the building occupants.

California HSC 7050.5 - Human Remains. HSC section 7050.5 requires that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site, or any nearby area reasonably suspected to overlay adjacent remains, until the County Coroner has examined the remains. If the coroner determines the remains to be those of a Native American, or has reason to believe that they are those of a Native American, the coroner shall contact by telephone within 24 hours the Native American Heritage Commission. In addition, any person who mutilates or disinters, wantonly disturbs, or willfully removes any human

remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor.

California Penal Code Section 622 – Destruction of Historical Properties. Penal Code section 622 provides that any person, not the owner thereof, who willingly destroys or injures objects of archaeological or historical value, whether on public or private land, is guilty of a misdemeanor.

Senate Bill (SB) 18 – Traditional Tribal Cultural Places. SB 18, enacted in 2004, amended various provisions of the California Government Code to require local governments to consult with Native American groups at the earliest point in the local government land use planning process. The consultation intends to establish a meaningful dialogue regarding potential means to preserve Native American places of prehistoric, archaeological, cultural, spiritual, and ceremonial importance. It allows for tribes to hold conservation easements and for tribal cultural places to be included in open space planning.

5.10.5.3 Methodology

ASM's Associate Architectural Historian, Jennifer Krintz, M.H.P., conducted a site visit to the Convair Lagoon Alternative area and photographed the subject resources on April 6, 2011. In addition, Ms. Krintz conducted archival research at the San Diego Public Library in the California Room on the same day. Newspaper and vertical files as well as books were obtained from the California Room. A records search was requested on March 30, 2011, from the South Coastal Information Center (SCIC). Results from the SCIC records search included 22 historic resources found within a 0.5-mile radius of the project area. Sanborn maps, historic aerials and photographs were found online and reviewed. Information from a previous environmental impact report (EIR) on 2701 N. Harbor Drive (prepared by URS) was also used in the research of the Architectural Resources Evaluation and Assessment of Effects report.

5.10.5.4 Thresholds of Significance

Threshold 5.10.5.1: Historical Resources. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact to a historical resource if it would result in a substantial adverse change in the significance of an historical resource as defined in CEQA Guidelines section 15064.5.

Pursuant to CEQA Guidelines section 15064.5, a "historical resource" is one that:

1. Is listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (Pub. Res. Code, § 5024.1, Title 14 CCR, section 4850 et seq.).

2. Is included in a local register of historical resources, or is identified as significant in an historical resource survey meeting the requirements section 5024.1(g) of the Public Resources Code.
3. Is an object, building, structure, site, area, place, record or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California.

Threshold 5.10.5.2: Archaeological Resources. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a potentially significant impact if it would cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines section 15064.5.

Threshold 5.10.5.3: Paleontological Resources. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would directly or indirectly destroy a unique paleontological resource or unique geologic feature.

Threshold 5.10.5.4: Human Remains. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would disturb any human remains, Native American or otherwise, including those interred outside of formal cemeteries.

5.10.5.5 Impacts and Mitigation Measures

Less Than Significant Impacts

Threshold 5.10.5.1: Historical Resources. As part of the Convair Lagoon Alternative, the concrete seaplane ramp and pier located on the site would be demolished. Both the seaplane ramp and the pier were constructed circa 1957. The following discussion provides an evaluation of the seaplane ramp and pier for eligibility of listing in the NRHP, the CRHR, the local register for the City of San Diego Historical Sites, and of qualifying as a historic resource under CEQA.

The results from the SCIC records search included 22 historic resources found within a 0.5-mile radius of the project area. However, these 22 historic resources are properties that are not associated with the Convair complex or Convair Lagoon Alternative site structures. Additionally, as a result of the recent demolition of the adjacent Teledyne Ryan complex, most of these 22 historic resources have been demolished. Therefore, an evaluation of these resources is not included in this analysis because they are not relevant to the Convair Lagoon Alternative or the Convair complex. Refer to Appendix A, Initial Study, of this EIR for impacts related to historical resources from dredging and dewatering activities at the Shipyard Sediment Site.

National Register of Historic Places. National Register Bulletin 15 outlines the criteria to be used when determining a historic resource's eligibility for listing in the NRHP. The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess *integrity* and meets one or more of the following four criteria:

Criterion A: Criterion A historical resources are associated with events that have made a significant contribution to the broad patterns of our history.

Criterion B: Criterion B historical resources are associated with the lives of persons significant in our past.

Criterion C: Criterion C historical resources embody distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

Criterion D: Criterion D historical resources have yielded, or may likely yield, information important in prehistory or history.

NRHP Criterion A. Of all the facilities located on the Convair Lagoon Alternative site, the seaplane ramp and the pier have the strongest potential for historic significance due to their association with the local aircraft industry in San Diego. The aircraft industry in San Diego is significant for its contribution to several historic milestones in the aeronautics industry; including the construction of the *Spirit of St. Louis* and the construction of the first spacecraft that orbited the earth. The existing pier and seaplane ramp were previously part of a larger aircraft manufacturing complex that included several buildings, hangars, runways and testing sites for the aviation company Convair. However, most of this complex has been redeveloped by the San Diego International Airport and has lost its integrity as a larger historic district.

The seaplane ramp was previously part of a large structure that held a runway and other associated aircraft buildings used by Convair seaplanes. Historically, the seaplane ramp was used as a transport connector between the San Diego Bay and the aircraft road surface/runway on land. Currently, the visual relationship between the components of the manufacturing complex has been compromised by the on-site chain link fence and the intrusion of the rental car parking lot to the west. Additionally, the seaplane ramp was originally equipped with a narrow ancillary structure used for watercraft and seaplanes. This ancillary structure was attached to the sea plane ramp via a narrow driveway that jutted out into the bay. This ancillary feature no longer exists. Therefore, the seaplane ramp and pier were once part of a larger bay shore resource that no longer retains integrity to convey its association to the overall Convair complex.

The pier and seaplane ramp structures were constructed in 1957 after Convair's period of peak performance in San Diego, which was before and during World War II (circa 1945). Both the seaplane ramp and pier no longer retain their original setting, feeling or association with the larger aircraft manufacturing complex. The setting, feeling and association aspects of integrity are the most significant for these types of resources as part of a larger complex. Additionally, the Convair complex has been altered to such a degree that no potential for a historic district exists. Therefore, the seaplane ramp and pier are not potential contributors to an eligible historic district for the Convair manufacturing company. Although both the seaplane ramp and the pier are associated with a historically significant aircraft company that played an important role in the local aircraft industry, neither of these resources individually embodies those events nor are they eligible as contributors to a larger district for the Convair complex. Therefore, both the seaplane ramp and pier are not eligible for the NRHP under Criterion A.

NRHP Criterion B. According to the Convair Lagoon Architectural Resources Evaluation and Assessment of Effects, no information of associations with the lives of significant persons exists for the seaplane ramp or the pier. Therefore, both the seaplane ramp and pier are not eligible for the NRHP under Criterion B.

NRHP Criterion C. Neither the seaplane ramp nor the pier embody distinctive characteristics, represent the work of a master, possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction. Therefore, the seaplane ramp and the pier are not eligible for the NRHP under Criterion C.

NRHP Criterion D. The seaplane ramp and the pier have not yielded information important in prehistory or history. Therefore, the seaplane ramp and the pier are not eligible for the NRHP under Criterion D.

California Register of Historical Resources Criteria. The CRHR program encourages public recognition and protection of resources of architectural, historical, archeological and cultural significance, identifies historical resources for state and local planning purposes, determines eligibility for state historic preservation grant funding and affords certain protections under CEQA.

In order to be eligible for listing in the CRHR, a building must satisfy at least one of the following four criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States.
2. It is associated with the lives of persons important to local, California or national history.

3. It embodies the distinctive characteristics of a type, period, region or method of construction or represents the work of a master or possesses high artistic values.
4. It either has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation.

The CRHR Criteria parallel the criteria of the NRHP. As discussed above, the seaplane ramp and the pier do not meet any of the NRHP criteria. Therefore, the seaplane ramp and the pier do not meet the four CRHR criteria. The seaplane ramp and pier are not eligible for the CRHR.

City of San Diego Historical Board (SDHB). To be designated as historical by the City of San Diego Historical Resources Board, the site must meet any of the following criteria:

Criterion A: Exemplifies or reflects special elements of the City's, a community's or a neighborhood's historical, archaeological, cultural, social, economic, political, aesthetic, engineering, landscaping or architectural development.

Criterion B: Is identified with persons or events significant in local, state or national history.

Criterion C: Embodies distinctive characteristics of a style, type, period or method of construction or is a valuable example of the use of indigenous materials or craftsmanship.

Criterion D: Is representative of the notable work of a master builder, designer, architect, engineer, landscape architect, interior designer, artist or craftsman.

Criterion E: Is listed or has been determined eligible by the National Park Service for listing on the National Register of Historic Places or is listed or has been determined eligible by the State Historical Preservation Office for listing on the State Register of Historical Resources.

Criterion F: Is a finite group of resources related to one another in a clearly distinguishable way or is a geographically definable area or neighborhood containing improvements which have a special character, historical interest or aesthetic value or which represent one or more architectural periods or styles in the history and development of the City.

SDHB Criterion A. Both the seaplane ramp and the pier have the strongest potential for historic significance due to their association with the aircraft industry in San Diego. The aircraft industry in San Diego is significant for its contribution to several historic milestones in the aeronautics industry such as the construction of the *Spirit of St. Louis*, and the construction of the first spacecraft that orbited the earth. Both the pier and the seaplane ramp were part of a larger aircraft manufacturing complex that included several buildings, hangars, runways and testing sites for Convair. However, most of this complex has been redeveloped

by the San Diego International Airport and has therefore lost its integrity as a larger historic district. The seaplane ramp was part of a larger structure that held a runway and other associated aircraft buildings and was used as a transport connector between the San Diego Bay and the aircraft road surface/runway on land. Today the visual relationship between the components of the complex has been compromised by the on-site chain link fence and the intrusion of the rental car parking lot to the west. Further, the seaplane ramp was originally equipped with a narrow ancillary structure that jutted out into the bay and was used for watercraft and seaplanes. This ancillary structure no longer exists. Therefore, the seaplane ramp and pier were once part of a larger bay shore resource that no longer retains integrity to convey its association with the overall Convair complex.

Both the seaplane ramp and pier no longer retain their original setting, feeling or association with the larger aircraft manufacturing complex. These aspects of integrity are the most significant for these types of resources as part of a larger complex. Additionally, the Convair complex has been altered to such a degree that no potential for a historic district exists. Therefore, the seaplane ramp and pier are not potential contributors to an eligible historic district related to the Convair manufacturing company. Although both resources are associated with a historically significant aircraft company that played an important role in the local aircraft industry, neither of those structures individually embody those events. Therefore, neither the seaplane ramp nor the pier, as contributors to a historic district or individually, is eligible for the local register of the City of San Diego under Criterion A.

SDHB Criterion B. According to the *Convair Lagoon Architectural Resources Evaluation and Assessment of Effects*, no information of associations with the lives of significant persons exists for the seaplane ramp or the pier. Therefore, neither the seaplane ramp nor the pier is eligible for the local register for the City of San Diego under Criterion B.

SDHB Criterion C. Neither the seaplane ramp nor the pier embody distinctive characteristics of an architectural style, type, or method of construction or are a valuable example of the use of indigenous materials or craftsmanship. Therefore, neither the seaplane ramp nor the pier is eligible for the local register for the City of San Diego under Criterion C.

SDHB Criterion D. The Convair seaplane ramp and pier were constructed by the aviation company Convair. According to the *Convair Lagoon Architectural Resources Evaluation and Assessment of Effects*, no architect is associated with these structures. Therefore, neither the seaplane ramp nor the pier is eligible for the local register for the City of San Diego under Criterion D.

SDHB Criterion E. As discussed above, neither the seaplane ramp nor the pier are eligible for the NRHP or CRHP. Therefore, neither the seaplane ramp nor pier is eligible for the local register for the City of San Diego under Criterion E.

SDHB Criterion F. The seaplane ramp and the pier were part of a larger bay shore resource complex of buildings associated with the seaplane aircraft manufacturing sector of Convair. However, this larger bay shore resource has been largely redeveloped. The remaining components which include the seaplane ramp and pier do not retain enough integrity in association, setting and feeling to convey their significance as resources to a historic district. Therefore, neither the seaplane ramp nor the pier is eligible for the local register for the City of San Diego under Criterion F.

Neither the seaplane ramp nor the pier are eligible for the NRHP, the CRHR, or the local register for the City of San Diego. Therefore, the seaplane ramp and the pier are not considered historical resources for the purposes of CEQA. Since it would not result in a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines section 15064.5, the Convair Lagoon Alternative would not result in a significant impact to a historical resource.

Threshold 5.10.5.2: Archaeological Resources. PRC section 21083.2 defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

As part of the Convair Lagoon Architectural Resource Evaluation and Assessment of Effects (Appendix K), a records search was conducted by SCIC. The SCIC records search included an evaluation of reports listed in the National Archaeological Database. No archeological resources were identified on the project site or with the 0.5 mile search radius. However, natural bay sediments, which could contain archeological resources, underlie the area proposed for the containment barrier. Excavation activities associated with construction of the containment barrier could potentially impact archeological resources. As described in the Initial Study for the Shipyard Sediment Site Project, included as Appendix A to this EIR, in the event that an archaeological resource is found during implementation of this alternative, the contractor will immediately cease all construction at the place of discovery and a qualified archaeologist will evaluate the find. If the archaeologist determines that potentially significant archaeological materials are encountered, the archaeologist will recover, retrieve, and/or remove any archaeological materials. The archaeologist will provide a copy of documentation of all recovered data and materials found on site to the regional information

center of the California Archaeological Inventory for inclusion in the permanent archives and another copy shall accompany any recorded archaeological materials data.

Threshold 5.10.5.3: Paleontological Resources. For the purposes of this EIR, a unique paleontological resource is any fossil or assemblage of fossils, paleontological resource site, or formation that meets any one of the following criteria:

1. Is the best example of its kind locally or regionally?
2. Illustrates a life-based geologic principle (i.e., faunal succession).
3. Provides a critical piece of paleobiological data (illustrates a portion of geologic history or provides evolutionary, paleoclimatic, paleoecological, paleoenvironmental or biochronological data).
4. Encompasses any part of a "type locality" of a fossil or formation.
5. Contains a unique or particularly unusual assemblage of fossils.
6. Occupies a unique position stratigraphically within a formation.
7. Occupies a unique position, proximally, distally or laterally within a formation's extent or distribution.

The Convair Lagoon Alternative site was originally mudflats and open water of the San Diego Bay. Decades of dredging and placement of fill soils have resulted in the surrounding land area. The near-surface soil layers of the Convair Lagoon site consist of imported sand as fill used to cap PCB contaminated sediments and recent bay deposits. Recent bay deposits underlie the sand cap and PCB contaminated sediment. Bay deposit materials typically consist of interlayered dark gray, wet, loose, fine silty sand and silt and soft, sandy clay. Old paralic deposits underlie the bay deposits and typically consist of medium dense sand and stiff clay. Both bay deposits and old paralic deposits have a high potential for paleontological resources to occur (CSD, 2007). Excavation and dredging activities have the potential to impact soil units that may contain paleontological resources. However, as described in the Initial Study for the Shipyard Sediment Site Project and included as Appendix A to this EIR, in the event that an paleontological resource is found during implementation of this alternative, the contractor will immediately cease all construction at the place of discovery and a qualified paleontologist will evaluate the find. If the paleontologist determines that potentially significant paleontological materials are encountered, the paleontologist will recover, retrieve, and/or remove any archaeological or paleontological materials in a method consistent with current laws and regulations.

Threshold 5.10.5.4: Human Remains. Section 15064.5(d) and (e) of the CEQA Guidelines assign special importance to human remains and specify procedures to be used when Native American remains are discovered. These procedures are detailed under PRC section

5097.98, which outlines notification procedures in the event of a discovery of Native American human remains.

The Convair Lagoon Alternative site is located in an area that was originally an open water portion of the San Diego Bay underlain by natural bay sediments. There is a potential for human remains to occur in the natural sediments of the site, which would be disturbed during excavation of materials for the containment structure. However, in the event that human remains were discovered on the site during construction activities, construction activities would be required to comply with the applicable federal, state and local regulations related to human remains. For example, Native American human burials have specific provisions for treatment in Public Resources Code section 5097, as amended by Assembly Bill 2641, which addresses the disposition of Native American burials, protects such remains, and establishes the California Native American Heritage Commission to resolve any related disputes. Additionally, the California Native American Graves Protection and Repatriation Act require repatriation of Native American human remains and funerary items that are held by state agencies and museums. The California Health and Safety Code section 7050.5 has specific provisions for the protection of human burial remains, Native American or otherwise, if they are discovered. California Health and Safety Code section 7050.5 requires that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site, or any nearby area reasonably suspected to overlay adjacent remains, until the County Coroner has examined the remains. In addition, any person who mutilates or disinters, wantonly disturbs, or willfully removes human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor criminal offense. The Convair Lagoon Alternative would comply with all applicable regulations related to the inadvertent discovery of human remains. Compliance with regulations pertaining to the discovery of human remains would result in a less than significant impact related to this resource. With regard to potential human remains impacts associated with the dredging operations at the Shipyard Sediment site, refer to Appendix A, Initial Study, of this EIR.

Potentially Significant Impacts

No significant impacts would occur to cultural resources, archeological resources, paleontological resources or human remains from implementation of the Convair Lagoon Alternative. All impacts would be less than significant prior to mitigation.

Mitigation Measures

No significant impacts would occur to cultural resources, archeological resources, paleontological resources or human remains from implementation of the Convair Lagoon Alternative. Therefore, no mitigation measures are required.

Cumulative Impacts

The geographic scope of the cumulative impact analysis for cultural resources varies depending on the type of cultural resource that could be impacted. The geographic scope for each of the four cultural resources topic areas is described below as part of the cumulative impact discussion for each of the topics.

Threshold 5.10.5.1: Historical Resources. For the purpose of this EIR, the geographic scope for the cumulative analysis of historic resources includes the historical aircraft manufacturing complex associated with the Teledyne Ryan and a separate manufacturing complex associated with the Convair company. Past cumulative project redevelopment in the Teledyne Ryan manufacturing complex area has resulted in the demolition of the majority of the buildings and structures from this complex. Additionally, past cumulative project redevelopment in the area surrounding the Convair Lagoon Alternative site has resulted in the demolition of the majority of buildings and structures associated with the Convair complex. The past demolition of these historic resources has resulted in a significant cumulative impact. As discussed above, the Convair Lagoon Alternative Site would result in the demolition of a seaplane ramp and pier. The Convair complex has been altered to such a degree by past cumulative development that no potential for a Convair historic district exists. Therefore, the seaplane ramp and pier are not potential contributors to an eligible historic district related to the Convair manufacturing company and demolition of these structures would not result in a cumulatively considerable contribution to this historical resources impact.

Threshold 5.10.5.2: Archaeological Resources. The geographic scope for the cumulative analysis of archaeological resources encompasses the city of San Diego and lands under the jurisdiction of the San Diego Unified Port District (District) because the native people that lived near San Diego Bay are associated with this geographic area. Specific cumulative projects are identified in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon Alternative. The city of San Diego and lands under the jurisdiction of the District have a high to low potential for archeological resources to occur. The development of cumulative projects, such as the West-Side Ground Transportation Project 5 which would construct a new parking structure, would require excavation activities or other ground disturbance activities which could result in significant impacts to archaeological resources. Therefore, the cumulative impact to archaeological resources due to cumulative development is significant. As discussed above, implementation of the Convair Lagoon Alternative would have no impact on archeological resources because in the event that an archaeological resource is found during implementation of this alternative, the contractor will immediately cease all construction at the place of discovery and a qualified archaeologist will evaluate the find as described in the Initial Study for the project found in Appendix A. Therefore, construction of the Convair Lagoon Alternative would not result in a cumulatively considerable contribution to the cumulative archaeological resources impact.

Threshold 5.10.5.3: Paleontological Resources. The geographic context for the analysis of cumulative impacts to paleontological resources encompasses the paleontological sensitive geologic formations within the city of San Diego and the District. Excavation activities associated with land development within these areas could have significant impacts to paleontological resources. For example, and as listed in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon Alternative, cumulative projects such as the Thomas Jefferson School of Law project involved, or would involve, ground disturbing construction activities that resulted in the discovery of significant paleontological resources. Therefore, the cumulative impact to paleontological resources caused by excavation activities associated with cumulative development within the regional cumulative impact area is significant. However, the Convair Lagoon Alternative would not result in impacts to paleontological resources because in the event that paleontological resources are found during implementation of this alternative, the contractor will immediately cease all construction at the place of discovery and a qualified paleontologist will evaluate the find as described in the Initial Study for the project found in Appendix A. Therefore the Convair Lagoon Alternative would not result in a cumulatively considerable contribution to the cumulative significant impact.

Threshold 5.10.5.4: Human Remains. The geographic scope for the cumulative analysis of human resources encompasses the city of San Diego and lands under the jurisdiction of the District because the native people that lived near San Diego Bay are associated with this geographic area. Cumulative projects, including those identified in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon Alternative, in the region have the potential to impact human remains due to grading, excavation or other ground-disturbing activities. However, all cumulative projects, including the Convair Lagoon Alternative would be required to comply with PRC 5097.98 and California Health and Safety Code 7050.5. Compliance with these regulations would result in a less than significant cumulative human remains impact from cumulative projects. Therefore, the Convair Lagoon Alternative would not result in a significant cumulative human remains impact.

Level of Significance After Mitigation

No significant impacts would occur to cultural resources, archeological resources, paleontological resources or human remains from implementation of the Convair Lagoon Alternative. Without mitigation, all impacts remain less than significant.

Significant and Unavoidable Adverse Impacts

No significant and unavoidable impacts would occur to cultural resources, archeological resources, paleontological resources or human remains from implementation of the Convair Lagoon Alternative.

Photo 1: View looking west at the east side of the pier.

Photo 2: View looking west at the Convair Seaplane ramp entry.

ATKINS

FIGURE 5-10

Convair Lagoon Alternative

Convair Seaplane Ramp and Convair Pier

SOURCE: Brown & Winters 2011

This page intentionally left blank

5.10.6 Geology and Soils

This section of the analysis describes the existing geology, soils, and seismic conditions on the Convair Lagoon Alternative Site and analyzes the potential physical environmental effects related to seismic hazards and geologic conditions. Potential effects of soil conditions on air and water quality as a result of construction-related activities are discussed in Section 5.10.3, Air Quality, and Section 5.10.9, Hydrology and Water Quality, respectively. This section is based on the information provided in the *Geology and Soils Evaluation for the Convair Lagoon Shipyard Sediment Alternative Analysis* (Ninyo and Moore, 2011a), which is included as Appendix L of this EIR.

5.10.6.1 Existing Environmental Setting

The following section describes the regional geologic setting, site geology, and faulting and seismicity issues related to the Convair Lagoon Alternative site.

Regional Geologic Setting

The Convair Lagoon Alternative site is situated in the coastal section of the Peninsular Ranges Geomorphic Province. This geomorphic province encompasses an area that extends approximately 900 miles from the Transverse Ranges and the Los Angeles Basin south to the southern tip of Baja California. The province varies in width from approximately 30 to 100 miles. In general, the province consists of rugged mountains underlain by Jurassic-age metavolcanic and metasedimentary rocks, and Cretaceous-age igneous rock of what is known as the southern California batholith. The westernmost portion of the province in San Diego County, which includes the Convair Lagoon site, consists generally of a dissected coastal plain underlain by Upper Cretaceous, Tertiary, and Quaternary-age sediments.

The Peninsular Ranges Province is traversed by a group of sub-parallel faults and fault zones generally trending in northwest/southeast direction. As shown in Figure 5-11, the site, like much of San Diego, is located near the active Rose Canyon fault zone. The Elsinore, San Jacinto, and San Andreas faults are major active fault systems located northeast of the Convair Lagoon site and the Coronado Bank, San Diego Trough, and San Clemente faults are active faults located west of the site. Major tectonic activity associated with these and other faults within this regional tectonic framework consists primarily of right-lateral, strike-slip movement.

Site Geology

The Convair Lagoon site is underlain by fill material and bay deposits. The fill material and bay deposits are underlain by Pleistocene-age old paralic deposits. Fill material on the site includes sand that was placed as part of a contaminated sediment capping operation in the 1990s. Bay deposits consist of interlayered dark gray, wet to saturated, very loose to loose,

silty fine sand and silt, and soft, sandy clay. Old paralic deposits typically consist of medium dense sand and stiff clay.

Faulting and Seismicity

The Convair Lagoon site is located in a seismically active area. The closest known major active fault (i.e., a fault that exhibits evidence of ground displacement within the last 11,000 years) to the site is the Spanish Bight Fault, an element of the Rose Canyon Fault. Both the Spanish Bight Fault and the Rose Canyon Fault are capable of generating a maximum moment magnitude earthquake of 7.2. Figure 5-11 identifies the approximate location of the Convair Lagoon site with respect to the regional active faults.

Ground Shaking. Ground shaking is the earthquake effect that produces the vast majority of damage. Several factors control how ground motion interacts with structures, making the hazard of ground shaking difficult to predict. Earthquakes, or earthquake induced landslides, can cause damage near and far from fault lines. The potential damage to public and private buildings and infrastructure can threaten public safety and result in significant economic loss. Ground shaking is the most common effect of earthquakes that adversely affects people, animals, and constructed improvements. Seismic waves propagating through the earth's crust are responsible for the ground vibrations normally felt during an earthquake. Seismic waves can vibrate in any direction, and at different frequencies, depending on the frequency content of the earthquake rupture mechanism and the path and material through which the waves are propagating. The earthquake rupture mechanism is the distance from the earthquake source, or epicenter, to an affected site.

Table 5-30 provides a list of known active faults that may affect the Convair Lagoon site and the maximum moment magnitude that would occur at the site from a seismic event. The nearest known active fault to the Convair Lagoon is the Spanish Bight Fault, an element of the Rose Canyon Fault. The Spanish Bight Fault intersects the southwestern boundary of the Convair Lagoon site.

Table 5-30: Active Faults near Convair Lagoon

Fault	Approximate Distance miles (km)	Maximum Moment Magnitude (M_{max})
Spanish Bight	0 (0)	7.2
Rose Canyon	0.7 (1.2)	7.2
Coronado Bank	12 (20)	7.6
Newport-Inglewood (Offshore)	33 (53)	7.3
Elsinore (Julian Segment)	42 (67)	7.1
Elsinore (Temecula Segment)	46 (74)	6.8
Earthquake Valley	47 (76)	6.5
Elsinore (Coyote Mountain Segment)	51 (82)	6.8
Palos Verdes	58 (94)	7.3

Table 5-30: Active Faults near Convair Lagoon

Fault	Approximate Distance miles (km)	Maximum Moment Magnitude (M_{max})

Source: Ninyo and Moore, 2011

Fault Rupture. During earthquakes, the ground can rupture at or below the surface. Ground rupture occurs when two lithospheric plates heave past each other, sending waves of motion across the earth. The lithosphere is approximately 75 miles thick and consists of the upper continental and oceanic crusts and the rigid mantle layer that is directly beneath the crust. Earthquakes can cause large vertical and/or horizontal displacement of the ground along the fault. Ground rupture can completely demolish structures by rupturing foundations or by tilting foundation slabs and walls, as well as damage buried and above ground utilities. Drinking water can be lost, and the loss of water lines or water pressure can affect emergency services, including fire fighting ability.

As shown on Figures 5.10.6-2, the western portion of the Convair Lagoon site is located within a California-designated Earthquake Fault Zone (formerly known as an Alquist-Priolo Special Studies Zone) and a San Diego designated fault study zone. The portion of the Rose Canyon fault that intersects the southwestern boundary of the Convair Lagoon site is known as the Spanish Bight Fault strand. The Spanish Bight Fault strand is recognized as active and trends in a north/south direction towards the site through San Diego Bay. Ground surface rupture due to active faulting is possible at the Convair Lagoon site due to the presence of the Spanish Bight Fault at the southwestern boundary of the site. Additionally, lurching or cracking of the ground surface as a result of nearby seismic events is possible.

Liquefaction. Liquefaction occurs primarily in saturated, loose, fine to medium-grained soils in areas where the groundwater table is generally 50 feet or less below the surface. When these sediments are shaken during an earthquake, a sudden increase in pore water pressure causes the soils to lose strength and behave as a liquid. In general, three types of lateral ground displacement are generated from liquefaction: 1) flow failure, which generally occurs on steeper slopes; 2) lateral spread, which generally occurs on gentle slopes; and 3) ground oscillation, which occurs on relatively flat ground. In addition, surface improvements on liquefiable areas may be prone to settlement and related damage in the event of a large earthquake on a regionally active fault. The primary factors that control the type of failure that is induced by liquefaction (if any) include slope, and the density, continuity, and depth of the liquefiable layer.

Adverse effects of liquefaction include:

1. Loss of bearing strength so that the ground loses its ability to support structures. Structures can be left leaning or they can collapse.
2. Lateral spreading where the ground can slide on a buried liquefied layer. Buildings, roads, pipelines and other structures can be damaged.
3. Sand boils of sand-laden water can be ejected from a buried liquefied layer and erupt at the surface. The surrounding ground often fractures and settles.

4. Ground oscillation so that the surface layer, riding on a buried liquefied layer, is thrown back and forth by the shaking and can be severely deformed. Land containing walkways, roads, highways, and structures can all be shaken, broken, damaged and/or destroyed.
5. Flotation to the surface of light-weight structures that are buried in the ground (e.g., pipelines, sewers, and nearly empty fuel tanks).
6. Settlement when liquefied ground re-consolidates following an earthquake.

Lateral Spreading. Lateral spreading is a shallow, water-saturated landslide deformation often triggered from seismically induced liquefaction. Lateral spread of the ground surface during an earthquake usually takes place along weak shear zones that have formed within a liquefiable soil layer. Lateral spread has generally been observed to take place in the direction of a free-face (e.g., retaining wall, slope, channel) but has also been observed to a lesser extent on ground surfaces with gentle slopes. Other factors such as earthquake magnitude, distance from the causative fault, thickness of the liquefiable layers, and particle sizes of the liquefiable layers also influence the amount of lateral ground displacement.

Landsliding. Landslides can be caused by ground shaking from an earthquake or water from rainfall, septic systems, landscaping, or other origins that infiltrate slopes with unstable material. Boulder-strewn hillsides can pose a boulder-rolling hazard.

Expansive Soils. Certain types of clay soils expand when they are saturated and shrink when dried. These are called expansive soils, and can pose a threat to the integrity of structures built on them without proper engineering. Expansive soils are derived primarily from weathering of feldspar minerals and volcanic ash. Expansive soils generally result from specific clay minerals that have the capacity to shrink or swell in response to changes in moisture content.

Corrosive Soils. Caltrans corrosion criteria define corrosive soils as soils with more than 500 parts per million chlorides, more than 0.2 percent sulfates, or a pH less than 5.5.

Compressive Soils. Compressible soils, like expansive soils, result from specific clay minerals or loose granular materials that have the capacity to shrink or compress in response to changes in moisture content or new loads.

Collapsible Soils. Collapsible soils are those that appear to be strong and stable in their natural state, but which rapidly consolidate under wetting, generating large and often unexpected settlements. This can yield disastrous consequences for structures unwittingly

built on such deposits. Such soils are often termed "collapsible" and the process of their collapsing is called "hydro-collapse" (Swan, 2011).

5.10.6.2 Regulatory Setting

Federal

U.S. Geological Survey (USGS) Landslide Hazard Program. In fulfillment of the requirements of Public Law 106-113, the USGS created the Landslide Hazard Program in the mid-1970s. According to USGS, the primary objective of the National Landslide Hazards Program (LHP) is to reduce long-term losses from landslide hazards by improving our understanding of the causes of ground failure and suggesting mitigation strategies. The Federal government takes the lead role in funding and conducting this research, whereas the reduction of losses due to geologic hazards is primarily a state and local responsibility. In San Diego County, the Unified Disaster Council (UDC) is the governing body of the Unified San Diego County Emergency Services Organization. The primary purpose of the UDC and the Emergency Services Organization is to provide for the coordination of plans and programs designed for the protection of life and property in the County of San Diego.

State

Alquist-Priolo (AP) Earthquake Fault Zoning Act. The California Legislature passed this law in 1972 to help identify areas subject to severe ground shaking. This state law requires that proposed developments incorporating tracts of four or more dwelling units investigate the potential for ground rupture within AP zones. These zones serve as an official notification of the probability of ground rupture during future earthquakes. Where such zones are designated, no building may be constructed on the line of the fault, and before any construction is allowed, a geologic study must be conducted to determine the locations of all active fault lines in the zone.

California Building Code. The CBC provides a minimum standard for building design. Chapter 16 of the 2010 CBC contains specific requirements for seismic safety. Chapter 18 of the 2010 CBC regulates excavation, foundations, and retaining walls. Chapter 33 of the 2010 CBC contains specific requirements pertaining to site demolition, excavation, and construction to protect people and property from hazards associated with excavation cave-ins and falling debris or construction materials. Appendix sections J109 and J110 of the 2010 CBC regulate grading activities, including drainage and erosion control. Construction activities are subject to occupational safety standards for excavation, shoring, and trenching as specified in California Occupational Safety and Health Administration (Cal/OSHA) regulations (Title 8 of the California Code of Regulations [CCR]) and in Appendix sections J106 and J107 of the 2010 CBC.

Seismic Hazards Mapping Act. Part of the California Public Resources Code, this Act was passed by the state Legislature in 1990 to address non-surface fault rupture earthquake hazards, including liquefaction and seismically induced landslides. Guidelines for Evaluation and Mitigating Seismic Hazards in California (Special Publication 117) were adopted by the state Mining and Geology Board on March 13, 1997 (revised and re-adopted on September 11, 2008 as Special Publication 117a) in accordance with the Seismic Hazards Mapping Act of 1990. The publication contains the guidelines for evaluating seismic hazards other than surface fault rupture (landslides and liquefaction), and for recommending mitigation measures to minimize impacts. A lead agency may determine when the investigation required by the guidelines and the Seismic Hazards Mapping Act would occur for a project.

5.10.6.3 Methodology

Ninyo & Moore evaluated the geologic and soil conditions for the Convair Lagoon Alternative site in April 2011. The results of this evaluation are provided in the report *Geology and Soils Evaluation for the Convair Lagoon Shipyard Sediment Alternative Analysis*, included as Appendix L of this EIR. The Ninyo and Moore geology and soils evaluation of the Convair Lagoon Site was based on a geologic reconnaissance, reviews of published and unpublished geologic and geotechnical reports, aerial photographs, in-house data, and an assessment of the potential geologic hazards. The methodology used in the evaluation estimated the potential for impacts to the site to occur from geologic or soils conditions on or in close proximity to the site, and discusses measures that might be considered during project design to reduce or mitigate the potential impacts with respect to the development of the Convair Lagoon Alternative.

5.10.6.4 Thresholds of Significance

Threshold 5.10.6.1: Exposure to Seismic-Related Hazards. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would expose people or structures to potential substantial adverse impacts, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent AP Earthquake Fault Zoning Map issued by the state Geologist or based on other substantial evidence of a known fault; strong seismic ground shaking; or seismic-related ground failure, including liquefaction or landslides.

Fault Rupture. Specifically, the Convair Lagoon Alternative would result in a significant impact from fault rupture if any building or structure to be used for human occupancy would occur over or within 50 feet of the trace of an AP Fault. A significant impact could also occur if a confinement structure was compromised as a result of fault rupture resulting in leakage of contaminated sediments into San Diego Bay.

Seismic Ground Shaking. The Convair Lagoon Alternative would result in a significant impact from ground shaking if any building or structure to be used for human occupancy is located within Seismic Design Category E and F of the CBC and does not conform to the CBC. A significant impact could also occur if a confinement structure was compromised as a result of seismic ground shaking resulting in leakage of contaminated sediments into San Diego Bay.

Ground Failure. The Convair Lagoon Alternative would have the potential to expose people or structures to substantial adverse effects from liquefaction if:

a. Areas proposed for development contain potentially liquefiable soils;
b. The potentially liquefiable soils are saturated or have the potential to become saturated; or
c. In-situ soil densities are not sufficiently high to preclude liquefaction.

Landslides. The Convair Lagoon Alternative would result in a significant impact from landslide risk if:

a. It would expose people or structures to substantial adverse effects, including the risk of loss, injury, or death involving landslides;
b. It is located on a geologic unit or soil that is unstable, or would become unstable as a result of the proposed project, potentially resulting in an on- or off-site landslide; or
c. It lies directly below or on a known area subject to rockfall which would result in collapse of structures.

Threshold 5.10.6.2: Soil Erosion and Topsoil Loss. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would result in substantial soil erosion or loss of topsoil from construction or operational activities.

Threshold 5.10.6.3: Soil Stability. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a potentially significant impact if it would be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the land use designation, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

Threshold 5.10.6.4: Expansive Soils. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would be located on

expansive soil, as defined in section 1802A.3.2 of the CBC, creating substantial risks to life or property.

Threshold 5.10.6.5: Alternative Waste Water Disposal Systems. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.

5.10.6.5 Impacts and Mitigation Measures

Less Than Significant Impacts

Threshold 5.10.6.2: Soil Erosion and Topsoil Loss. Topsoil is the uppermost layer of soil, usually comprised of the top six to eight inches. It has the highest concentration of organic matter and microorganisms, and is where most biological soil activity occurs. Plants generally concentrate their roots in, and obtain most of their nutrients from, this layer of soil. Topsoil erosion is of concern when the topsoil layer is blown or washed away. This creates an environment that doesn't support the plants and animals otherwise present in topsoil and disrupts the food chain and local ecosystem. It can also increase the rate of pollutants that become delivered to watersheds. Erosion can occur as a result of, and can be accelerated by, construction and operational activities associated with the Convair Lagoon Alternative. The following discussion describes potential erosion impacts from construction and operation of the Convair Lagoon Alternative. Refer to Section 4.2, Water Quality, of this EIR for impacts related to soil erosion and topsoil loss from dredging and dewatering activities at the Shipyard Sediment Site.

Construction Activities. The demolition, excavation, soil importation and soil stockpiling operations associated with construction of the Convair Lagoon Alternative would have the potential to expose soils to wind and surface water runoff related erosion. However, all construction activities occurring under the Convair Lagoon Alternative would be required to comply with CBC, which would ensure implementation of appropriate measures during grading and construction activities to reduce soil erosion. Additionally, construction activities would be required to comply with the General Construction Permit, which requires stormwater pollution prevention plans (SWPPPs) to be prepared and implemented, and best management practices (BMPs) to be identified for construction sites greater than one acre. Implementation of appropriate BMPs would protect water quality by controlling storm water runoff and erosion and ensuring that the quality of storm water flows meets the applicable requirements of the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board). Additionally, because the Convair Lagoon Alternative site is under the jurisdiction of the San Diego Unified Port District (District), it must comply with the District's Jurisdictional Standard Urban Stromwater Mitigation Planning Document (JURMP). One requirement of the JURMP is to prepare and implement an Urban Stormwater Mitigation Plan (USMP). In general, the USMP conveys the process used to identify

pollutants of concern, conditions of concern, and BMPs to control/reduce runoff volume and its associated pollutants. BMP maintenance requirements are also addressed to ensure consistent pollution prevention performance. Compliance with these regulations during construction activities would result in a less than significant impact to erosion and topsoil loss from implementation of the Convair Lagoon Alternative.

Operational Activities. Currently, Convair Lagoon consists of submerged land. The site is underlain by fill material and bay deposits. The fill material and bay deposits are underlain by Pleistocene-age old paralic deposits. The fill material on the site was placed as part of a capping operation in the 1990s. According to the *Geology and Soils Evaluation for the Convair Lagoon Shipyard Sediment Alternative Analysis* (Ninyo and Moore, 2011), the existing soil conditions are classified as soft ground or loose soil, which may have the potential for increased erosion. However, as part of the Convair Lagoon Alternative, the existing soils on site would be covered with dredged material from the Shipyard Sediment site and capped with 9 inches of clean, compacted, imported fill material and a three-inch asphalt layer above the imported fill material. The capping fill material and asphalt layer associated with implementation of the Convair Lagoon Alternative would reduce the potential for soil erosion to occur on the site to a level below significance. Therefore, the Convair Lagoon Alternative would not result in substantial soil erosion or loss of topsoil from operational activities.

Threshold 5.10.6.4: Expansive Soils. Existing soils on the Convair Lagoon site have a moderate to high potential for expansion. As part of the Convair Lagoon Alternative, dredged and imported fill materials would be placed in the lagoon to raise the site grade. Based on the dredge source (contaminated sediment from the San Diego Bay), dredged materials that would be placed in the Convair Lagoon site as fill would likely be granular. Sand capping import materials would also likely be granular. Granular materials have low potential for expansion. Implementation of the Convair Lagoon Alternative would result in the existing soils on the site being buried under dredged fill, sand and asphalt, which have low potential for expansion. The addition of dredged fill and the sand cap would mitigate the moderate to high potential for existing soils to expand because soils would remain saturated and would be located at relatively deep depths. Therefore, implementation of the Convair Lagoon Alternative would result in less than significant impacts related to expansive soils.

Threshold 5.10.6.5: Wastewater. The Convair Lagoon Alternative would not construct any residential, commercial, industrial or institutional development that would require wastewater treatment. Upon completion of construction, the site would consist of an undeveloped, above-ground parcel of land with no structures or wastewater infrastructure. The Convair Lagoon Alternative would not create any wastewater treatment demand and would not involve the use of septic tanks or other alternative wastewater disposal systems. Therefore, no impact would occur.

Potentially Significant Impacts

Threshold 5.10.6.1: Exposure to Seismic-Related Hazards. The various types of geologic hazards that could occur from seismic-related events are described in detail below.

Fault Rupture. During earthquakes, the ground can rupture at or below the surface. Ground rupture occurs when two lithosphere plates heave past each other, sending waves of motion across the earth. The Spanish Bight Fault intersects the southwestern boundary of the Convair Lagoon alternative site. As a result, the western portion of the site is within both a California-designated Earthquake Fault Zone (formerly known as an Alquist-Priolo Special Studies Zone) and a San Diego-designated fault zone. Ground surface rupture due to active faulting is possible on the Convair Lagoon Alternative site due to the presence of the Spanish Bight Fault strand. Lurching or cracking of the ground surface as a result of nearby seismic events is also possible. Fault rupture could affect the structural integrity of the proposed containment barrier, storm drains and asphalt pavement. This is a significant impact.

Seismic Ground Shaking. Ground shaking is the most common effect of earthquakes that adversely affects people and constructed improvements. The CBC defines different regions of the U.S. and ranks them according to their seismic hazard potential. All of San Diego County is located within Seismic Design Categories E and F, which have the highest seismic potential.

The closest known major active fault to the Convair Lagoon Alternative site is the Rose Canyon Fault. Specifically, the Spanish Bight Fault, an element of the Rose Canyon Fault, intersects the southwestern boundary of the Convair Lagoon Alternative site. Due to the presence of this fault, the Convair Lagoon site has a high potential for strong ground motions due to earthquakes on nearby active faults. Table 5-30 provides a list of known active faults that may affect the Convair Lagoon site and the maximum moment magnitude that would occur at the site from a seismic event. The site has a high potential for strong ground motions due to earthquakes on adjacent and nearby active faults. Seismic ground shaking could affect the structural integrity of the proposed containment barrier, storm drains and asphalt pavement. This is a significant impact.

Liquefaction. Liquefaction occurs primarily in saturated, loose, fine to medium-grained soils in areas where the groundwater table is generally 50 feet or less below the surface. When these sediments are shaken during an earthquake, a sudden increase in pore water pressure can cause the soils to lose strength and behave as a liquid. Based on the relatively loose fill material and bay deposits underlying the Convair Lagoon site, the presence of shallow groundwater, and knowledge from previous evaluations of liquefaction near the Convair Lagoon Alternative site; soils underlying the site are subject to liquefaction or settlement during a nearby seismic event on a nearby fault. A liquefaction event could affect the

structural integrity of the proposed containment barrier, storm drains and asphalt pavement because of the potential for seismic ground shaking described above. This is a significant impact.

Landslides. Landslides can be caused by ground shaking from an earthquake or water from rainfall, septic systems, landscaping, or other origins that infiltrate slopes with unstable material. Boulder-strewn hillsides can pose a boulder-rolling hazard from ground shaking, blasting or a gradual loosening of their contact with the surface. No landslides or related features underlie or are adjacent to the Convair Lagoon site. Therefore, the potential for landslides to occur is considered low and landslide impacts are less than significant.

Threshold 5.10.6.3: Soil Stability. Soil stability risks that may result in geologic hazards are discussed individually below.

Landslides. According to the *Geology and Soils Evaluation for the Convair Lagoon Shipyard Sediment Alternative Analysis* (Ninyo and Moore, 2011), no landslides or related features underlie or are adjacent to the Convair Lagoon site and the potential for landslides to occur is low. Therefore, the Convair Lagoon Alternative would not be located on a geologic unit that would become unstable from landslides and impacts would be less than significant.

Lateral Spreading. Lateral spreading is a shallow, water-saturated landslide deformation often triggered from seismically induced liquefaction. Based on the proposed topography of the site upon completion, and the presence of potentially liquefiable layers in the underlying soil materials, the Convair Lagoon Alternative is considered to be potentially susceptible to seismically-induced lateral spread. Lateral spreading could affect the structural integrity of the proposed containment barrier, storm drains and asphalt pavement. This is a significant impact.

Hydro-Collapse. Groundwater on the Convair Lagoon Alternative site is approximately three feet above mean lower low water (MLLW), with fluctuations in groundwater occurring due to tidal variations, ground surface topography, subsurface geologic structure, rainfall, irrigation and other factors. Existing site soils within and overlying the zone of fluctuating groundwater within the Convair Lagoon Alternative site may be subject to hydro-collapse. Upon implementation of the Convair Lagoon Alternative, fill materials that would be placed within the zone of fluctuating groundwater may be subject to hydro-collapse. Hydro-collapse could affect the structural integrity of the proposed containment barrier, storm drains and asphalt pavement. This is a significant impact.

Compressible Soils. Compressible soils, like expansive soils, result from specific clay minerals or loose granular materials that have the capacity to shrink or compress in response to changes in moisture content or new loads. The existing fill and bay deposits underlying the site consist of silty sand, silt, and sandy clay are considered highly compressible. Compressible soils may lead to settlement of the site and could affect the structural integrity of the proposed containment barrier, storm drains and asphalt pavement. This is a significant impact.

Corrosive Soils. Caltrans corrosion (2003) criteria define corrosive soils as soils with more than 500 parts per million chlorides, more than 0.2 percent sulfates, or a pH less than 5.5. Due to the proximity of the marine environment to the Convair Lagoon site and the variability of the on-site soils, site soils are considered highly corrosive. The presence of corrosive soils and marine environment could affect the structural integrity of the proposed storm drain pipe. This is a significant impact.

Mitigation Measures

To mitigate the significant impacts related to fault rupture, ground shaking, liquefaction, lateral spreading, hydro-collapse, compressible soils and corrosive soils the following mitigation measure would be required, as recommended by Ninyo and Moore, soil engineering experts, in the *Geology and Soils Evaluation for the Convair Lagoon Shipyard Sediment Alternative Analysis* (Appendix L of this EIR):

Mitigation Measure 5.10.6.1: **Detailed Site-specific Geotechnical Investigation.** Prior to construction of the Convair Lagoon Alternative, a detailed site-specific geotechnical investigation will be conducted to determine specific geologic recommendations for the development of the containment barrier and storm drains. Areas of hydro-collapse, soft ground, expansive soils, compressible soils, liquefaction, shallow groundwater, and corrosive soils will be identified as part of the geotechnical investigation. The investigation will specifically address the proposed containment barrier, storm drains, and asphalt improvement stability in these identified geologic hazard areas. The geotechnical investigation will comply with the specifications provided in the Naval Facilities Engineering Command (NAVFAC), DM-7.2, Foundations and Earth Structures, dated September, as well as the City of San Diego Building Division plans and the City of San Diego Engineering Department local grading ordinances. Recommendations made in conjunction with the geotechnical investigations

will be implemented during construction, including (as appropriate) but not necessarily limited to the following actions:

1. Over-excavate unsuitable materials associated with the confinement structure and replace them with imported engineered fill.
2. Confine unstable soils to deeper fill areas of the site.
3. Perform densification of soils in the area beneath the proposed containment structure through geotechnical engineering methods such as stone columns, compaction grouting, or deep dynamic compaction.
4. Select an engineering foundation design to accommodate the expected effects of liquefaction. Examples of types of foundation design that might be appropriate given the soil conditions include gravel bedding for the storm drain pipes and a pipe bell with flexibility to accommodate differential settlement.
5. Consider potential corrosion issues related to storm drain pipe degradation in the design of this improvement where it would contact corrosive soils or be subject to other corrosive forces.
6. Establish and implement a long-term monitoring and repair program to monitor the integrity of the asphalt, containment barrier and storm drains. Key features of the program include determination of the periodic review, the type of review, identification of potential problems that may occur in the future, and the methods that would be used to rectify any problems discovered.

Cumulative Impacts

The geographic scope of the cumulative impact analysis for geology and soils varies depending on the type of geological resource that could be impacted. The geographic scope for each of the five geology and soil topic areas is described below as part of the cumulative impact discussion for each of the topics.

Threshold 5.10.6.1: Exposure to Seismic Related Hazards. The geographic context for the analysis of impacts resulting from seismic ground shaking is generally site specific, rather than cumulative in nature, because each development site has unique geologic considerations that would be subject to uniform site development and construction standards. In this way,

potential cumulative impacts resulting from seismic and soil conditions would be minimized on a site-by-site basis to the extent that modern construction methods and code requirements provide. The structural design for all of the cumulative projects identified in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon Alternative, would be required to comply with all applicable public health, safety, and building design codes and regulations to reduce seismic and geologic hazards to an acceptable level. Cumulative project compliance with applicable regulations, such as the CBC, AP Earthquake Fault Zoning Act and Special Publication 117, would ensure that a significant cumulative impact would not occur. In addition, the implementation of Mitigation Measure 5.10.6.1 above would reduce the direct impacts of the Convair Lagoon Alternative to less than significant. Therefore, the Convair Lagoon Alternative would result in a less than significant cumulative impact related to seismic related hazards.

Threshold 5.10.6.2: Erosion and Topsoil Loss. The geographic scope of cumulative impact analysis for erosion and topsoil loss is the Lindbergh Hydrologic Subarea within the San Diego Mesa Hydrologic Area within the Pueblo San Diego Hydrologic Unit, the watershed in which the Convair Lagoon Alternative site is located. Cumulative projects located in this watershed would involve construction activities that could result in increased wind and water erosion from exposed soils. Cumulative development could also increase impermeable surfaces, which could alter the natural drainage of a site and result in excess siltation. However, cumulative projects would be subject to state and local runoff and erosion prevention requirements, including the applicable provisions of the General Construction Permit, BMPs, NPDES, JURMP, USMP and grading ordinances. These requirements are implemented as conditions of approval for development projects and are subject to continuing enforcement. Therefore, the Convair Lagoon Alternative would result in a less than significant cumulative impact related to runoff and erosion.

Threshold 5.10.6.3: Soil Instability. The geographic scope of the cumulative impact analysis for soil instability is limited to the immediate area of the geologic constraint and is generally site specific. When considering the impacts in a larger geographic context, CEQA requires a proposed project to undergo an analysis of the geologic and soil conditions applicable to the development site in question. As required by CEQA, measures would be implemented to mitigate potential impacts associated with unstable soils prior to implementation of a cumulative project. Typical measures to treat unstable soils involve removal and replacement with properly compacted fill, compaction grouting, or deep dynamic compaction. Additionally, cumulative projects would be required to comply with the CBC, which restricts and sets standards for development in areas subject to soil and slope instability. Due to the implementation of mitigation measure 5.10.6.1, CEQA requirements and CBC restrictions, the Convair Lagoon Alternative would result in a less than significant cumulative impact related to soil instability, liquefaction and subsidence.

Threshold 5.10.6.3: Expansive Soils. The geographic context for the analysis of impacts related to expansive soils is limited to the immediate area of the geologic constraint and is generally site specific. When considering the impacts in a larger geographic context, CEQA requires a proposed project to undergo analysis of the soil conditions applicable to the development site in question. As required by CEQA, measures would be implemented to mitigate potential impacts associated with expansive soils prior to implementation of a cumulative project. Typical measures to mitigate expansive soils involve removal, proper fill selection, and compaction. Additionally, cumulative projects would be required to comply with the CBC, which restricts and sets standards for development in areas subject to expansive soils. Due to CEQA requirements and CBC restrictions, the Convair Lagoon Alternative would result in less than significant cumulative impact related to expansive soils.

Threshold 5.10.6.3: Waste Water Disposal Systems. The geographic context for the analysis of impacts related to wastewater disposal systems is limited to the immediate area of the geologic constraint and is generally site specific. The Convair Lagoon Alternative is located in a highly developed, urban area that is served by municipal wastewater service systems. It is highly unlikely that the construction of any cumulative project in this area would require septic tanks or alternative waste water disposal systems. In the event a cumulative project would require a septic tank or alternative waste water system, jurisdictions have permit requirements pertaining to the design of the system and soil permeability characteristics for the construction and operation of these systems with the purpose of protecting public health and safety. Compliance with these permit requirements would reduce any project impacts to a level below significance. Because the Convair Lagoon Alternative would not cause or contribute to any impact on wastewater disposal systems, the project will have no cumulative impact related to wastewater disposal systems.

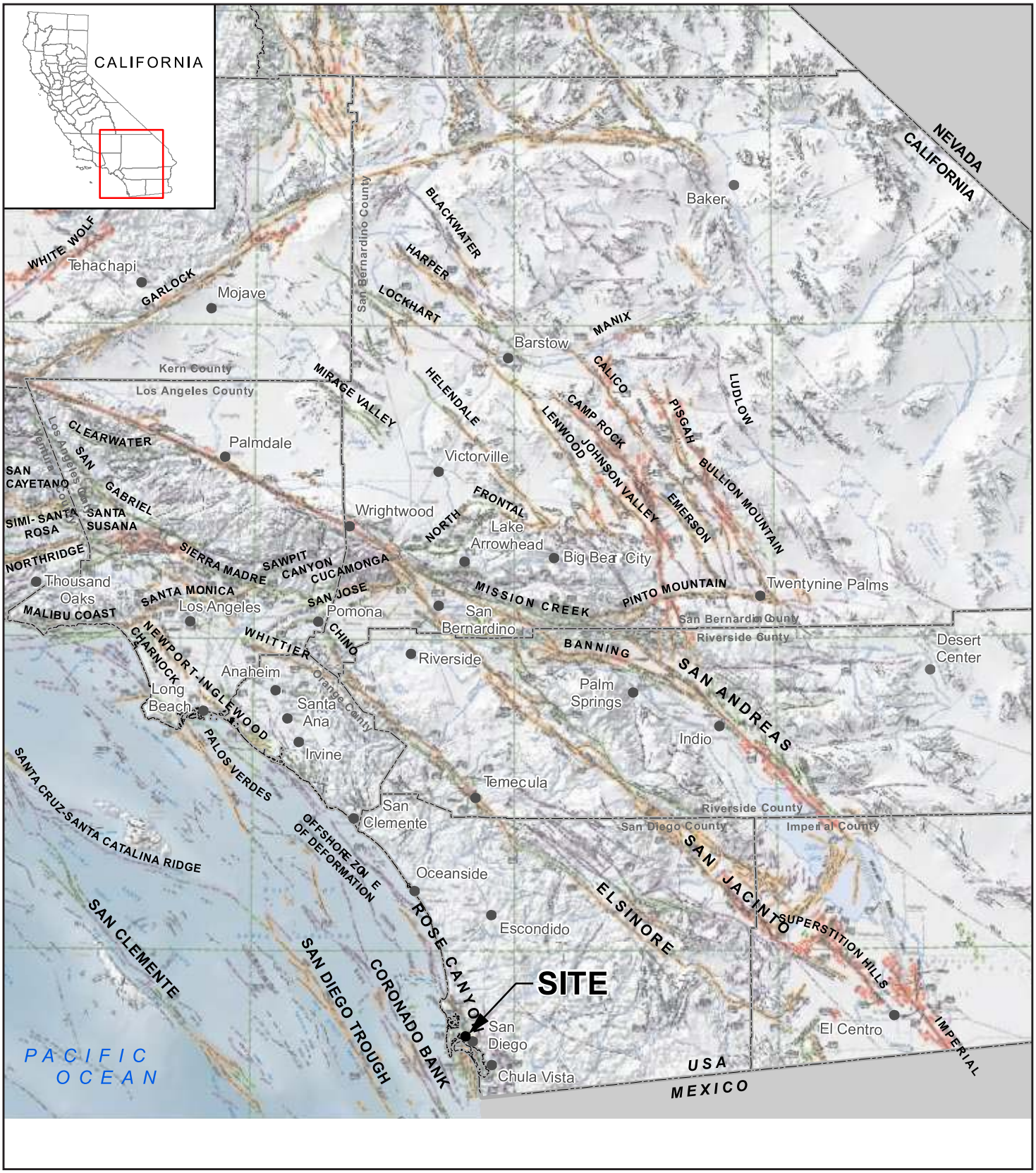
Level of Significance After Mitigation

With implementation of mitigation measure 5.10.6.1, all significant impacts would be reduced to a level below significance.

Significant and Unavoidable Adverse Impacts

No significant and unavoidable impacts would occur to geologic resources from implementation of the Convair Lagoon Alternative.

This page intentionally left blank



ATKINS

LEGEND

California Fault Activity

- Historically Active
- Holocene Active
- Late Quaternary (potential active)
- Quaternary (potential active)
- State / County Boundary

Notes: Directions, dimensions and locations are approximate.

0 15 30
MILES

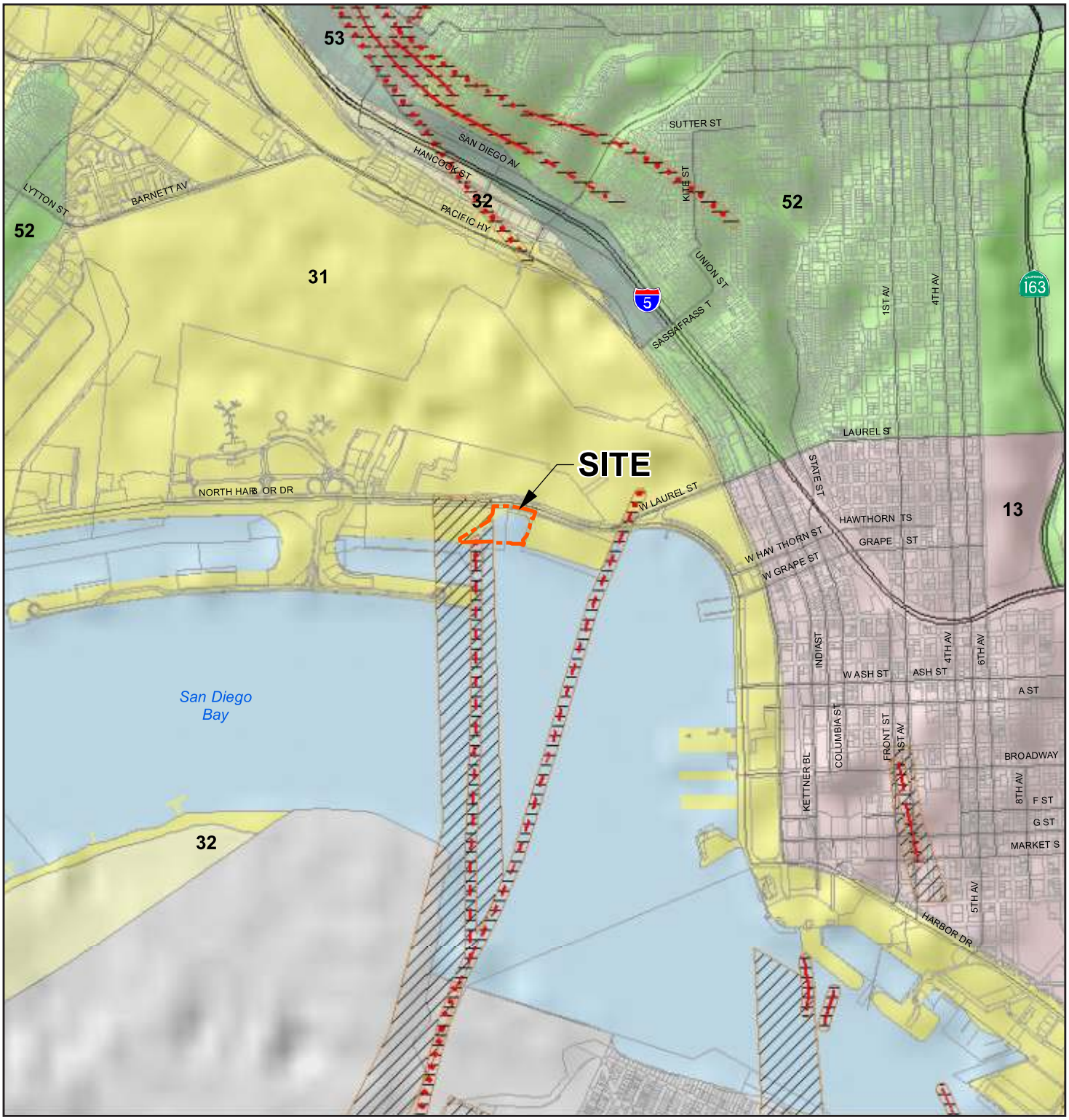
FIGURE 5-11

Convair Lagoon Alternative

Fault Locations

SOURCE: Fault Activity Map of California, 2010, Jennings, C.W. & Bryant, W.A. California Geological Survey

This page intentionally left blank



ATKINS

N

0 1,200 2,400
FEET

LEGEND

Fault

Inferred fault

Concealed fault

11 active, alquist priolo earthquake Fault zone

12 potentially active, inactive, presumed Inactive, or activity unknown

13 — 13 downtown special fault zone

31 — 31 high liquefaction potential - shallow groundwater Major drainages, hydraulic fills

32 — 32 low liquefaction potential - fluctuating Groundwater minor drainages

52 — 52 other level areas, gently sloping to steep terrain, Favorable geologic structure, low risk

53 — 53 level or sloping terrain, unfavorable geologic Structure, low to moderate risk

FIGURE 5-12

Notes: Directions, dimensions and locations are approximate.

Convair Lagoon Alternative

Geologic Hazards

SOURCE: City of San Diego Seismic Safety Study, Geological Hazards and Faults, SanGIS, 2008

This page intentionally left blank

5.10.7 Greenhouse Gas Emissions/Climate Change

This section evaluates the potential for impacts related to greenhouse gas (GHG) emissions associated with implementation of the Convair Lagoon Alternative (Alternative). The information provided in this section is based on information published by the California Air Pollution Control Officers Association (CAPCOA), California Air Resources Board (CARB), the U.S. Environmental Protection Agency (EPA), and other sources, as cited throughout the section.

5.10.7.1 Existing Environmental Setting

Global Climate Change Overview

Climate change refers to any substantial change in measures of climate (such as temperature, precipitation, or wind) lasting for decades or longer. According to the EPA, the Earth's climate has changed many times during the planet's history, with events ranging from ice ages to long periods of warmth. Historically, natural factors such as volcanic eruptions, changes in the Earth's orbit, and the amount of energy released from the sun have affected the Earth's climate. Some GHGs, such as water vapor, occur naturally and are emitted to the atmosphere through natural processes, while others are emitted through human activities. Beginning late in the 18th century, human activities associated with the Industrial Revolution have changed the composition of the atmosphere and therefore very likely are influencing the Earth's climate. Over the past 200 years, the burning of fossil fuels, such as coal and oil, and deforestation has caused the concentrations of heat-trapping GHGs to increase substantially in the atmosphere.

The accumulation of GHGs in the atmosphere regulates the earth's temperature. Without the natural heat-trapping effects of GHGs, the earth's temperature would be about 34 degrees Celsius (60 degrees Fahrenheit) cooler (California Climate Action Team [CCAT], 2007). However, it is believed that emissions from human activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations.

The Global Carbon Project (2008) released an update of the global carbon budget for the year 2007. The atmospheric carbon dioxide (CO_2) concentration in 2007 was 383 parts per million (ppm), 37 percent above the concentration at the start of the Industrial Revolution (about 280 ppm in 1750). The 2007 concentration was the highest known atmospheric CO_2 concentration during the last 650,000 years and probably during the last 20 million years. Results show that anthropogenic CO_2 emissions have been growing about four times faster since 2000 than the previous decade. The annual mean growth rate of atmospheric CO_2 was 2.2 ppm per year in 2007, up from 1.8 ppm in 2006.

Greenhouse Gases

GHGs are gases that trap heat in the atmosphere, analogous to the way a greenhouse retains heat. Common GHGs include water vapor, CO_2, methane, nitrogen oxide (N_2O), chlorofluorocarbons (CFCs), hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, ozone, and aerosols. Global atmospheric concentrations of CO_2, methane, and N_2O have increased markedly as a result of human activities since the year 1750 and now far exceed pre-industrial values determined from ice cores spanning many thousands of years.

Individual GHGs have varying potential to contribute to global warming and atmospheric lifetimes. Table 5-31 identifies the global warming potentials and atmospheric lifetimes of basic GHGs. The reference gas for global warming potential is CO_2. GHG emissions and global warming potentials are compared in relation to CO_2. The CO_2 equivalent (CO_2e) is a consistent methodology for comparing GHG emissions since it normalizes various GHG emissions to a consistent measure. CO_2 has a global warming potential of one; by comparison, the global warming potential of methane is 21. This means that methane has a greater global warming effect than CO_2 on a molecule per molecule basis. One million metric tons (MT) of CO_2e represents the emissions of an individual GHG multiplied by its global warming potential.

Table 5-31: Global Warming Potentials and Atmospheric Lifetimes of Basic GHGs

GHG	Formula	100-year global warming potential[(1)]	Atmospheric lifetime (yrs)
Carbon dioxide	CO_2	1	50-200
Methane	CH_4	21	12
Nitrous oxide	N_2O	310	114
Sulphur hexafluoride	SF_6	23,900	3,200

[(1)] The warming effects over a 100-year time frame relative to CO_2
Source: EPA, 2011

State law defines GHGs to include the following compounds: CO_2, methane, N_2O, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (Health and Safety Code [HSC], section 38505(g)). Descriptions of these compounds and their sources are provided below.

Carbon Dioxide (CO_2). CO_2 enters the atmosphere through the burning of fossil fuels (e.g., oil, natural gas, and coal), solid waste, and trees and wood products, and as a result of other chemical reactions, such as those required to manufacture cement. Globally, the largest source of CO_2 emissions is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, industrial facilities, and other sources. A number of specialized industrial production processes and product uses such as mineral production, metal production, and the use of petroleum-based products can also lead to CO_2 emissions. CO_2 is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of

the biological carbon cycle. Billions of tons of atmospheric CO_2 are naturally removed from the atmosphere by oceans and growing plants, and are emitted back into the atmosphere annually through natural processes, also known as 'sources.' When in balance, the total CO_2 emissions and removals from the entire carbon cycle are roughly equal. Since the Industrial Revolution in the 1700s, human activities, including burning of oil, coal and gas and deforestation, have increased CO_2 concentrations in the atmosphere. In 2005, global atmospheric concentrations of CO_2 were 35 percent higher than they were before the Industrial Revolution (EPA, 2010).

Methane (CH_4). Methane is emitted from a variety of both human-related and natural sources. Human-related activities include fossil fuel production, animal husbandry, rice cultivation, biomass burning, and waste management. Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills. It is estimated that 60 percent of global methane emissions are related to human-related activities. Natural sources of methane include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, and other sources, such as wildfires. Methane emission levels from a particular source can vary significantly from one country or region to another, depending on many factors such as climate, industrial and agricultural production characteristics, energy types and usage, and waste management practices. For example, temperature and moisture have a significant effect on the anaerobic digestion process, which is one of the key biological processes that cause methane emissions in both human-related and natural sources. Also, the implementation of technologies to capture and utilize methane from sources such as landfills, coal mines, and manure management systems affects the emission levels from these sources (EPA, 2010).

Nitrous Oxide (N_2O). Nitrous oxide, more commonly known as "laughing gas," is produced naturally by microbial processes in soil and water. In addition to agricultural sources, some industrial processes, such as fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions, also contribute to its atmospheric load. It is used in rocket engines, racecars, and as an aerosol spray propellant. Global concentration of nitrous oxide in 1998 was 314 parts per billion (ppb) (EPA, 2010).

Fluorinated Gases. Hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride are synthetic, powerful GHGs that are emitted from a variety of industrial processes, including aluminum production, semiconductor manufacturing, electric power transmission, magnesium production and processing, and the production of Chlorodifluoromethane (HCFC-22), commonly used in air conditioning applications. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances, such as CFCs, Hydrochlorofluorocarbons (HCFCs), and halons. These gases are typically emitted in smaller quantities, but have higher global warming potential than other GHGs (EPA, 2011).

Global, National, Statewide, Countywide and Alternative Site GHG Inventories

In an effort to evaluate and reduce the potential adverse impact of global climate change, international, state and local organizations have conducted GHG inventories to estimate their levels of GHG emissions and removals. The following summarizes the results of these GHG inventories for global, national, state, countywide GHG emissions. The Convair Lagoon currently consists of open water, a paved asphalt area, a concrete pier, a concrete seawall, and an abandoned concrete sea plane marine ramp. The Alternative site does not include any existing sources of GHG emissions.

Global. Worldwide anthropogenic emissions of GHG in 2006 were approximately 49,000 million MT CO_2e, including ongoing emissions from industrial and agricultural sources and emissions from land use changes (e.g., deforestation, biomass decay) (Intergovernmental Panel on Climate Change [IPCC], 2007). CO_2 emissions from fossil fuel use accounts for 56.6 percent of the total emissions of 49,000 million MT CO_2e (includes land use changes) and all CO_2 emissions are 76.7 percent of the total. Methane emissions account for 14.3 percent and nitrous oxides emissions account for 7.9 percent of GHGs (IPCC, 2007).

United States. The EPA publication, *Draft Inventory of U.S. GHG Emissions and Sinks: 1990–2009,* provides a comprehensive emissions inventory of the nation's primary anthropogenic sources and sinks of GHG. Overall, total U.S. emissions rose by 13 percent from 1990 to 2008, while the U.S. gross domestic product (GDP) increased by 65 percent over the same period. Emissions decreased from 2008 to 2009, decreasing by six percent to 6,640 million MT CO_2e. GDP also decreased by three percent from 2008 to 2009. The publication indicated that the following factors were primary contributors to this decrease: 1) a decrease in economic output resulting in a decrease in energy consumption across all sectors, and 2) a decrease in the carbon intensity of fuels used to generate electricity due to fuel switching as the price of coal increased and the price of natural gas decreased significantly (EPA, 2011).

California. The state of California is a substantial contributor of GHGs to the global inventory. It is the second largest contributor in the U.S. and the 16th largest in the world. According to the CARB (2010), California generated 478 million MT CO_2e in 2008. GHG emissions in California are mainly associated with fossil fuel consumption in the transportation sector (37 percent). Electricity production, from both in-state and out-of-state sources, is the second-largest source of GHG emissions (24 percent). Industrial sources, agriculture, forestry, recycling and waste, commercial, and residential activities comprise the balance of California's GHG emissions. Emissions of GHG were offset slightly in 2008 by the sequestration (intake) of carbon within forests, reducing the overall emissions by 4 million MT CO_2e, resulting in net emissions of about 474 million MT CO_2e.

San Diego County. In addition to the California GHG Inventory, a more specific county-wide GHG inventory was prepared by the University of San Diego School of Law Energy Policy Initiative Center (EPIC) in 2008. This San Diego County GHG Inventory (SDCGHGI) is a detailed inventory that considers the unique characteristics of the region in calculating emissions. In 2006, a total of 34.4 million MT CO_2e was generated in the county of San Diego. This total includes both the incorporated and unincorporated areas. The largest contributor of GHGs was from the on-road transportation category, which comprised 46 percent (16 million MT CO_2e) of the total amount. The second highest contributor was the electricity category, which contributed 9 million MT CO_2e, or 25 percent of the total. Together the on-road transportation and electricity category comprised 71 percent of the total GHG emissions for the San Diego region. The remaining amount was contributed by natural gas consumption, civil aviation, industrial processes, off-road transportation, waste, agriculture, rail, water-borne navigation, and other fuels.

Regional Adverse Effects of Climate Change

The San Diego Foundation's Regional Focus 2050 Working Paper and Technical Assessment explored what the San Diego region would be like in the year 2050 if current climate change trends continue. The paper projected potential adverse effects on the San Diego region related to climate, energy needs, public health, wildfires, water supply, sea level, and ecosystems. The climate model simulations exhibited warming across San Diego County, ranging from about 1.5 °F to 4.5 °F, particularly in inland areas. Temperature changes for areas along the coast would be moderated by the influence of the Pacific Ocean. The increase in peak demand for electricity for cooling could result in blackouts and power outages without adequate planning. With an aging population, extreme-heat conditions in the San Diego region are also a public health concern. Other health concerns include increased ozone air pollution levels due to an increase in sunny days, which can exacerbate asthma and other respiratory and cardiovascular diseases; increased fire-related injuries and death as intense wildfires occur more frequently; and coastal algal blooms, which can harbor toxic bacteria and other diseases. Drought years might occur as much as 50 percent more often and be considerably drier. Even with plans in place to conserve, recycle, and augment our available water, it is estimated San Diego County could face an 18 percent shortfall in water supply by 2050. Rising sea levels will have a major impact on the San Diego region's environment and economy, particularly in coastal areas. High tide flooding will threaten low-lying coastal communities and impact military, port and airport operations. High surf events and rising sea levels will cause even greater coastal erosion. Climate change will also add to the pressures on the variety of habitats and species in the county. The locations where environmental conditions are suitable for a particular species will shift with climate change. To survive, some animals and plants will have to relocate to find new habitat or potentially face extinction.

5.10.7.2 Regulatory Setting

Federal

Clean Air Act. The Clean Air Act (CAA) of 1970 and the CAA Amendments of 1971 required the EPA to establish National Ambient Air Quality Standards (NAAQS) with states retaining the option to adopt more stringent standards or to include other specific pollutants. On April 2, 2007, the Supreme Court found that CO_2 is an air pollutant covered by the CAA; however, no NAAQS have been established for CO_2.

Final Mandatory Reporting of GHG Rule. In September 2009, the EPA issued the Final Mandatory Reporting of GHG Rule. The rule requires reporting of GHG emissions from large sources and suppliers in the United States, and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 MT or more per year of GHG emissions are required to submit annual reports to EPA. The EPA estimates that the rule covers about 10,000 facilities nationwide, accounting for about 85 percent of GHG emissions in the United States.

State

Executive Order S-3-05. California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following GHG emission reduction targets:

1. By 2010, California shall reduce GHG emissions to 2000 levels;
2. By 2020, California shall reduce GHG emissions to 1990 levels; and
3. By 2050, California shall reduce GHG emissions to 80 percent below 1990 levels.

The first CCAT Report to the Governor in 2006 contained recommendations and strategies to help meet the targets in Executive Order S-3-05. The latest CCAT Biennial Report was released in April 2010. It expands on the policy oriented 2006 assessment (CCAT, 2010a). This report provides new information and scientific findings. The new information and details in the CCAT Assessment Report include development of new climate and sea-level projections using new information and tools that have become available in the last two years; and evaluation of climate change within the context of broader social changes, such as land-use changes and demographic shifts (CCAT, 2010b). The action items in the report focus on the preparation of the Climate Change Adaptation Strategy (CAS), required by Executive Order S-13-08.

Assembly Bill 32, the California Global Warming Solutions Act of 2006. In September 2006, the California State Legislature adopted Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 focuses on reducing GHG emissions in California. GHGs as defined under AB 32 include CO_2, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Under AB 32, the CARB has the primary

responsibility for reducing GHG emissions and managing the CCAT to coordinate statewide efforts and promote strategies that can be undertaken by many other California agencies. AB 32 requires the CARB to adopt rules and regulations that would achieve GHG emissions equivalent to state-wide levels in 1990 by 2020. In general, AB 32 directs the CARB to do the following:

1. Make publicly available a list of discrete early action GHG emission reduction measures that can be implemented prior to the adoption of the statewide GHG limit and the measures required to achieve compliance with the statewide limit;
2. Make publicly available a GHG inventory for the year 1990 and determine target levels for 2020;
3. On or before January 1, 2010, adopt regulations to implement the early action GHG emission reduction measures;
4. On or before January 1, 2011, adopt quantifiable, verifiable, and enforceable emission reduction measures by regulation that will achieve the statewide GHG emissions limit by 2020, to become operative on January 1, 2012, at the latest. The emission reduction measures may include direct emission reduction measures, alternative compliance mechanisms, and potential monetary and non-monetary incentives that reduce GHG emissions from any sources or categories of sources that the CARB finds necessary to achieve the statewide GHG emissions limit; and
5. Monitor compliance with and enforce any emission reduction measure adopted pursuant to AB 32.

Regarding the first two points above, the CARB has already made available a list of discrete early action GHG emission reduction measures. The CARB has also published a staff report titled *California 1990 GHG Emissions Level and 2020 Emissions Limit* (CARB, 2007a) that determined the statewide levels of GHG emissions in 1990. The CARB identified 427 million MT CO_2e as the total statewide aggregated GHG 1990 emissions level and 2020 emissions limit. Additionally, in December 2008, the CARB adopted the Climate Change Scoping Plan, which outlines the state's strategy to achieve the 2020 GHG limit (CARB 2008a). This Scoping Plan proposes a comprehensive set of actions designed to reduce overall GHG emissions in California, improve the environment, reduce dependence on oil, diversify energy sources, save energy, create new jobs, and enhance public health. The plan emphasizes a cap-and-trade program, but also includes the discrete early actions.

Senate Bill 97. Senate Bill (SB) 97, enacted in 2007, amends the CEQA statute to clearly establish that GHG emissions and the effects of GHG emissions are appropriate subjects for CEQA analysis. It directed the California Office of Planning and Research (OPR) to develop draft CEQA Guidelines for the mitigation of GHG emissions or the effects of GHG emissions. On December 30, 2009, the Natural Resources Agency adopted CEQA Guidelines amendments, which provide regulatory guidance with respect to the analysis and mitigation of the potential effects of GHG emissions. The amendments to the CEQA

Guidelines concerning the effects and mitigation of GHGs became effective on March 18, 2010.

Executive Order S-13-08. On November 14, 2008, Governor Schwarzenegger issued Executive Order S-13-08, the Climate Adaptation and Sea Level Rise Planning Directive, which provides direction for how the state should plan for future climate impacts. Executive Order S-13-08 calls for the implementation of four key actions to reduce the vulnerability of California to climate change:

1. Initiate California's first statewide CAS that will assess the state's expected climate change impacts, identify where California is most vulnerable and recommend climate adaptation policies;
2. Request that the National Academy of Sciences establish an expert panel to report on sea level rise impacts in California in order to inform state planning and development efforts;
3. Issue interim guidance to state agencies for how to plan for sea level rise in designated coastal and floodplain areas for new and existing projects; and
4. Initiate studies on critical infrastructure projects and land-use policies vulnerable to sea level rise.

The 2009 CAS report summarizes the best known science on climate change impacts in the state to assess vulnerability and outlines possible solutions that can be implemented within and across state agencies to promote resiliency. This is the first step in an ongoing, evolving process to reduce California's vulnerability to climate impacts (California Natural Resources Agency, 2009).

California Code of Regulations Title 24, Part 6. Although it was not originally intended to reduce GHG emissions, California Code of Regulations (CCR) Title 24, Part 6: *California's Energy Efficiency Standards for Residential and Nonresidential Buildings* was first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. Electricity production by fossil fuels results in GHG emissions and energy efficient buildings require less electricity. Therefore, increased energy efficiency results in decreased GHG emissions.

Senate Bill 375. SB 375, approved by the governor on September 30, 2008, requires metropolitan planning organizations (MPOs) to include sustainable communities strategies (SCS), as defined, in their regional transportation plans (RTPs) for the purpose of reducing GHG emissions, aligns planning for transportation and housing, and creates specified incentives for the implementation of the strategies. Specifically, this bill makes findings and declarations concerning the need to make significant changes in land use and transportation

policy in order to meet the GHG reduction goals established by AB 32. SB 375 also requires ARB to develop regional GHG emission reduction targets to be achieved from the automobile and light truck sectors for 2020 and 2035 by September 30, 2010. The 18 MPOs in California will prepare a SCS to reduce the amount of vehicle miles traveled in their respective regions and demonstrate the ability for the region to attain ARB's targets. Within eight years cities will be required to update housing plans required by the state.

The ARB Regional Targets Advisory Committee (RTAC), which was appointed in January 2009 to help address the requirements of SB 375, was tasked with recommending a method by which each major region of the state could reduce GHG emissions through more sustainable land use and transportation planning. After approximately 13 public meetings in Sacramento, the RTAC, in its September 29, 2009 report, recommended that regional targets be expressed as a percent per capita GHG emission reduction from a 2005 base year. This differs from the 1990 base year established in AB 32 due to a lack of reliable regional transportation and land use data from 1990 (according to the RTAC). The RTAC also recommended CARB use an interactive process with the regional MPOs, such as the San Diego Association of Governments (SANDAG), to set a single statewide uniform target that could be adjusted up or down to respond to regional differences. The targets may be expressed in gross MT, MT per capita, MT per household or in any other metric deemed appropriate by CARB, and were to be presented to the CARB Board by September 2010.

SANDAG is currently preparing its SCS as an element of the 2050 Regional Transportation Plan. A framework for the SCS has been developed and was presented to the public in October 2010.

Green Port Policy and Green Port Program

In 2008, the Board of Port Commissioners adopted the Green Port Policy (BPC Policy No. 736) to establish a policy for the Integration of overarching environmental sustainability principles and initiatives to guide business decisions, development and operations within the San Diego Unified Port District's (District) jurisdiction. The District developed a Green Port Program in order to support the goals of the Green Port Policy. The ultimate goal of the program is to achieve long-term environmental, societal and economic benefits through resource conservation, waste reduction and pollution prevention. The Green Port Program unifies the District's environmental sustainability goals in six key areas: energy, waste management, sustainable development, water, air, and sustainable business practices. As part of the program, the District sets measurable goals and evaluates progress in each area on an annual basis. The program continues the District's existing environmental efforts and expands these efforts through new programs and initiatives. The Green Port Policy and Green Port Program apply only to operations of the District and District buildings.

5.10.7.3 Methodology

The following section addresses potential impacts to global climate change which may result from GHG emissions that could result due to this project Alternative. Due to the nature of assessment of GHG emissions and the effects of climate change, impacts from individual projects are generally of insufficient magnitude by themselves to have a significant impact on global climate change or result in a substantial contribution to the global GHG inventory. Accordingly, discussion of this Alternative's GHG emissions and its impact on global climate are addressed in terms of the Alternative's contributions to a cumulative impact on the global climate.

Emissions of GHGs from construction are based on the construction assumptions detailed in Section 5.10.3, Air Quality. CO_2 emissions from the CDF construction activities are assessed using the Urban Emissions Model (URBEMIS 2007, version 9.2.4) distributed by the CARB, with the exception of emissions from the tug boats required for barge transport. Tug boat emissions factors were provided by the EPA in *Current Methodologies in Preparing Mobile Source Port-Related Emissions Inventories - Final Report* (EPA, 2009). The URBEMIS model does not calculate N_2O or methane emissions. The ratio of N_2O and methane emissions to CO_2 emissions in tug boat diesel exhaust (EPA, 2009) were used to estimate N_2O and methane emissions from the remaining construction equipment. The analysis assessed total GHG emissions from each individual phase of construction, including site preparation, jetty construction, sediment transportation and placement, and containment cap installation. A complete listing of the assumptions used in the model and model output is provided in the URBEMIS output worksheet and the Tug Boat GHG Emissions During Convair Lagoon Alternative Construction worksheet, which are included in Appendix N of this EIR. GHG emissions from construction activities at the Shipyard Sediment Site were quantified by LSA Associates, Inc. in the *Air Quality Analysis, Shipyard Sediment Project, California Regional Water Quality Control Board, San Diego Region* (2011), which is included as Appendix G to this EIR. The assumptions and calculated emissions for the construction phases associated with the Shipyard Sediment Site Project are incorporated into this analysis by reference.

GHG emissions from operation of the Alternative are discussed qualitatively due to the lack of operational sources of GHG emissions.

5.10.7.4 Thresholds of Significance

The 2010 amendments to the CEQA Guidelines amended Appendix G to provide the following questions for evaluating whether a project would have a significant impact on the environment as a result of GHG emissions. Section VII of Appendix G inquires whether a project would a) Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing GHG emissions.

Threshold 5.10.7.1: Direct and Indirect Generation of GHGs and Consistency with Applicable Plans Adopted for Reducing GHGs. Currently, neither the CEQA statutes, OPR guidelines, nor the CEQA Guidelines prescribe specific quantitative thresholds of significance or a particular methodology for performing an impact analysis of GHG emissions. Significance criteria are left to the judgment and discretion of the Lead Agency. The method used to determine the significance of the Proposed Project's GHG emissions is also utilized for this analysis of the Convair Lagoon Alternative. Refer to the *Air Quality Analysis, Shipyard Sediment Project, California Regional Water Quality Control Board, San Diego Region* (LSA, 2011) for detailed information regarding selection of this significance threshold, which is described below.

As discussed in the GHG impact analysis for the Proposed Project, the CARB has published draft preliminary guidance to agencies on how to establish interim significance thresholds for analyzing GHG emissions. The proposed draft Guidance states that some small residential and commercial projects, emitting 1,600 metric tons of CO_2e per year or less, would clearly not interfere with achieving the state's emission reduction objectives in AB 32 (and EO S-03-05). The Guidance does not state or imply that projects emitting more than 1,600 metric tons of CO2e per year will necessarily result in a significant impact. Additionally, the Guidance does not establish a quantifiable threshold for construction emissions.

The County of San Diego has published the County of San Diego Interim Approach to Addressing Climate Change in CEQA Documents (DPLU, 2010a), which states that a project would result in potentially significant GHG emissions impacts if it would result in a net increase of more than 900 MT CO_2e emissions annually over baseline conditions. GHG emissions that would be below the County's threshold would also be consistent with the CARB's guidance for screening potential GHG impacts described above. According to the County's guidelines, construction emissions should be amortized over the lifetime of a project and added to annual operational emissions. The project lifetime is assumed to be 30 years. Consistent with the thresholds of significance for the Proposed Project, the Convair Lagoon Alternative would result in a significant impact if it would contribute to a long-term ongoing increase in GHG emissions. For the purposes of this analysis, a long-term ongoing increase in GHG emissions is considered to be an annual amortized increase in GHG emission that exceeds 900 MT of CO_2e.

Threshold 5.10.7.2: Hazards Related to Climate Change. The CEQA Guidelines do not include a guideline for addressing the potential adverse effects of climate change on a proposed project. For the purposes of this analysis, the Alternative would result in a significant impact if it would result in increased exposure to one or more of the potential adverse effects of global warming identified by the San Diego Foundation's Regional Focus 2050 Working Paper and Technical Assessment.

5.10.7.5 Impacts and Mitigation Measures

Less Than Significant Impacts

Threshold 5.10.7.1: Direct and Indirect Generation of GHGs and Consistency with Applicable Plans Adopted for Reducing GHGs. An inventory of the GHG emissions (CO_2, methane, and nitrous oxides) that would be emitted by construction activities associated with the Alternative is presented below. The emissions of the individual gases were estimated and then converted to their CO_2e using the individually determined GWP of each gas. The analysis methodology used for the inventory assumes a "business as usual" scenario for the Alternative. That is, the analysis does not take into account any GHG emissions reducing features that may be implemented during construction. A discussion of operational emissions is also presented.

Construction Emissions. Construction of the CDF, sediment transport, as well as the construction activities associated with the dredging and related activities at the Shipyard Sediment Site would result in temporary emissions of GHGs from the operation of construction equipment, truck trips for the import and export of material, worker vehicle trips, and construction supply vendor vehicles. The equipment associated with this Alternative is discussed in detail Section 5.10.3, Air Quality, and includes heavy construction equipment for construction and dredging, and tugboats for barge towing. GHG emissions for construction from all equipment other than tugboats are based on the assumptions listed for the worst-case daily construction scenario described in Section 5.10.3, Air Quality. Tugboat emissions are based on the report *Current Methodologies in Preparing Mobile Source Port-Related Emissions Inventories - Final Report* (EPA, 2009). While the impact analysis for criteria pollutants is based on the maximum daily emissions from tugboat operation, the GHG inventory is based on the total hours of tugboat operation that would be required. As discussed in Section 5.10.1, Convair Lagoon Alternative Description, approximately 98 barge trips would be required for sediment transport and the one-way travel distance is approximately five miles. The speed limit in the bay in lagoon areas and anchorage areas is 5 miles per hour (mph). Outside of the 5 mph speed limit zones, the bay is not regulated by a speed limit and is to be navigated at a safe and prudent speed (District, 2011a). Therefore, to determine the worst-case scenario, it is assumed that tugboats would be travelling at 5 mph for a round trip travel time of two hours. Additionally, tugboats would be idling during barge loading at the Shipyard Sediment Site and unloading at the Convair Lagoon Alternative site. It is assumed that loading and unloading would take four hours each (Design Rate Simulations, 2011). A complete list of tugboat emissions assumptions is included in Appendix N. Total GHG emissions from the Convair Lagoon Alternative site construction activities are considered the worst-case annual GHG emissions for this Alternative's construction phases.

Under the Shipyard Sediment Site Project, construction activities from the Proposed Project would result in up to 7,750 MT CO_2e per year (LSA, 2011), based on the worst-case maximum GHG emissions. Construction of the Convair Lagoon Alternative involves activities associated with the Proposed Project (e.g., site preparation, dredging, dredge

materials transport to a landside location for drying and operation of the landside drying area for 15 percent of the dredge material) along with the Convair Lagoon Alternative construction activities, transport of dredge material to the Convair Lagoon Alternative site, placement of the dredge material and installation of the sand and asphalt cap. Construction activities at the Shipyard Sediment Site would contribute 2,612 MT CO_2e per year to Convair Lagoon Alternative GHG emissions. Construction activities at the Shipyard Sediment Site may take up to 18 months; therefore, a total of 3,918 MT CO_2e would potentially be generated by construction activities at the Shipyard Sediment Site. Construction of the Convair Lagoon CDF, including transport of dredged sediment, placement of dredged sediment, and cap construction would contribute approximately a total of 4,175 MT over the 15 month construction period, resulting in total construction emissions of 8,093 MT CO_2e (Table 5-32). To determine the contribution of construction emissions to long-term ongoing annual GHG emissions, GHG emissions from construction are amortized over the lifetime of the CDF, which is assumed to be 30 years. Construction associated with the Alternative would contribute approximately 270 MT CO_2e to the long-term ongoing annual emissions inventory. Therefore, long-term annual GHG emissions from construction under the Convair Lagoon Alternative would not exceed the thresholds established by the County of San Diego or CARB.

Table 5-32: Estimated Annual GHG Emissions from Alternative Construction

Emission Source	GHG Emissions (Metric Tons CO_2e)
Demolition of Existing Facilities	109
Excavation and Construction of Containment Barrier	788
Extension of Storm Drains	118
Sediment Transport and Placement	2,857
Construction of Sand Cap	303
Shipyard Sediment Site Construction	3,918
Total Construction Emissions	**8,093**
Amortized Construction Emissions	**270**

Source: URBEMIS 2007, EPA 2009
Note: Amortization is based on a 30 year lifetime.

Operational Emissions. Upon completion of construction, the site would consist of undeveloped land with an elevation approximately 10 feet above Mean Lower Low Water (MLLW). The Convair Lagoon Alternative does not include the construction or development of any buildings or structures and no permanent dewatering would be required. Therefore, no stationary sources are included in this Alternative that would generate GHG emissions. Occasional vehicle trips may be required for monitoring, maintenance, and, repair of the cap. However, due to the limited occurrence of these trips, annual emissions from these vehicle trips would be negligible. The operation of this Alternative would not contribute to an ongoing increase in GHG emissions and this impact would be less than significant.

Similar to the Proposed Project, the Convair Lagoon Alternative would result in short-term emissions associated with the use of construction equipment, but would not contribute long-term operational emissions because there are no on-site stationary sources or operational vehicular trips. Therefore, the amortized construction emissions in Table 5-32 represent the total long-term annual GHG contribution of the Convair Lagoon Alternative. Annual GHG emissions would be approximately 270 MT CO_2e and would not exceed the screening level thresholds established by the County of San Diego or CARB. Similar to the Proposed Project, this impact is less than significant.

Threshold 5.10.7.2: Hazards Related to Climate Change. The San Diego Foundation's Regional Focus 2050 Working Paper and Technical Assessment projected potential adverse effects on the San Diego region related to climate, energy need, public health, wildfires, water supply, sea level, and ecosystems. The following analysis discusses potential hazards related to climate change that the Convair Lagoon and surrounding area may be subject to in the future.

Warming across San Diego County is projected to increase 1.5 °F to 4.5 °F between the years 2000 and 2050. Warmer temperatures would increase the peak demand for electricity and could result in blackouts and power outages. However, the proposed Alternative does not include any structures that would be used for human occupation. Additionally, the CDF does not include any features that would require electricity. Therefore, the proposed Alternative would not result in an increased exposure of people to higher temperatures or result in an increased number of blackouts as result of increased peak energy demand.

Regarding public health, increases in ozone air pollution levels as a result of climate change could exacerbate asthma and other respiratory and cardiovascular diseases. However, as discussed in Section 5.10.3, Air Quality, the proposed Alternative would not result in operational sources of ozone precursors. Therefore, the proposed Alternative would not significantly increase exposure of people to health risks from ozone. Fire-related injuries and death are likely to increase as intense wildfires occur more frequently, however, exposure to fire risk from this Alternative would not increase because it does not propose any structures for occupancy and is not located adjacent to wildland. Additionally, cases of mosquito-related diseases could increase, and algal blooms with toxic bacteria could occur more frequently along the coast. However, this Alternative does not include any structures for occupancy or any other facilities, such as recreational areas, for public use. Therefore, the proposed Alternative would not result in an increased exposure to public health concerns.

It is estimated that San Diego County could face an 18 percent shortfall in water supply by 2050. However, the proposed Alternative would not result in an increase in demand for potable water, therefore it would not impact water supply.

Rising sea levels have the potential to result in high tide flooding, cause even greater coastal erosion and scouring, and put pipelines at risk for saltwater intrusion. The mean sea level rise values range from approximately 12 to 18 inches by the year 2050. Following

construction, the height of the CDF would be approximately 10 feet MLLW, that is, 10 feet above the average lowest daily water height. As discussed in Section 5.10.4, Biological Resources, land that is above 7.8 feet MLLW is generally above the area that is inundated by tidal action. The CDF would be four feet above this height. Therefore, even the highest predicted level of sea level rise, 18 inches, would not overtop the CDF. The containment barrier is designed to be submerged in order to separate the sediment from the bay. A change in sea level would not affect the function of the containment barrier because of its design and the approximately 2.7 feet difference between the highest predicted level of sea level rise and the top of the containment barrier. In addition, the CDF does not contain any structures; therefore, no flooding impacts to occupied structures would occur. This Alternative also includes extending two existing storm drains which currently experience saltwater intrusion and therefore this would continue with the increase in sea level elevation. Therefore, the proposed project would not result in an increased exposure to risks from rising sea levels.

Climate change will also add to the pressures on the variety of habitats and species in the county by making suitable habitat less available. As discussed in Section 5.10.4, Biological Resources, the proposed Alternative would mitigate all of its potentially significant impacts to biological resources to a less than significant level. Implementation of mitigation measures 5.10.4.3 and 5.10.4.4 would replace habitat disturbed by this Alternative. Habitat would be provided at a 1:1 or higher ratio depending on the habitat. Therefore, for most habitats additional habitat would be provided compared to existing conditions. As a result, the proposed Alternative would not result in the increased exposure of biological resources impacted by this alternative to risks from climate change.

Mitigation Measures

No significant impacts related to GHG emissions or climate change hazards would occur from implementation of the Convair Lagoon Alternative. Therefore, no mitigation measures are required.

Cumulative Impacts

As discussed above, the County of San Diego has determined that a project would result in potentially significant GHG impacts if it would result in a net increase of more than 900 MT CO_2e emissions annually over baseline conditions. The County determined this screening level based on the potential for individual projects to contribute to regional cumulative GHG emissions. Therefore, a project that would generate fewer than 900 MT of CO_2e would not result in a direct or cumulative impact related to GHG emissions. As discussed in Section 5.10.7.5.1, the Convair Lagoon Alternative would result in annual GHG emissions of approximately 270 MT CO_2e. The proposed Alternative would therefore not result in a cumulatively considerable contribution to cumulative GHG emissions.

Level of Significance After Mitigation

No significant impacts related to GHG emissions or climate change hazards would occur from implementation of the Convair Lagoon Alternative. Without mitigation, all impacts are less than significant.

Significant Unavoidable Adverse Impacts

No significant and unavoidable impacts related to GHGs would occur from implementation of the Convair Lagoon Alternative.

5.10.8 Hazards and Hazardous Materials

This section describes the existing setting regarding hazards and hazardous materials and potential effects on the alternative site and surrounding areas that would occur from implementation of the Convair Lagoon Alternative. Hazards include topics such as airport operations, emergency response and evacuation plans, while hazardous materials pertain to hazardous chemicals or substances. Hazardous materials information in this section is based on the *Hazards and Hazardous Materials Technical Report (HHMTR) for the Shipyard Sediment Site Alternative Analysis Convair Lagoon,* prepared by Ninyo and Moore in May, 2011. The HHMTR report is included as Appendix M in this EIR.

5.10.8.1 Existing Environmental Setting

Existing Hazardous Materials Contamination

Hazardous materials typically require special handling, reuse, and disposal because of their potential to harm human health and the environment. The California Health and Safety Code (H&SC) defines a hazardous material as:

> "Any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. "Hazardous materials" include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment." (H&SC, section 25501)

As part of the HHMTR, a search of the Department of Toxic Substance Control (DTSC) Envirostor Database, the State Water Resources Control Board (State Water Board) GeoTracker Database and the Cortese List was performed to identify on site or adjacent properties that have been previously documented as having experienced significant unauthorized releases of hazardous substances.

The DTSC Envirostor Database list includes the following site types: Federal Superfund Sites; State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. The GeoTracker database is a geographic information system that provides online access to hazardous material contamination data related to underground fuel tanks, fuel pipelines and public drinking water supplies. Cortese List data resources include the above mentioned databases, in addition to a list of solid waste disposal sites identified by State Water Board with waste constituents above hazardous waste levels outside the waste management unit; a list of "active" Cease and Desist Orders (CDO) and Cleanup and Abatement Orders (CAO) from State Water Board; and a list of hazardous waste facilities subject to corrective action pursuant to section 25187.5 of the H&SC, identified by DTSC.

In total, five sites, including the Convair Lagoon and four adjacent properties, were identified in the records search as having existing or past hazardous materials contamination. These sites are described below.

Convair Lagoon. Convair Lagoon, which is coincident with the Convair Lagoon Alternative site, is subject to California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) Waste Discharge Requirement (WDR) Order No. 98-21 and has two active CAOs: CAO 86-92 and CAO R9-2004-0258. A brief summary of these documents is provided below.

5. **CAO 86-92 and Amendments:** CAO 86-92 was issued on October 17, 1986, to Teledyne Ryan Aeronautical (TDY) for the discharge of Polychlorinated biphenyl (PCBs), metals, and volatile organic compounds (VOCs) into the storm water conveyance system that discharged into Convair Lagoon. Sediments in the lagoon from this discharge were found to contain PCBs at concentrations ranging from 1 to 1,800 milligrams per kilogram (mg/kg) as dry weight from the surface to depths of 10 feet. These concentrations were considered by the San Diego Water Board to require clean- up and abatement to be protective of the waters of the state. Between 1986 and 1998, PCB wastes were removed from the storm water conveyance system at the TDY facility and a sand cap was constructed to isolate the contaminated sediments from the environment (identified in the CAO as sediments with PCBs at concentrations at or exceeding 4.6 mg/kg as dry weight). The approximately 7-acre sand cap covered areas within the Convair Lagoon site where sediments contained PCBs at concentrations exceeding 4.6 mg/kg as dry weight. As part of the capping project, approximately 1,400 square feet of intertidal land was converted to upland.
6. **San Diego Water Board WDR 98-21:** Following the construction of the sand cap under CAO 86-92, the San Diego Water Board issued WDR 98-21, Closure and Post-Closure maintenance of the Convair Lagoon Sand Cap, which regulates the sand cap and associated monitoring, maintenance, and, repairs. The WDR states that the action level to trigger repair and or investigation of the cap or cleaning of the storm water conveyance system is 4.6 mg/kg dry weight in the sediments. WDR 98-21 also provides a list of water quality objectives that apply to the water within Convair

Lagoon. Some of objectives provided are for dissolved oxygen, pH, oil and grease, suspended sediment load/discharge rate, turbidity, and toxicity.

7. **CAO R9-2004-0258 and Amendments:** CAO R9-2004-0258 states that PCBs, VOCs, and heavy metals from the former manufacturing activities at the TDY facility have, "caused and threatens to cause conditions of pollution, contamination, and nuisance by exceeding applicable water quality objectives for toxic pollutants to San Diego Bay." The order also states that PCB concentrations have continued to be found in the storm water conveyance system at the TDY facility even after clean out and replacement of portions of the system. In addition, PCBs discharged from the storm water conveyance system are being deposited on the surface of the sand cap at Convair Lagoon. PCBs have been detected on the surface of the sand cap at concentrations ranging from 1.77 to 20.44 mg/kg, which exceeds the clean-up level of 4.6 mg/kg dry weight established in CAO 86-92. Releases of waste to soil and groundwater are also noted from the former land-side aerospace operations, which include impacts from chlorinated solvents and hexavalent chromium. The CAO states that these discharges may reach San Diego Bay through the migration of groundwater into the storm water conveyance system or directly into the bay.

    a. CAO R9-2004-0258 required a site investigation and characterization report be prepared. This report was completed by Geosyntec on December 19, 2005 and included an evaluation of soil, groundwater, and sediment impacts. A remedial investigation/ feasibility study (RI/FS) was also required and was submitted in March 2007. The RI/FS selected in-situ bioremediation to address chlorinated solvents in groundwater, in-situ reduction to address hexavalent chromium in groundwater, and excavation and off-site disposal of impacted soil and concrete. Details of the proposed remedial actions are described in a Remedial Action Plan.

    b. In accordance with CAO R9-2004-0258, groundwater monitoring is currently performed on a semi-annual basis at the TDY facility and at the Convair Lagoon site. Eight monitoring wells (MWCL-1 through MWCL-8R) have been installed on the landside portion of the Convair Lagoon site and are used to monitor potential impacts to San Diego Bay. The most recent groundwater monitoring report is from July 2010, which states that low levels of VOCs and trace levels of PCBs were detected in the northwestern portion of the site. However, the monitoring report indicated these levels may have been a result of cross-contamination in the laboratory.

    c. CAO R9-2004-0258 states that there are three areas of concern with regard to the transport of wastes from the TDY facility to Convair Lagoon: 1) Convair Lagoon shoreline groundwater, 2) sediment in the storm water conveyance system that empties into Convair Lagoon/San Diego Bay, and 3) VOC-impacted groundwater seeping into the 54-inch and 60-inch storm drains. Although this CAO states that sediment transport to the lagoon is a concern, the storm drain inlets and laterals on the TDY facility were capped with concrete; therefore, no additional input of sediment to the storm water

conveyance system from the TDY facility is known to be occurring. However, there is the potential for PCB impacted sediments to be transported to Convair Lagoon from sites up gradient of the TDY facility, which continue to discharge into the storm water conveyance system. Specific sites up gradient of TDY have not been identified as sources of PCBs in the storm water conveyance system. There is a potential risk to human health associated with the incidental ingestion of or contact with the sediments in the lagoon. The CAO requires that soil and groundwater contamination at the TDY facility be remediated to the identified clean up levels, visible sediment should be removed from within the 60-inch storm drain and associated energy dissipater, and a remedial action plan be submitted to detail how the cleanup levels will be achieved. The San Diego Water Board is responsible for ensuring that the remediation is performed in accordance with the requirements of this CAO.

d. As required by the San Diego Water Board in CAO R9-2004-0258, issued for the TDY facility, numerous investigations have been performed to evaluate impacted soil and groundwater, potential remedial alternatives, and potential sources of PCBs in the storm water conveyance system. The potential sources of PCBs in the storm water conveyance system have been identified as on-site and off-site soil, groundwater, sediment, building materials, and rainfall.

e. A Remedial Investigation Feasibility Study (RI/FS) was prepared by the San Diego Water Board, which states that the recommended remedial action for addressing PCB impacted sediments in the 60-inch storm water conveyance system is to clean out sediments and remove the storm water conveyance system laterals on the site after the existing TDY site buildings (a potential source of PCBs) have been removed. The RI/FS also states that the recommended remedial action for PCB impacts to groundwater at the TDY site is to continue groundwater monitoring under the supervision of the San Diego Water Board to confirm that PCB impacted groundwater is not migrating into Convair Lagoon at levels that exceed existing regulatory limits. The San Diego Water Board will be responsible for ensuring the remediation of the TDY facility is performed in accordance with the requirements of the applicable CAOs.

U.O.P. Inc., Fluid Systems Division. The U.O.P. Inc facility is located at 2980 North Harbor Drive, directly north of the Convair Lagoon Alternative site. This facility is listed on the Envirostor database as a Corrective Action. A Corrective Action property is defined as a property that treated, stored, disposed, or transferred hazardous waste at which investigation or cleanup activities occurred that were either permitted or eligible for a permit. The status of the facility is listed as inactive, needs evaluation.

General Dynamics Convair. The General Dynamics Convair Site is located at 2980 North Harbor Drive, directly north of the Convair Lagoon Alternative site. This facility is listed on the GeoTracker database as having a closed leaking underground storage tank case. The case was reported as having impacted soil only with aviation fuel and was closed in 1996.

U.S. Coast Guard Facility. The U.S. Coast Guard Facility is located at 2710 North Harbor Drive, directly east of the Convair Lagoon Alternative site. The Coast Guard Facility was listed on the Envirostor database as a Military Evaluation facility and on the GeoTracker database as a Cleanup Program Site and as having a closed Leaking Underground Storage Tank (LUST) case. The Envirostor listing indicates that the facility is listed as a Formerly Used Defense Site (FUDS) that is inactive and needs evaluation. However, the facility is currently operating as a military facility and is not listed on the U.S. Army Corps of Engineers (USACE) FUDS database as a site where the USACE has performed or is planning to perform work. Therefore, it is possible that this listing is an error. A phone call was placed to the USACE to clarify this listing, but was not returned as of the date of this report. The GeoTracker Cleanup Program site listing indicates that the case was closed as of 1987; however, no additional information was provided. The GeoTracker LUST case listing indicates that the case was a release of aviation fuel to groundwater that was closed in 2001; however, no additional information was provided.

Teledyne Ryan Aeronautical. The TDY facility is located at 2710 North Harbor Drive, directly north of the Convair Lagoon Alternative site. This facility is listed on the GeoTracker database as a Cleanup Program Site and has four closed LUST cases. Three LUST cases are listed as having impacted soil only with diesel (2 cases) or gasoline (1 case). The cases are listed as closed in 1992, 1994, and 2000. One case is listed has having impacted groundwater with a release of diesel fuel; however, the case was closed in 2004 and no further action was required. The Cleanup Program Site listing indicates that the TDY facility is currently undergoing remediation. This listing includes all work performed under San Diego Water Board WDR 98-21, CAO 86-92 and CAO R9-2004-0258, as discussed above under Convair Lagoon. The wastes discharged at the former facility include PCBs, VOCs, semi-volatile organic compounds (SVOCs), Polycyclic aromatic hydrocarbons (PAHs), metals, and total petroleum hydrocarbons.

Hazardous Waste Transportation

In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by the DTSC. The DTSC maintains a list of active registered hazardous waste transporters throughout the state. The process of transporting hazardous waste often involves transfer facilities. A transfer facility is any facility that is not an on-site facility that is related to the transportation of waste. These facilities include but are not limited to, loading docks, parking areas, storage areas, and other similar areas. Although not all transfer facilities hold hazardous waste, any

operator of a facility that accepts hazardous waste for storage, repackaging or bulking must obtain formal authorization for those activities through the hazardous waste permit process. Hazardous waste transporters are exempt from storage facility permit requirements so long as they observe the limits on storage time and handling.

Hazardous Materials Disposal

Through the Resource Conservation and Recovery Act (RCRA), Congress directed the EPA to create regulations that manage hazardous waste from "the cradle to the grave." Under this mandate, the EPA has developed strict requirements for all aspects of hazardous waste management including the recycling, treatment, storage, and disposal of hazardous waste. Facilities that provide recycling, treatment, storage, and disposal of hazardous waste are referred to as Treatment, Storage and Disposal Facilities (TSDF). Regulations pertaining to TSDFs are designed to prevent the release of hazardous materials into the environment and are more stringent than those that apply to generators or transporters.

Hazardous Materials Release Threats

When unexpectedly released into the environment, hazardous materials may create a significant hazard to the public or environment. Hazardous materials are commonly stored and used by a variety of businesses and could be released into the environment through improper handling or accident conditions. However, businesses that store and use hazardous materials are required to create Hazardous Materials Business Plans (HMBP) and Risk Management Plans. HMBPs establish a plan to minimize hazards to human health and the environment from fires, explosions, or an unplanned release of hazardous substances into air, soil, or surface water. Risk Management Plans include a hazard assessment program, an accidental release prevention program, and an emergency response plan.

County of San Diego Site Assessment and Mitigation (SAM) Program. The San Diego County SAM Program, within the Land and Water Quality Division of the Department of Environmental Health (DEH), has a primary purpose to protect human health, water resources, and the environment within San Diego County by providing oversight of assessments and cleanups in accordance with the California H&SC and the California Code of Regulations (CCR). The SAM's Voluntary Assistance Program also provides staff consultation, project oversight, and technical or environmental report evaluation and concurrence (when appropriate) on projects pertaining to properties contaminated with hazardous substances. The DEH SAM Program maintains the SAM list of contaminated sites that have previously or are currently undergoing environmental investigations and/or remedial actions.

The SAM Program covers all of San Diego County and includes remediation sites of all sizes. The SAM case listing is revised and updated regularly and the number of sites on the list is continually changing, but may contain upwards of 5,000 cases at one time. There is

some overlap with the information in other regulatory databases; however, the list also contains sites that often are not covered by some of the larger regulatory databases.

Airport Hazards

The areas of concern when addressing airport hazards are over-flight safety, airspace protection, flight patterns and land use compatibility. Dealing with these concerns contributes to the overall safety of passengers, pilots and crews on flights, in addition to the safety of people on the ground. Hazards associated with airports can have serious human safety and quality of life impacts.

Public Airport Hazard Prevention. Airport Land Use Compatibility Plans (ALUCPs) are plans that guide property owners and local jurisdictions in determining what types of proposed new land uses are appropriate around airports. They are intended to protect the safety of people, property and aircraft on the ground and in the air in the vicinity of the airport. They also protect airports from encroachment by new incompatible land uses that could restrict their operations. ALUCPs are based on a defined area around an airport known as the Airport Influence Area. Airport Influence Areas are established by factors including airport size, operations, configuration, as well as the safety, airspace protection, noise, and overflight impacts on the land surrounding an airport. ALUCPs do not affect existing land uses.

Military Airport Hazard Prevention. Guidelines set forth by the Department of Defense (DOD) as part of its Air Installation Compatible Use Zone (AICUZ) Program address land use compatibility and safety policies for military airport runways. The AICUZ was initiated in the 1970s to recommend land uses that may be compatible with noise levels, accident potential and flight clearance requirements associated with military airfield operations. DOD prepared individual AICUZ plans for all major military airports. The objective of this program is to encourage compatible uses of public and private lands in the vicinity of military airfields through the local communities' comprehensive planning process. The Accident Potential Zone (APZ) is unique to military airfields, and is generally applied to all U.S. Navy and Marine Corps airfields within the United States designation of APZs is a component of the AICUZ. These zones describe the probable impact area if an accident were to occur, based on historical accident data.

5.10.8.2 Regulatory Setting

Federal

Resource Conservation and Recovery Act of 1976, as amended by the Hazardous and Solid Waste Amendments of 1984. Federal hazardous waste laws are generally promulgated under the RCRA. These laws provide for the "cradle to grave" regulation of hazardous wastes. Any business, institution, or other entity that generates hazardous waste is

required to identify and track its hazardous waste from the point of generation until it is recycled, reused, or disposed. DTSC is responsible for implementing the RCRA program as well as California's own hazardous waste laws, which are collectively known as the Hazardous Waste Control Law.

Comprehensive Environmental Response, Compensation, and Liability Act and the Superfund Amendments and Reauthorization Act of 1986. Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, on December 11, 1980. CERCLA established prohibitions and requirements concerning closed and abandoned hazardous waste sites; provided for liability of persons responsible for releases of hazardous waste at these sites; and established a trust fund to provide for cleanup when no responsible party could be identified. The Superfund Amendments and Reauthorization Act (SARA) amended the CERCLA on October 17, 1986. SARA stressed the importance of permanent remedies and innovative treatment technologies in cleaning up hazardous waste sites; required Superfund actions to consider the standards and requirements found in other state and federal environmental laws and regulations; provided new enforcement authorities and settlement tools; increased state involvement in every phase of the Superfund program; increased the focus on human health problems posed by hazardous waste sites; encouraged greater citizen participation in making decisions on how sites should be cleaned up; and increased the size of the trust fund to $8.5 billion.

Chemical Accident Prevention Provisions. When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. These rules, which built upon existing industry codes and standards, require companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program.

Emergency Planning Community Right-to-Know Act. The Emergency Planning Community Right-to-Know Act (EPCRA), also known as SARA Title III, was enacted in October 1986. This law requires any infrastructure at the state and local levels to plan for chemical emergencies. Reported information is then made publicly available so that interested parties may become informed about potentially dangerous chemicals in their community. EPCRA sections 301 through 312 are administered by EPA's Office of Emergency Management. EPA's Office of Information Analysis and Access implements the EPCRA section 313 program. In California, SARA Title III is implemented through the California Accidental Release Prevention Program (CalARP).

Hazardous Materials Transportation Act. The U.S. Department of Transportation regulates hazardous materials transportation under Title 49 of the Code of Federal Regulation (CFR). State agencies with primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies are the California

Highway Patrol and the California Department of Transportation. These agencies also govern permitting for hazardous materials transportation. Title 49 CFR reflects laws passed by Congress as of January 2, 2006.

EPA Region 9, Preliminary Remediation Goals. Region 9 is the Pacific Southwest Division of the EPA, which includes Arizona, California, Hawaii, Nevada, Pacific Islands, and over 140 Tribal Nations. Preliminary Remediation Goals (PRGs) are tools for evaluating and cleaning up contaminated sites. PRGs for the Superfund/RCRA programs are risk-based concentrations, derived from standardized equations combining exposure information assumptions with EPA toxicity data. They are considered to be protective for humans, including sensitive groups, over a lifetime. However, PRGs are not always applicable to a particular site and do not address non-human health issues such as ecological impacts. Region 9's PRGs are viewed as agency guidelines, not legally enforceable standards.

International Fire Code. The International Fire Code (IFC), created by the International Code Council, is the primary means for authorizing and enforcing procedures and mechanisms to ensure the safe handling and storage of any substance that may pose a threat to public health and safety. The IFC regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. The IFC and the International Building Code (IBC) use a hazard classification system to determine what protective measures are required to protect fire and life safety. These measures may include construction standards, separations from property lines, and specialized equipment. To ensure that these safety measures are met, the IFC employs a permit system based on hazard classification. The IFC is updated every three years.

Federal Aviation Administration Functions. The Federal Aviation Administration (FAA) has primary responsibility for the safety of civil aviation. The FAA's major functions regarding hazards include the following: 1) developing and operating a common system of air traffic control and navigation for both civil and military aircraft, 2) developing and implementing programs to control aircraft noise and other environmental effects of civil aviation, 3) regulating United States commercial airspace transportation, and 4) conducting reviews to determine that the safety of persons and property on the ground are protected.

U.S. Department of Defense Air Installations Compatible Use Zone Program. Safety compatibility criteria for military air bases are set forth through the AICUZ Program administered by the DOD. This program applies to military air installations located within the United States, its territories, trusts, and possessions. The AICUZ Program has the following four purposes: 1) to set forth DOD policy on achieving compatible use of public and private lands in the vicinity of military airfields, 2) to define height and land use compatibility restrictions, 3) to define procedures by which AICUZ may be defined, and 4) to

provide policy on the extent of Government interest in real property within these zones that may be retained or acquired to protect the operational capability of active military airfields.

State

Government Code Section 65962.5 (a), Cortese List. The Hazardous Waste and Substance Sites Cortese List is a planning document used by the state, local agencies and developers to comply with CEQA requirements in providing information about the location of hazardous materials release sites. Government Code section 65962.5 requires the California EPA to develop at least annually an updated Cortese List. DTSC is responsible for a portion of the information contained in the Cortese List. Other state and local government agencies are required to provide additional hazardous material release information for the Cortese List.

California Health & Safety Code, Hazardous Materials Release Response Plans and Inventory. Two programs found in the H&SC Chapter 6.95 are directly applicable to the CEQA issue of risk due to hazardous substance release. In San Diego County, these two programs are referred to as the Hazardous Materials Business Plan (HMBP) Program and the CalARP program. DEH is responsible for the implementation of the HMBP program and the CalARP program in San Diego County. The HMBP and CalARP Program provide threshold quantities for regulated hazardous substances. When the indicated quantities are exceeded, a HMBP or Risk Management Plan (RMP) is required pursuant to the regulation. Congress requires the EPA Region 9 to make RMP information available to the public through the EPA's Envirofacts Data Warehouse. The Envirofacts Data Warehouse is considered the single point of access to select EPA environmental data.

Title 14 Division 1.5 of the California Code of Regulations. CCR Title 14 Division 1.5 establishes the regulations for California Department of Forestry and Fire Protection (Cal Fire) and is applicable in all State Responsibility Areas (SRA)—areas where Cal Fire is responsible for wildfire protection. Among other things, Title 14 establishes minimum standards for emergency access, fuel modification, setback to property line, signage, and water supply.

Title 22 of the California Code of Regulations & Hazardous Waste Control Law, Chapter 6.5. The DTSC regulates the generation, transportation, treatment, storage and disposal of hazardous waste under RCRA and the California Hazardous Waste Control Law. Both laws impose "cradle to grave" regulatory systems for handling hazardous waste in a manner that protects human health and the environment.

Title 23 of the California Code of Regulations, Underground Storage Tank Act. The Underground Storage Tank (UST) monitoring and response program is required under

Chapter 6.7 of the H&SC and Title 23 of the CCR. The program was developed to ensure that the facilities meet regulatory requirements for design, monitoring, maintenance, and emergency response in operating or owning USTs.

Title 27 of the California Code of Regulations, Solid Waste. Title 27 of the CCR contains a waste classification system that applies to solid wastes that cannot be discharged directly or indirectly to waters of the state and which therefore must be discharged to waste management sites for treatment, storage, or disposal. The Local Enforcement Agency (LEA) regulates the operation, inspection, permitting and oversight of maintenance activities at active and closed solid waste management sites and operations.

California Health and Safety Code Section 25270 etc., Aboveground Petroleum Storage Act. The Aboveground Petroleum Storage Act requires registration and spill prevention programs for above ground storage tanks (ASTs) that store petroleum. In some cases, ASTs for petroleum may be subject to groundwater monitoring programs that are implemented by the Regional Water Quality Control Boards and the State Water Board.

California Human Health Screening Levels. The California Human Health Screening Levels (CHHSLs or "Chisels") are concentrations of 54 hazardous chemicals in soil or soil gas that the California EPA considers to be below thresholds of concern for risks to human health. The CHHSLs were developed by the Office of Environmental Health Hazard Assessment on behalf of the California EPA. The CHHSLs were developed using standard exposure assumptions and chemical toxicity values published by the EPA and the California EPA. The CHHSLs can be used to screen sites for potential human health concerns where releases of hazardous chemicals to soils have occurred. Under most circumstances, the presence of a chemical in soil, soil gas, or indoor air at concentrations below the corresponding CHHSL can be assumed to not pose a significant health risk to people who may live or work at the site. There are separate CHHSLs for residential and commercial/ industrial sites.

SB 1889, Accidental Release Prevention Law/California Accidental Release Prevention Program. SB 1889 required California to implement a new federally mandated program governing the accidental airborne release of chemicals promulgated under section 112 of the Clean Air Act. Effective January 1, 1997, CalARP replaced the previous California Risk Management and Prevention Program and incorporated the mandatory federal requirements. CalARP addresses facilities that contain specified hazardous materials, known as "regulated substances" that, if involved in an accidental release, could result in adverse off-site consequences. CalARP defines regulated substances as chemicals that pose a threat to public health and safety or the environment because they are highly toxic, flammable, or explosive.

Emergency Response to Hazardous Materials Incidents. California has developed an Emergency Response Plan to coordinate emergency services provided by federal, state, and local government, and private agencies. The plan is administered by the California Emergency Management Agency (Cal EMA) and includes response to hazardous materials incidents. Cal EMA coordinates the response of other agencies, including the California EPA, California Highway Patrol, California Department of Fish and Game, Regional Water Quality Control Board, San Diego Air Pollution Control District, the City of San Diego Fire Department, and DEH-Hazardous Incident Response Team.

California Fire Code. The California Fire Code (CFC) is Chapter 9 of Title 24 of the California Code of Regulations. It is created by the California Building Standards Commission and it is based on the International Fire Code created by the International Code Council. It is the primary means for authorizing and enforcing procedures and mechanisms to ensure the safe handling and storage of any substance that may pose a threat to public health and safety. The CFC regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. The CFC and the California Building Code (CBC) use a hazard classification system to determine what protective measures are required to protect fire and life safety. These measures may include construction standards, separations from property lines, and specialized equipment. To ensure that these safety measures are met, the CFC employs a permit system based on hazard classification. The CFC is updated every three years.

California Education Code. The California Education Code (CEC) establishes the law for California public education. CEC requires that the DTSC be involved in the environmental review process for the proposed acquisition and/or construction of school properties that will use state funding. The CEC requires a Phase I Environmental Site Assessment be completed prior to acquiring a school site or engaging in a construction project. Depending on the outcome of the Phase 1 Environmental Site Assessment, a Preliminary Environmental Assessment and remediation may be required. The CEC also requires potential, future school sites that are proposed within two miles of an airport to be reviewed by Caltrans Division of Aeronautics. If Caltrans does not support the proposed site, no state or local funds can be used to acquire the site or construct the school.

California State Aeronautics Act. The California State Aeronautics Act is implemented by Caltrans Division of Aeronautics. The purpose of this Act is to: 1) foster and promote safety in aeronautics, 2) ensure states provide laws and regulations relating to aeronautics are consistent with federal aeronautics laws and regulations, 3) assure that persons residing in the vicinity of airports are protected against intrusions by unreasonable levels of aircraft noise, and 4) develop informational programs to increase the understanding of current air transportation issues. Caltrans Division of Aeronautics issues permits for and annually inspects hospital heliports and public-use airports, makes recommendations regarding

proposed school sites within two miles of an airport runway, and authorizes helicopter landing sites at/near schools.

State Fire Regulations. State fire regulations are set forth in sections 13000 et seq. of the California H&SC, which include regulations concerning building standards (as also set forth in the CBC), fire protection and notification systems, fire protection devices such as extinguishers and smoke alarms, high-rise building and childcare facility standards, and fire suppression training. The state Fire Marshal enforces these regulations and building standards in all state-owned buildings, state-occupied buildings, and state institutions throughout California.

California Emergency Services Act. This Act was adopted to establish the state's roles and responsibilities during human-made or natural emergencies that result in conditions of disaster and/or extreme peril to life, property, or the resources of the state. This Act is intended to protect health and safety by preserving the lives and property of the people of the state.

California Natural Disaster Assistance Act. The Natural Disaster Assistance Act (NDAA) provides financial aid to local agencies to assist in the permanent restoration of public real property, other than facilities used solely for recreational purposes, when such real property has been damaged or destroyed by a natural disaster. The NDAA is activated after the following occurs: 1) a local declaration of emergency; or 2) Cal EMA gives concurrence with the local declaration, or the Governor issues a Proclamation of a State Emergency. Once the NDAA is activated, local government is eligible for certain types of assistance, depending upon the specific declaration or proclamation issued.

5.10.8.3 Methodology

As part of the Convair Lagoon Alternative, an HHMTR was prepared by Ninyo and Moore in May 2011. This report is included as Appendix M to this EIR. The purpose of the HHMTR was to document possible environmental impacts at the Convair Lagoon Alternative site from potential releases of hazardous materials or wastes during construction activities, to document the significance of impacts, and to identify measures that could be implemented to reduce or mitigate the potential impacts. As part of the HHMTR, a site reconnaissance was performed and a review of physical setting information (e.g., topographic, geologic maps, groundwater data) pertaining to the site area was performed. Federal, state, and local on-line regulatory agency databases and lists for the site area were also reviewed. Available maps, reports, and other hazards and hazardous materials documents pertaining to the site area, including, but not limited to, CAOs, WDRs, and technical reports prepared by others were also reviewed. The locations of current and proposed schools, based on review of available maps and/or consultation with the applicable public school district were also documented. Finally,

within the HHMTR, potential impacts to sensitive receptors (e.g., schools, hospitals) from exposure to hazardous materials associated with the site were evaluated.

5.10.8.4 Thresholds of Significance

Threshold 5.10.8.1: Transport, Use and Disposal of Hazardous Materials. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

Threshold 5.10.8.2: Accidental Release of Hazardous Materials. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would 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.

Threshold 5.10.8.3: Hazards to Schools. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

Threshold 5.10.8.4: Existing Hazardous Materials Site. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would result in human habitation or occupation on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 (Cortese List) and, as a result, would create a significant hazard to the public or the environment.

Threshold 5.10.8.5: Public and Private Airports. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would locate development within two miles of a public or private airport, and would result in a safety hazard for people residing or working in the project area.

Threshold 5.10.8.6: Emergency Response and Evacuation Plans. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would have a significant impact if it would impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

Threshold 5.10.8.7: Wildland Fires. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would have a significant impact if it would expose people or

structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

5.10.8.5 Impacts and Mitigation Measures

Less Than Significant Impacts

Threshold 5.10.8.3: Hazards to Schools. As part of the HHMTR, the locations of sensitive receptors for hazardous materials impacts, such as schools and hospitals, were documented. Based upon a review of background information, including the DTSC Envirostor online database, Thomas Brothers Guide maps, topographic maps, and online resources, the HHMTR determined that no sensitive receptors, including hospitals, schools, daycare, and education-related facilities, are within 0.8-mile of the Convair Lagoon Alternative site. Therefore, the Convair Lagoon Alternative would result in a less than significant impact to schools because no school facilities are located within one-quarter mile of the Convair Lagoon Alternative site. Refer to Section 4.3, Hazards and Hazardous Materials of this EIR for impacts related to hazards to schools from dredging and dewatering activities at the Shipyard Sediment Site.

Threshold 5.10.8.5: Public and Private Airports. The San Diego International Airport (SDIA) is located immediately north of the Convair Lagoon site. The Naval Air Station North Island (NASNI) is located in the city of Coronado, south of the Convair Lagoon Site. The San Diego International Airport covers 661 acres and consists of a single, 9,401 foot-long 200-foot wide east-west runway, two main terminals and a commuter terminal. The Convair Lagoon site is within the SDIA Airport Influence Area as shown in the 2004 SDIA ALUCP (SDCRAA, 2004). The SDIA Airport Influence Area encompasses those areas adjacent to airports that could be impacted by noise levels exceeding the California State Noise Standards or where height restrictions would be needed to prevent obstructions to navigable airspace, as outlined in FAA regulations. An ALUCP for NASNI has not yet been adopted and is pending the adoption of updated AICUZs from the Department of Defense (SDCRAA, 2010c). NASNI operates a mixture of jet fighter, transport, and helicopter aircraft.

Title 14 of the Code of Federal Regulations Part 77, Objects Affecting Navigable Airspace, establishes imaginary surfaces for airports and runways as a means to identify objects that are obstructions to air navigation. The Federal Aviation Administration (FAA) uses Part 77 and Terminal Instrument Procedures (TERPS) obstruction standards as elevations above which structures may constitute a safety problem. The Part 77 regulations require that anyone proposing to construct or use an object, which could affect the navigable airspace around an airport using the Part 77 notification criteria as shown in Table 5-33, submit information about the proposed construction to the FAA. Of the criteria listed in Table 5-33, proposed projects that exceed an imaginary 100:1 surface within 20,000 feet of a civilian or military airport or have a height exceeding 200 feet above ground level are two of the more typical

notification criteria that require project applicants to notify the FAA. Any proposed project having a height exceeding 200 feet above ground level at any location is required to notify the FAA.

Table 5-33: Summary of the Part 77 Notification Criteria

• Any construction or alteration exceeding 200 ft above ground level.
• Any construction or alteration: a) within 20,000 ft of a public use or military airport which exceeds a 100:1 surface from any point on the runway of each airport with at least one runway more than 3,200 ft. b) within 10,000 ft of public use of military airport which exceeds a 50:1 surface from any point on the runway of each airport with its longest runway no more than 3,200 ft. c) within 5,000 ft of a public use heliport which exceeds a 25:1 surfaces.
• Any highway, railroad or other traverse way whose prescribed adjusted height would exceed that above noted standards.
• When requested by the FAA.
• Any construction or alteration located on public use airport or heliport, regardless of height or location.

When notified, the FAA then conducts an aeronautical study, the outcome of which is a determination as to whether the object would be a potential hazard to air navigation. The FAA examines the Terminal Instrument Procedures Tool surfaces for obstructions and safety issues as part of the obstruction evaluation for a proposed project. If the proposed object is concluded to pose a hazard, the FAA may object to its construction and issue a determination of a hazard to air navigation, examine possible revisions of the proposal to eliminate the problem, require that the project be appropriately marked and lighted as an airspace obstruction, and/or initiate changes to the aircraft flight procedures for the airport so as to account for the object (CSD, 2007).

Construction of the Convair Lagoon Alternative would involve the use of cranes, although none of these cranes are anticipated to be over 200 feet in height. In the event a crane over 200 feet in height would be used during construction, this would trigger the FAA Notification process under Title 14 of the Code of Federal Regulations Part 77 for both the SDIA and the NASNI. Compliance with this notification process would mitigate any potential impacts to SDIA and NASNI from the use of cranes during construction activities associated with the Convair Lagoon Alternative. Upon completion of construction, all cranes would be removed from the area and the site would be converted to an undeveloped, above ground parcel of land with no structures. No development would be located on the site and operation of the Convair Lagoon Alternative would not result in any safety hazards for people residing or working in the area from SDIA or NASNI. Impacts would be less than significant. Refer to Section 4.3, Hazards and Hazardous Materials, of this EIR for impacts related to hazards to public and private airports from dredging and dewatering activities at the Shipyard Sediment Site.

Threshold 5.10.8.6: Emergency Response and Evacuation Plans. Interference with an adopted emergency response or evacuation plan would result in an adverse physical effect to people or the environment by potentially increasing the loss of life and property in the event of a disaster. The Convair Lagoon Alternative site is not part of a public emergency response or evacuation plan adopted by the San Diego Unified Port District (District) or City of San Diego. Therefore, the Convair Lagoon Alternative would not impair implementation of, or physically interfere with, the implementation of any plan, and would therefore not result in a significant impact. Refer to Section 4.3, Hazards and Hazardous Materials, of this EIR for impacts related to emergency response and evacuation plans from dredging and dewatering activities at the Shipyard Sediment Site.

Threshold 5.10.8.7: Wildland Fires. The Convair Lagoon Alternative site is situated in an urban area and is not located within or adjacent to designated wildlands, nor is it within or near the wildland urban interface areas. The Convair Lagoon Alternative site is not located in a community considered at risk from wildfire and is mapped as a Non-Very High Fire Hazard Severity Zone by Cal Fire (Cal Fire, 2010). Therefore, the Convair Lagoon Alternative would not result in a significant impact from a potential wildland fire hazard.

Potentially Significant Impacts

Threshold 5.10.8.1: Transport, Use and Disposal of Hazardous Materials. The construction of the Convair Lagoon Alternative would result in the transportation, use and disposal of hazardous materials. In addition, the Convair Lagoon Alternative site is the location of a former PCB contamination area that has been capped. However, since that cap was installed PCB contamination has been discovered in sediments above the cap.
The PCB contamination that has been discovered above the cap is the subject to CAO R9-2004-0258, as amended. The CAO states that there are three areas of concern with regard to the transport of wastes from the TDY facility to Convair Lagoon: 1) Convair Lagoon shoreline groundwater, 2) sediment in the storm water conveyance system that empties into Convair Lagoon/San Diego Bay, and 3) VOC-impacted groundwater seeping into the 54-inch and 60-inch storm drains. Although the CAO states that sediment transport to the lagoon is a concern, the storm drain inlets and laterals on the TDY facility were capped with concrete; therefore, no additional input of sediment to the storm water conveyance system from the TDY facility is known to be occurring. However, there is the potential for PCB impacted sediments to be transported to Convair Lagoon from sites up gradient of the TDY facility, which continue to discharge into the storm water conveyance system. There is a potential risk to human health associated with the incidental ingestion of or contact with the sediments in the lagoon. The CAO requires that soil and groundwater contamination at the TDY facility be remediated to the identified clean up levels, visible sediment should be removed from within the 60-inch storm drain and associated energy dissipater, and a remedial action plan be submitted to detail how the cleanup levels will be achieved. The San Diego Water Board is responsible for ensuring that the remediation is performed in accordance with the requirements of this CAO. As discussed above, as required by the CAO issued by the San

Diego Water Board for the TDY facility, numerous investigations have been performed to evaluate impacted soil and groundwater, potential remedial alternatives, and potential sources of PCBs in the storm water conveyance system. The potential sources of PCBs in the storm water conveyance system have been identified as on-site and off-site soil, groundwater, sediment, building materials, and rainfall. Specific sites up gradient of TDY have not been identified as sources of PCBs in the storm water conveyance system.

A Remedial Investigation Feasibility Study (RI/FS) was prepared by the San Diego Water Board, which states that the recommended remedial action for addressing PCB impacted sediments in the 60-inch storm water conveyance system is to clean out sediments and remove the storm water conveyance system laterals on the site after the existing TDY site buildings (a potential source of PCBs) have been removed. The RI/FS also states that the recommended remedial action for PCB impacts to groundwater at the TDY site is to continue groundwater monitoring under the supervision of the San Diego Water Board to confirm that PCB impacted groundwater is not migrating into Convair Lagoon at levels that exceed existing regulatory limits. The San Diego Water Board will be responsible for ensuring that the remediation of the TDY facility is performed in accordance with the requirements of the applicable CAOs.

A feature of the Convair Lagoon Alternative is that this PCB contamination would be resolved to the satisfaction of the State Water Board before construction of this alternative would occur.

The placement of contaminated dredged material from the Shipyard Sediment Site into the Convair Lagoon would involve the transportation of contaminated, hazardous materials across San Diego Bay by barge, a distance of approximately 4.5 miles. The approximate barge route for the Convair Lagoon Alternative is identified in Figure 5-2 and would begin at the Shipyard Sediment Site, near the 28th Street Pier and travel north within the San Diego Bay Channel to the Convair Lagoon Alternative Site. Transportation of the dredged sediment to either the Convair Lagoon Alternative Site or staging areas would require a total of approximately 116 barge trips, using barges with an average holding capacity of 1,250 cubic yards. During Phase 4 of the CDF construction, it is assumed that a maximum of four tug boats and barges would be required per day and that each of the tug boats would be operating for eight hours per day. Therefore, construction of the Convair Lagoon Alternative would involve the transportation and use of hazardous materials.

Additionally, the Convair Lagoon Alternative site currently includes an approximately 7-acre sand cap that covers areas within the site where sediments contained high PCBs concentrations. The most recent groundwater monitoring report (2010) for the Convair Lagoon Site, required by CAO R9-2004-0258, found low levels of VOCs and trace levels of PCBs on the top of the existing 7-acre sand cap, attributed to an existing 60” storm drain that outlets on the site. Construction of the Convair Lagoon Alternative site would require the excavation of existing sediment in the area proposed for the containment barrier. Due to the location of the proposed containment barrier, south of the existing sand cap, any existing PCB concentrations in the area of excavation would be lower than those found on top of the

existing cap. Therefore, the on-site material excavated for construction of the containment barrier is unlikely to have high contamination levels and would be reused on site as fill, assuming the contamination levels would not exceed those allowed by the State Water Board for this alternative. In the event excavated sediments were found to not qualify for on-site reuse, then these excavated sediments would require disposal at an appropriate off-site facility. Additional use of hazardous materials on site includes construction equipment that involves the use of oils and hydrocarbons, which are considered hazardous materials.

Construction and operation of the Convair Lagoon Alternative would comply with the numerous federal, state and local regulations described above in the Regulatory Setting subsection that require strict adherence to specific guidelines regarding the use, transportation, and disposal of hazardous materials. Regulations that would be required of those transporting, using or disposing of hazardous materials include RCRA, which provides the 'cradle to grave' regulation of hazardous wastes; CERCLA, which regulates closed and abandoned hazardous waste sites; the Hazardous Materials Transportation Act, which governs hazardous materials transportation on U.S. roadways; IFC, which creates procedures and mechanisms to ensure the safe handling and storage of hazardous materials; Title 22, which regulates the generation, transportation, treatment, storage and disposal of hazardous waste; CCR Title 27, which regulates the treatment, storage and disposal of solid wastes; the County Consolidated Fire Code, which regulates hazardous materials and hazardous substance releases; and the County of San Diego DEH-HMD, which conducts ongoing routine inspections to ensure compliance with existing laws and regulations. Further, this EIR which addresses the Shipyard Sediment Site project contains detailed mitigation measures related to the transportation, use and disposal of contaminated dredged sediment. The Convair Lagoon Alternative would comply with these measures.

Compliance with the applicable federal, state and local regulations and implementation of mitigation measures 4.3.1 through 4.3.8, listed in the Shipyard Sediment Site EIR Hazards and Hazardous Materials Section 4.3, would reduce the potential for the Convair Lagoon to create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

Therefore, impacts related to the transport use and disposal of hazardous materials would be less than significant. Refer to Section 4.3, Hazards and Hazardous Materials, of this EIR for impacts related to hazardous material use, transport and disposal from dredging and dewatering activities at the Shipyard Sediment Site.

Threshold 5.10.8.2: Accidental Release of Hazardous Materials. As described above, implementation of the Convair Lagoon Alternative would result in the transportation and use of contaminated dredge material from the Shipyard Sediment Site. Additionally, the existing Convair Lagoon Site would include excavation activities within the Convair Lagoon Site, which has documented existing hazardous material contamination. Although construction activities involve strict regulations regarding monitoring and handling, accidental release of hazardous materials due to natural disasters, human error or misuse is possible. For example,

contaminated sediments on the Convair Lagoon site and contaminated sediments from the Shipyard Site may be disturbed during construction activities. Sediments could be disturbed during storm drain extensions construction, sediment stockpiling, containment barrier rock placement, barge transportation and placement of sediment. Sediments transported by barge to the Convair Lagoon Alternative Site could accidently be released into the bay by wind or an unanticipated spill. Disturbance of the sediments from excavation activities within the Convair Lagoon and placement of Shipyard Sediments into the Convair Lagoon could cause a release of the contaminants that may result in an impact to human health and the environment. Additionally, demolition and construction equipment could spill/leak fuels, oils, or other hazardous fluids during normal operations, refueling, or maintenance. However, any leaks/spills that occur would likely be localized, short-term, and cleaned up immediately in accordance with existing regulations, such as the Code of Federal Regulations Title 40, California Code of Regulations Title 22.

Numerous federal, state, and local regulations exist that reduce the potential for humans or the environment to be affected by an accidental release of hazardous materials. These include, but are not limited to, the following: 1) Chemical Accident Prevention Provision, which requires companies that use certain hazardous materials to develop a Risk Management Program; 2) RCRA, which requires infrastructure at the state and local levels to plan for chemical emergencies; 3) Robert T. Stafford Disaster Relief and Emergency Assistance Act, which provides the statutory framework for a Presidential declaration of an emergency or major disaster; 4) California H&SC, which provides threshold quantities for regulated hazardous substances and the establishment of Hazardous Materials Release Response Plans; 5) CCR Title 23, which ensures that facilities meet regulatory requirements for underground storage tanks ; 6) Aboveground Petroleum Storage Act, which requires registration and spill prevention programs for ASTs; 7) CalARP, which governs the accidental airborne release of chemicals; 8) Emergency Response to Hazardous Materials Incidents; which provides coordination between federal, state, local government, and private agencies in the event of an emergency; and 9) California Emergency Services Act, which establishes the state's role during natural or man-made emergencies. As mentioned above, the DEH-HMD also conducts ongoing routine inspections to ensure compliance with existing laws and regulations; to identify safety hazards that could cause or contribute to an accidental spill or release; and to suggest preventative measures to minimize the risk of a spill or release of hazardous substances. Further, the EIR for the Shipyard Sediment Site project contains detailed mitigation measures related to the accidental release of hazardous materials. The Convair Lagoon Alternative would comply with these measures.

Compliance with the applicable federal, state and local regulations and implementation of the mitigation measures 4.3.1 through 4.3.8, listed in the Shipyard Sediment Site EIR Hazards and Hazardous Materials Section 4.3, would reduce the potential for the Convair Lagoon to create a significant hazard to the public or the environment through the accidental release of hazardous materials. Therefore, impacts would be less than significant. Refer to Section 4.3, Hazards and Hazardous Materials, of this EIR for impacts related to an accidental release of hazardous materials from dredging and dewatering activities at the Shipyard Sediment Site.

Threshold 5.10.8.4: Existing Hazardous Materials Sites. Typical adverse effects related to existing contamination from hazardous substances relate to the potential for site conditions or site contamination to result in adverse human or environmental effects. As discussed above, the Convair Lagoon site is subject to San Diego Water Board WDR Order No. 98-21, CAO 86-92 and CAO R9-2004-0258 due to past and existing hazardous materials contamination on the site. Therefore, the existing site for the Convair Lagoon Alternative is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 (Cortese List). Additionally, as part of the Convair Lagoon Alternative, dredged contaminated sediment from the Shipyard Sediment Site would be placed within the lagoon as fill. The Shipyard Sediment Site is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5.

Sediments at the Convair Lagoon site and the dredged sediments from the Shipyard Sediment Site are documented to contain levels of hazardous contaminants above regulatory limits. Both the Convair Lagoon and Shipyard Sediment Site contaminated sediments are submerged within the San Diego Bay and completely saturated. Therefore, sediment contamination affects both the sediment particles and associated water. Contaminated sediments on the Convair Lagoon site and contaminated sediments from the Shipyard Sediment Site may be disturbed during construction activities. Sediments could be disturbed during storm drain extensions construction, sediment stockpiling, containment barrier rock placement, transportation by barge, or during placement. Disturbance of the sediments from excavation activities within the Convair Lagoon and placement of Shipyard Sediments into the Convair Lagoon could cause a release of the contaminants that may result into an impact to human health and the environment.

For example, as the dredged sediment from the Shipyard Sediment Site is placed into the Convair Lagoon Alternative site, some of the sediments will be suspended in the bay water and may flow back into the bay. However, the placement of dredged contaminated sediment would not take place until after the containment barrier is constructed. Additionally, the placement of dredged materials within the Convair Lagoon site would occur at a pace that would allow displaced water to flow through the containment barrier prior to entering San Diego Bay. The containment barrier rock and filter within the barrier would act as a filter to minimize sediment particles from leaving the site (SAIC, 2009). The controlled placement of the dredged material and the installation of the containment barrier would prevent any significant impacts from suspended sediments flowing back into the bay.

In addition, the Convair Lagoon Alternative site is currently subject to CAO R9-2004-0258 to address newly discovered PCB contamination above a cap which covers prior PCB contamination. Therefore, the Convair Lagoon Alternative would use a site that is currently contaminated with a hazardous material. However, this existing contamination is being addressed through CAO R9-2004-0258, as amended, and must be resolved before the Convair Lagoon Alternative could be implemented. The San Diego Water Board is responsible for ensuring that the remediation is performed in accordance with the requirements of this CAO. Upon completion of the Convair Lagoon Alternative, the San

Diego Water Board would be responsible for ensuring that the remediation technique performs in accordance with the requirements of the agency.

Multiple federal and state regulations exist that prevent or reduce hazards to the public and environment from existing hazardous materials sites. These include, but are not limited to, the following: 1) CERCLA, which regulates closed and abandoned hazardous waste sites; 2) PRGs, which establishes tools for evaluating and cleaning up contaminated sites; 3) Cortese List, which provides information about the location of hazardous materials release sites; and 4) CHHSLs, which evaluates sites with potential human health concerns. The San Diego County SAM Program, within the Land and Water Quality Division of the DEH, maintains a list of contaminated sites that have previously or are currently undergoing environmental investigations and/or remedial actions. In addition, the RWQCB may issue a CAO and WDRs specific to the site that may specify land use restrictions/activity and use limitation to minimize future disturbance of the sediments within the CDF. Further, the EIR for the Shipyard Sediment Site project contains detailed mitigation measures related to existing hazardous material contamination. The Convair Lagoon Alternative is required to comply with these measures.

Compliance with the applicable federal, state and local regulations and implementation of the Mitigation Measures 4.3.1 through 4.3.8, listed in the Shipyard Sediment Site EIR Hazards and Hazardous Materials Section 4.3, would reduce the potential for the Convair Lagoon to create a significant hazard to the public or the environment due to the presence of hazardous materials on site. Therefore, impacts would be less than significant. Refer to Section 4.3, Hazards and Hazardous Materials, of this EIR for impacts related to existing hazardous material sites from dredging and dewatering activities at the Shipyard Sediment Site.

Mitigation Measures

The Convair Lagoon Alternative is required to implement Mitigation Measures 4.3.1 through 4.3.8, listed in the Shipyard Sediment Site EIR, Section 4.3, Hazards and Hazardous Materials. These measures require the implementation of: secondary containment, a dredging management plan, a contingency plan, a health and safety plan, a communication plan, a sediment management plan, and a hazardous materials transportation plan and traffic control plan.

Cumulative Impacts

The geographic scope of the cumulative impact analysis for hazards and hazardous materials varies depending on the type of hazard that could occur. The geographic scope for each of the seven hazards and hazardous material topic areas is described below as part of the cumulative impact discussion for each of the topics.

Threshold 5.10.8.1: Transportation, Use and Disposal of Hazardous Materials. The geographic scope of cumulative impact analysis for the transportation, use and disposal of hazardous materials includes the primary transportation corridors for the transportation, use and disposal of contaminated sediment. Primary transportation corridors include: 1) Interstate 5, from San Diego to the Kettleman Hills Disposal Facility in Kings County for truck traffic; and 2) Portions of the San Diego Bay between the Shipyard Sediment Site and the Convair Lagoon Alternative site for barge transport (see Figure 5-2). The transportation, use and disposal of hazardous materials would occur only during construction of the Convair Lagoon Alternative and is limited to water impacts from the transportation of dredged sediment from the Shipyard Sediment site to the Convair Lagoon Alternative site for placement; and land impacts from the transportation of approximately 21,510 cy of contaminated sediment from the Shipyard Sediment Site to the Kettleman Hills Disposal Facility for disposal. No routine transport, use or disposal of hazardous materials would occur during operation of the alternative because the Convair Lagoon Alternative is a construction project with no operational features.

Cumulative projects within the geographic scope of analysis, identified in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon Alternative, are likely to result in new development which would include land facilities that involve the use, storage, disposal or transport of hazardous materials, and potentially increase hazards to the public or the environment. For example, the cumulative project West Side – Airport Facilities Project 6, would include a utility expansion and the construction of a co-generation facility, which would require the use and transportation of hazardous materials. However, unlike the Convair Lagoon Alternative, cumulative projects would only involve the transportation, use and disposal of hazardous materials on land and no transportation or use of hazardous materials on water would occur. Therefore, cumulative projects would have the potential to result in a significant cumulative impact from the use, transportation and disposal of hazardous materials on land but cumulative projects do not include features that involve the transport of hazardous materials on water and therefore a significant cumulative impact to water from the use, transportation and disposal of hazardous material within the bay would not occur. Similar to the Convair Lagoon Alternative, cumulative projects would be required to comply with regulations applicable to the use, disposal and transportation of hazardous materials on land, including RCRA, CERCLA, the Hazardous Materials Transportation Act, IFC, and CCRs Title 22 and Title 27. Cumulative project compliance with applicable regulations would ensure that a significant cumulative impact would not occur. Refer to the Regulatory Setting section above for additional information regarding existing federal and state regulations for hazardous materials. In addition, the implementation of mitigation measures 4.3.1 through 4.3.8, listed in the Shipyard Sediment Site EIR Hazards and Hazardous Materials Section 4.3, would reduce the direct impacts of the Convair Lagoon Alternative to a less than significant impact. Therefore, the Convair Lagoon Alternative would result in a less than significant cumulative impact related to hazardous material use, disposal and transportation.

Threshold 5.10.8.2: Accidental Release of Hazardous Materials. The geographic scope of cumulative impact analysis for the accidental release of hazardous materials includes the primary transportation corridors for the disposal and use of contaminated sediment, which could be impacted in the event of an accidental release of contaminated sediment. Primary transportation corridors include: 1) Land areas along Interstate 5, from San Diego to the Kettleman Hills Disposal Facility in Kings County for truck traffic; and 2) Water areas of the San Diego Bay between the Shipyard Sediment Site and the Convair Lagoon Alternative site for barge transport (see Figure 5-2). The implementation of various cumulative projects, identified in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon Alternative, would increase the likelihood of hazards to the public or the environment through the reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. However, unlike the Convair Lagoon Alternative, cumulative projects would most likely only involve the transportation, use and disposal of hazardous materials on land and no transportation or use of hazardous materials within water would occur. Cumulative projects would be subject to regulations regarding the handling of hazardous materials, such as Chemical Accident Prevention Provision, RCRA, Robert T. Stafford Disaster Relief and Emergency Assistance Act, California H&SC, CCR Title 23, Aboveground Petroleum Storage Act, CalARP, Emergency Response to Hazardous Materials Incidents, and the California Emergency Services Act. Cumulative project compliance with these regulations would ensure that a significant cumulative impact would not occur. Refer to the Regulatory Setting section above for additional information regarding existing federal and state regulations for hazardous materials. In addition, implementation of mitigation measures 4.3.1 through 4.3.8, listed in the Shipyard Sediment Site EIR Hazards and Hazardous Materials Section 4.3, would reduce the direct impacts of the Convair Lagoon Alternative to less than significant. Therefore, the Convair Lagoon Alternative would not result in a significant cumulative impact related to the accidental release of hazardous materials.

Threshold 5.10.8.3: Hazards to Schools. The geographic scope of cumulative impact analysis for hazards to schools includes a 1-mile radius immediately surrounding the Convair Lagoon Alternative site. This area is composed of a highly developed, industrial area containing many companies that regularly use and transport hazardous materials. Cumulative projects within the geographic scope of analysis, identified in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon Alternative, that emit or handle hazardous waste materials have the potential to be located adjacent to schools. However, cumulative projects would be subject to CEQA/NEPA review and CEC requirements. Cumulative project compliance with applicable regulations would ensure that a significant cumulative impact would not occur. Refer to the Regulatory Setting section above for additional information regarding existing federal and state regulations. Furthermore, since no schools are located within a ¼-mile of the Convair Lagoon Alternative site, the proposed project would not cause or contribute to a cumulative impact relating to hazards to schools.

Threshold 5.10.8.4: Existing Hazardous Materials Site. The geographic scope of cumulative impact analysis for existing hazardous materials sites includes a 1-mile radius immediately surrounding the Convair Lagoon Alternative site. This area encompasses a highly developed, industrial area with many companies that regularly use hazardous materials. As discussed in the existing environmental setting, four adjacent properties to the Convair Lagoon site have experienced existing or past hazardous materials contamination. Therefore, it is reasonable to assume that some cumulative project sites in the geographic scope of analysis, identified in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon Alternative, would also have existing hazardous materials contamination, pursuant to Government Code section 65962.5. For example, the Teledyne Ryan Demolition Project occurs on an identified hazardous material site and involves the removal and disposal of these hazardous and contaminated materials. All cumulative projects would be required to comply with applicable federal, state and local regulations, which would ensure that a significant cumulative impact would not occur. As discussed above, the Convair Lagoon Alternative site is currently subject to CAO R9-2004-0258, as amended, and is considered a site that is currently contaminated with a hazardous material. This existing contamination must be resolved before the alternative could be implemented. Compliance with the applicable federal, state and local regulations and implementation of the mitigation measures 4.3.1 through 4.3.8, listed in the Shipyard Sediment Site EIR Hazards and Hazardous Materials Section 4.3, would reduce the potential for the Convair Lagoon to create a direct significant hazard to the public or the environment due to the presence of hazardous materials on site. Therefore, the Convair Lagoon Alternative would not cause or contribute to a cumulative impact relating to existing hazardous material contamination.

Threshold 5.10.8.5: Airports. The geographic scope of cumulative impact analysis for airports includes the Airport Influence Area for SDIA and NASNI. Cumulative projects in the area, identified in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon Alternative, would potentially result in incompatible land uses within the vicinity of SDIA and NASNI, which could result in a potentially significant safety hazard for people residing or working in these areas. However, cumulative projects would be subject to safety regulations, such as ALUCPs, FAA standards and the State Aeronautics Act. Cumulative project compliance with these regulations would ensure that a significant cumulative impact would not occur. Refer to the Regulatory Setting section above for additional information regarding existing federal and state regulations pertaining to this topic.

Construction of the Convair Lagoon Alternative would involve the use of cranes, although none of these cranes are anticipated to be over 200 feet in height. In the event a crane over 200 feet in height would be used during construction, this would trigger the FAA Notification process under Title 14 of the Code of Federal Regulations Part 77 for both the SDIA and the NASNI. Compliance with this notification process would mitigate any potential impacts to SDIA and NASNI from the use of cranes during construction activities associated with the Convair Lagoon Alternative. Upon completion of construction, all cranes would be removed from the area and the site would be converted to an undeveloped, above ground parcel of land with no structures. No development would be located on the site and

operation of the Convair Lagoon Alternative would not result in any safety hazards for people residing or working in the area from SDIA or NASNI. As a result, the proposed project would not cause or contribute to a cumulative impact relating to airport hazards.

Threshold 5.10.8.6: Emergency Response Plans and Routes. The geographic scope of cumulative impact analysis for emergency response plans and routes includes the city of San Diego and lands under the jurisdiction of the District. Cumulative projects, identified in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon Alternative, would have the potential to impair existing emergency and evacuation plans. This could occur from an increase in population that emergency response teams are unable to service adequately in the event of a disaster; or evacuation route impairment if cumulative projects block evacuation or access roads. However, cumulative projects would be required to comply with applicable emergency response and evacuation policies outlined in regulations such as the Federal Response Plan, the California Emergency Services Act, and local fire codes. Cumulative project compliance with these regulations would ensure that a significant cumulative impact would not occur. Refer to the Regulatory Setting section above for additional information regarding existing federal and state regulations pertaining to this topic. The Convair Lagoon Alternative site is not part of a public emergency response or evacuation plan adopted by the District or City of San Diego. Therefore, the Convair Lagoon Alternative would not impair implementation of, or physically interfere with, the implementation of any plan, and would therefore not cause or contribute to a cumulative impact relating to emergency response plans and routes.

Threshold 5.10.8.7: Wildland Fire Hazards. The geographic scope of the cumulative impact analysis for wildland fire hazards includes the city of San Diego and lands under the jurisdiction of the District.

Some areas of southern California have a history of frequent and intensive wildland fires, which have exposed people and structures to a potentially significant loss of life and property. Cumulative projects, identified in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon Alternative, within the geographic scope of analysis are located in developed areas with minimal potential for wildfires to occur and these areas are not located within wildland urban interface areas mapped by the California Department of Forestry and Fire Protection. Additionally, regulations exist to reduce hazards associated with wildland fires, which would further reduce cumulative project risk to below a level of significance. Since the Convair Lagoon Alternative site is situated in an urban area and is not located within or adjacent to designated wildlands, nor is it within or near the wildland urban interface areas, it would therefore not cause or contribute to a cumulative impact relating to wildland fire hazards.

Level of Significance After Mitigation

Upon implementation of mitigation measures 4.3.1 through 4.3.8, identified in the EIR Section 4.3, Hazards and Hazardous Materials, for the Shipyard Sediment Site, all Convair Lagoon Alternative impacts related to hazards and hazardous materials would be reduced to a level below significance.

Significant Unavoidable Adverse Impacts

No significant and unavoidable impacts related to hazards and hazardous materials would occur from implementation of the Convair Lagoon Alternative.

5.10.9 Hydrology and Water Quality

This section describes the existing hydrology and water quality on the Convair Lagoon site and analyzes the potential physical environmental effects of the Convair Lagoon Alternative related to surface water quality, groundwater, drainage and flooding. Information pertaining to water quality and hydrology is based on: the *Water Quality Technical Study for the Shipyard Sediment Alternative Analysis Convair Lagoon*, prepared by Ninyo and Moore in May 2011, and included as Appendix O of this EIR; the *San Diego Bay Integrated Natural Resources Management Plan* (U.S. Navy, 2007); and the *San Diego Regional Water Quality Control Board* (San Diego Water Board) *Water Quality Control Plan* (Basin Plan) *for the San Diego Basin* (SDRWQCB, 1994). This analysis hereby incorporates by reference the *San Diego Bay Integrated Natural Resources Management Plan* and the San Diego Water Board Basin Plan. The *San Diego Bay Integrated Natural Resources Management Plan* can be found online at http://sdbayinrmp.org/, while the San Diego Water Board Basin Plan can be found online at http://www.swrcb.ca.gov/sandiego/water_issues/programs/basin_plan/.

5.10.9.1 Existing Environmental Setting

Hydrologic Unit. The Convair Lagoon site is located in the Pueblo San Diego Hydrologic Unit of the San Diego Bay watershed. The San Diego Bay watershed encompasses a 415 square mile area that extends easterly from the San Diego Bay for more than 50 miles to the Laguna Mountains. The watershed elevation ranges from sea level, at San Diego Bay, to a maximum elevation of approximately 6,000 feet above sea level at its eastern boundary. The headwaters of the watershed begin in the eastern, unincorporated area of San Diego County and then transect all or portions of seven cities, including San Diego, National City, Chula Vista, Imperial Beach, Coronado, Lemon Grove, and La Mesa. The San Diego Bay watershed is included within three hydrologic units: the Pueblo San Diego Hydrologic Unit, the Sweetwater Hydrologic Unit, and the Otay Hydrologic Unit.

The Pueblo San Diego Hydrologic Unit is a triangular shaped area of approximately 60 square miles without a major stream system. The Pueblo San Diego Hydrologic Unit is the smallest of the three San Diego Bay Hydrologic Units and covers just over 36,000 acres.

Major water features include Switzer Creek, Chollas Creek, Paleta Creek, and San Diego Bay. The Pueblo San Diego Hydrologic Unit is the most developed and most densely populated hydrologic unit in the San Diego Bay watershed. The major population center in the hydrologic unit is the city of San Diego.

Surface Water Quality. The Convair Lagoon Alternative site is located within San Diego Bay. Present day water quality concerns for the San Diego Bay focus mainly on the quantities of contaminants found in the water, sediments, and biota (such as shellfish, and other marine organisms). The entire San Diego Bay is listed as an impaired water body (under Clean Water Act (CWA) section 303[d]) by the California State Water Resources Control Board (State Water Board) due to benthic community degradation and toxicity. Sources that may be contributing pollutants to the bay's environment include surface runoff from urban watersheds, industrial facilities, vessel activities from recreational marinas and commercial ports, aerial deposition, hazardous material spills, storm drains, and sewage spills. With the long history of industrial, marina, and military use of the bay, "legacy" pollutants continue to remain from past practices despite curtailment of new discharges. Surface runoff is considered the largest source of pollutants in the region, contributing more heavy metals than all other sources combined to the bay. In addition to chemical and bacterial pollution, debris from human activities (such as plastic, metal materials, bottles, and cans) is also common in the bay and harbors.

Within the San Diego Basin Plan, the San Diego Bay has been assigned beneficial uses for industrial service supply, navigation, contact and non-contact water recreation, commercial and sport fishing, preservation of biological habitats of special significance, estuarine habitat, wildlife habitat, rare/threatened/endangered species, marine habitat, migration of aquatic organisms, spawning/reproduction/early development and shellfish harvesting.

Groundwater. The Convair Lagoon Alternative site is located within the Mission Valley Groundwater Basin. Depth to groundwater on the Convair Lagoon Alternative site generally ranges from 6 to 11 feet below ground surface and generally flows south toward the bay. According to the Basin Plan, groundwater in the area of Convair Lagoon has been exempted from municipal supply and does not currently have existing or potential beneficial uses. Currently, there are eight groundwater monitoring wells located on the landside portion of the Convair Lagoon Alternative site to monitor contamination from former Teledyne-Ryan operations.

Topography. The landside portion of the Convair Lagoon Alternative site varies in elevation from approximately 10 to 14 feet above sea level (mean lower low water), while the lagoon floor elevation varies from sea level to approximately -15 feet below sea level. Figure 5-13 illustrates the existing lagoon floor topography.

5.10.9.2 Regulatory Setting

Federal

Clean Water Act. The 1972 CWA was designed to restore and maintain the chemical, physical, and biological integrity of the waters of the U.S. The CWA also directs states to establish water quality standards for all waters of the U.S. and to review and update such standards on a triennial basis. The U.S. Environmental Protection Agency (EPA) has delegated responsibility for implementation of portions of the CWA in California to the State Water Board and the Regional Water Quality Control Boards (RWQCB). This includes water quality control planning and control programs such as the National Pollutant Discharge Elimination System (NPDES), which seeks to control water pollution through the issuance of permits regulating the discharge of pollutants into waters of the U.S. Section 404 of the CWA regulates the discharge of dredged and/or fill material into the waters of the U.S., while section 401 of the CWA requires certification from the state agency that the project will comply with water quality standards. The Convair Lagoon Alternative will require both a 404 permit and a 401 permit. Section 303(d) of the CWA requires that impaired water bodies are identified and listed, after which a total maximum daily load (TMDL) must be developed for each contaminant. The Convair Lagoon site is located within the San Diego Bay, which is listed as a 303(d) impaired water body for Polychlorinated biphenyl (PCBs). A TMDL for PCBs in San Diego is projected to be completed in 2019.

National Pollutant Discharge Elimination System (NPDES) Program. The CWA section 402(p) establishes a framework for regulating municipal and storm water discharges under the NPDES program and requires that storm water associated with industrial activity that discharges directly to surface waters or discharges indirectly through storm drains must be regulated by an NPDES permit. The Convair Lagoon Alternative may be subject to two NPDES permits, as described below, or may be issued an individual permit by the San Diego Water Board.

Industrial Storm Water General Permit, Order 97-03-DWQ. This NPDES permit regulates discharges associated with ten categories of industrial activities. The permit requires the development of a Storm Water Pollution Prevention Plan (SWPPP) and monitoring plan, which identifies potential sources of pollutants and the means to manage or reduce the storm water pollution from these sources, by Best Management Practices (BMPs).

Construction General Permit, Order 2009-0009-DWQ. This NPDES permit is required for construction sites with total disturbed area of one or more acres. Construction activities subject to the permit include grading, stockpiling and excavation. The permit requires a SWPPP that must include a visual monitoring program, a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs, and a sediment monitoring plan, if the site discharges directly to a water body listed on the 303(d) list for sediment, such as the San Diego Bay.

Rivers and Harbors Appropriation Act. The Rivers and Harbors Appropriation Act prohibits the creation of any obstruction not affirmatively authorized by Congress, to the navigable capacity of any of the waters of the United States. Under section 10 of the Act, the building of any wharfs, piers, jetties, and other structures is prohibited without Congressional approval, and excavation or fill within navigable waters requires the approval of the Army Corps of Engineers (ACOE) Chief of Engineers. ACOE concerns include contaminated sediments associated with dredge or fill projects in navigable waters. The Convair Lagoon Alternative will require a section 10 permit for construction.

State

Porter-Cologne Water Quality Control Act. The Porter-Cologne Water Quality Control Act, enacted in 1969, authorizes the State Water Board to adopt, review, and revise policies for all waters of the state, including both surface and ground waters, and directs the RWQCBs to develop region-specific basin plans. Section 13170 of the California Water Code also authorizes the State Water Board to adopt water quality control plans on its own initiative. The purpose of these plans are to designate beneficial uses of the region's surface and ground waters, designate water quality objectives for the reasonable protection of those uses, and establish an implementation plan to achieve the objectives.

Local

San Diego Basin Plan. The San Diego Basin Plan, most recently amended in 2007, sets forth water quality objectives for constituents that could potentially cause an adverse effect or impact on the beneficial uses of water within the basin. Specifically, the Basin Plan is designed to accomplish the following: 1) designate beneficial uses for surface and ground waters, 2) set the narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state's anti-degradation policy, 3) describe mitigation measures to protect the beneficial uses of all waters within the region, and 4) describe surveillance and monitoring activities to evaluate the effectiveness of the Basin Plan. The Basin Plan incorporates by reference all applicable State Water Board and San Diego Water Board plans and policies.

Port of San Diego Jurisdictional Urban Runoff Management Program. The San Diego Unified Port District (District) Environmental Services Department has prepared a Jurisdictional Urban Runoff Management Program Document (District JURMP) for all areas under the jurisdiction of the District, in accordance with the requirements of San Diego Water Board *Order No. 2007-0001 (NPDES Permit #CAS0108758),* which serves as the District's Municipal Stormwater Permit. This document describes all the activities that the District has undertaken, is undertaking, or will undertake, to reduce discharges of pollutants and urban runoff flow to the municipal separate storm sewer system to the maximum extent

practicable. The three major phases of urban development addressed by this program are the planning, the construction, and the existing development or existing use phases.

The District JURMP has been developed to assist the District in identifying causes or contributions to water quality impacts, tracking urban runoff related activities, and to implement to the maximum extent practicable (MEP) BMPs to reduce or eliminate pollutants from reaching receiving waters within the District's jurisdiction. The JURMP was designed to be a comprehensive management program focusing several individual elements on achieving similar outcomes and objectives. The District's JURMP serves as an informational document that provides an overall account of the program to be conducted by the District during the five-year life of the Municipal Stormwater Permit.

Port of San Diego Jurisdictional Standard Urban Stormwater Mitigation Planning Document. One component of the District's JURMP is to prepare and implement a Jurisdictional Standard Urban Stormwater Mitigation Plan (District SUSMP). The District SUSMP has been developed to address post-construction urban runoff pollution from new development and redevelopment projects that fall under "priority development project" categories. The goal of the District SUSMP is to develop and implement practicable policies to ensure to the maximum extent practicable that development does not increase pollutant loads from a project site and considers urban runoff flow rates, velocities and durations. This goal may be achieved through site-specific controls and/or drainage area-based or shared treatment controls.

The District SUSMP was developed to meet the requirements of the Countywide Model SUSMP, which was collectively developed by the Copermittees and approved by the San Diego Water Board on January 2, 2009. Under the District SUSMP, the District will approve a project's SUSMP plan(s) as part of the development plan approval process for discretionary projects, as well as those projects subject to a ministerial permit. To allow flexibility in meeting the District SUSMP design standards, treatment control BMPs may be located on or off the site, used singly or in combination, or shared by multiple developments, provided certain conditions are met.

San Diego Regional Water Quality Control Board Waste Discharge Requirement (WDR) 98-21. Following the construction of the sand cap under the existing Convair Lagoon Alternative site, the San Diego Water Board issued *WDR 98-21*, Closure and Post-Closure maintenance of the Convair Lagoon Sand Cap, which regulates the sand cap and associated monitoring, maintenance, and, repairs. The WDR states that the action level to trigger repair and or investigation of the cap or cleaning of the storm water conveyance system is 4.6 mg/kg dry weight of PCB contaminates in the sediments. *WDR 98-21* also provides a list of water quality objectives that apply to the water within Convair Lagoon. Some objectives provided are for dissolved oxygen, pH, oil and grease, suspended sediment load/discharge rate, turbidity, and toxicity.

5.10.9.3 Methodology

To evaluate water quality impacts related to implementation of the Convair Lagoon Alternative, Ninyo and Moore evaluated the overall water quality conditions at the site, identified potential significant impacts to water quality from the alternative, described potential mitigation measures, and identified constraints that may potentially affect the alternative (e.g., permitting, dredge material effluent quality). As part of this process, Ninyo and Moore reviewed physical setting information (e.g., topographic, geologic maps, groundwater data) pertaining to the Convair Lagoon area; reviewed readily available maps, reports, and other water quality documents pertaining to the area, including, but not limited to, clean up and abatement orders (CAOs), WDRs, and technical reports prepared by others; performed a site reconnaissance; and, prepared a technical report presenting a summary of findings and conclusions found in Appendix O of this EIR.

5.10.9.4 Thresholds of Significance

Threshold 5.10.9.1: Water Quality. Based on Appendix G of the CEQA guidelines, the Convair Lagoon Alternative would have a significant impact if it would violate any water quality standard, waste discharge requirements or otherwise substantially degrade water quality.

Threshold 5.10.9.2: Groundwater Supply. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would have a significant impact if it would 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.

Threshold 5.10.9.3: Drainage Pattern Alteration. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would have a significant impact if it would substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in: 1) substantial erosion or siltation on or off site, 2) increase the amount of surface runoff in a manner which would result in flooding on or off site, or 3) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Threshold 5.10.9.4: Flooding. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would have a significant impact if it would place housing or structures within a 100-year floodplain or expose people or structures to a significant risk of loss, injury or death from flooding due to failure of a dam or levee or inundation by a seiche, tsunami or mudflow.

5.10.9.5 Impacts and Mitigation Measures

Less Than Significant Impacts

Threshold 5.10.9.2: Groundwater Supply. The Convair Lagoon Alternative site is located within the Mission Valley Groundwater Basin. Groundwater in the area of the Convair Lagoon Alternative site has been accepted from municipal supply and does not currently have existing or potential beneficial uses. Additionally, the Convair Lagoon Alternative does not propose the use of local groundwater supplies or the construction of groundwater wells. Therefore, implementation of the Convair Lagoon Alternative would not result in a substantial depletion of groundwater supplies. Upon completion of construction, the site would be paved with asphalt and drainage conditions would remain similar to existing conditions, with runoff discharged to the Bay. Therefore, implementation of the Convair Lagoon Alternative would not interfere with groundwater recharge in a manner that would result in a net deficit in aquifer volume or the lowering of the local groundwater table. Groundwater supply impacts from dredging and dewatering construction activities are addressed in Section 4.2, Water Quality, of this EIR.

Threshold 5.10.9.3: Drainage Pattern Alteration. Implementation of the Convair Lagoon Alternative would result in the conversion of approximately 10-acres of intertidal and submerged lagoon areas to upland areas, which would alter the drainage patterns of the site. However, this alternative includes paving the upland surface with asphalt concrete, which would reduce the potential for increased erosion or siltation to occur on site to a level below significance. The addition of the paved land area would increase the amount of surface run-off generated at the site. However, the Convair Lagoon Alternative would be required to comply with the Construction General Permit (CGP). The CGP requires the preparation of a SWPPP prior to commencement of construction. As defined within the CGP, SWPPP requirements serve to control construction-related activities such that erosion, sedimentation, material handling, and other construction-related activities are properly undertaken to protect water quality. This requirement is referenced in the Construction Component of the District's JURMP. The Convair Lagoon Alternative would implement a SWPPP and dust-minimizing BMPs during construction.

Because the Convair Lagoon Alternative is within the jurisdiction of the District, the alternative must comply with JURMP requirements. One component of the JURMP is to prepare and implement a project specific Urban Stormwater Mitigation Plan (USMP). The Convair Lagoon Alternative would qualify as a priority project under SUSMP guidelines because it would create a new paved surface that is greater than 5,000 square feet. Accordingly, the alternative would be required to submit a site-specific USMP. The site-specific USMP would be prepared by the project applicant, prior to approval of the proposed alternative, which would require review and approval by the District. In general, the USMP describes the process used to identify pollutants of concern, conditions of concern, and BMPs to control/reduce runoff volume and its associated pollutants. BMP maintenance

requirements are also addressed to ensure consistent pollution prevention performance. Compliance with these regulations would reduce impacts related to an alteration of drainage patterns and increase in run-off to a level below significance. Information related to increased turbidity from sediment disturbance during construction is discussed below under Threshold 5.10.9.1, Water Quality Standards and Requirements.

Upon completion of the Convair Lagoon Alternative construction, the site would be paved with asphalt and drainage characteristics would remain similar to existing conditions in that runoff would be discharged directly to the Bay. The Convair Lagoon Alternative would result in the conversion of approximately 10 acres of intertidal and submerged lagoon areas into upland areas, which would alter the drainage patterns of the site. However, this alternative would be designed with drainage features such as drainage slopes, swales, storm water conveyance systems or other techniques to lessen drainage impacts to reflect natural conditions. In addition, both site pavement and implementation of this alternative's SWPPP would reduce the potential for topsoil or erosion loss. Therefore, operation of the Convair Lagoon Alternative would not result in an alteration of drainage pattern that would increase the amount of surface runoff in a manner which would result in flooding on or off the site. Compliance with the GCP, SWPPP, JURMP, and USMP would further reduce impacts related to drainage pattern erosion and siltation. Therefore impacts related to drainage pattern alteration would be less than significant. Drainage pattern impacts from dredging and dewatering construction activities are addressed in Section 4.2, Water Quality, of this EIR.

Threshold 5.10.9.4: Flooding. The Convair Lagoon site is currently located within a 100-year floodplain. Implementation of the Convair Lagoon Alternative would convert the water portions of the site to land. However, the Convair Lagoon Alternative does not include the construction of any new buildings or structures that would involve human habitation or occupancy. Therefore, implementation of this alternative would not expose people or structures to a significant risk of loss, injury or death from flooding due to failure of a dam or levee or inundation by a seiche, tsunami or mudflow. Therefore the flooding impact would not be significant. Flooding impacts from dredging and dewatering construction activities are addressed in Section 4.2, Water Quality, of this EIR.

Potentially Significant Impacts

Threshold 5.10.9.1: Water Quality. Implementation of the Convair Lagoon Alternative has the potential to impact water quality during construction and post-construction operation, as discussed below.

A sand cap has been installed in Convair Lagoon to isolate existing PCB contamination sediments. Subsequent to installation of the sand cap, monitoring has been conducted that has discovered PCB contamination above the cap, presumably coming from the 60-inch storm drain. In response to this discovery, the San Diego Water Board issued CAO R9-2004-0258, as amended, which addresses the cleanup and abatement of wastes discharged to land at the former TDY site. According to the CAO, significant wastes discharged to soil

and groundwater at the site must be identified and cleaned up, and the discharge of any wastes to Convair Lagoon and San Diego Bay must be abated. A subsequent enforcement order will be necessary to assess and cleanup wastes discharged from landside sources to the marine sediments in Convair Lagoon and San Diego Bay. The CAO states that soil and groundwater must be cleaned up and waste discharges abated prior to conducting remedial actions in Convair Lagoon and San Diego Bay to prevent potential recontamination of the marine sediments in the bay. Therefore, the Convair Lagoon Alternative would commence construction once the PCB source is eliminated.

Construction Phase 1, Site Preparation. Phase 1 construction activities would include the demolition and removal of the existing concrete pier, riprap, concrete mattress energy dissipaters, and the abandoned seaplane marine ramp; in addition to the excavation of existing sediment in the area proposed for the containment barrier.

Demolition debris from demolition activities would be removed from waters daily and stockpiled in the adjacent rental car lot until reuse within the site. During this process, sediments may be disturbed by the removal of submerged or partially submerged structures. Sediments may also be disturbed during the placement of debris as fill material during a later phase. A disturbance in sediment would increase water turbidity on the site, which would impact water quality. This is considered a significant impact.

Potentially significant impacts to water quality from excavation operations include spills or leaks of fuels, oils, or other hazardous fluids into bay waters from construction equipment, resulting in water contamination; and spillage of excavated sediment during loading or unloading, resulting in increased water turbidity. This would result in a significant impact. Additionally, existing PCB contamination has been detected on the surface of the existing Convair Lagoon sand cap. Excavation operations during Phase 1 construction for the Convair Lagoon Alternative could result in the disturbance of these existing on-site contaminated sediments. A disturbance in these sediments would result in contaminated sediments being re-suspended within the water column and possibly transported off site by waves, currents or tides. The re-suspension of contaminated sediments into the water column would result in a significant impact to water quality. Therefore, excavation operations during Phase 1 of construction would result in a significant impact to water quality.

Construction Phase 2, Containment Barrier Construction. Phase 2 construction activities would involve the installation of a rock jetty containment barrier. During rock placement activities for the containment barrier, existing sediment on site would be disturbed, which could result in an increase in contaminated suspended sediments, decrease in dissolved oxygen, increase in turbidity and change in water pH. This would result in a significant water quality impact.

Construction Phase 3, Storm Drain Outlet Extension. Phase 3 of construction activities would involve the extension of the existing storm drains and the construction of associated energy dissipaters. The extension of storm drains and energy dissipaters would require the installation of rip-rap. The placement of rock during this phase of construction would disturb the existing on-site sediments, which could result in an increase in contaminated suspended sediments, decrease in dissolved oxygen, increased turbidity and changes in water pH. This would result in a significant water quality impact.

Construction Phase 4, Sediment Transport and Placement. Phase 4 of construction would involve the transport and placement of approximately 121,890 cy of contaminated marine sediment dredged from the Shipyard Sediment Site Project to the Convair Lagoon Alternative site. Impacts to water quality could occur as a result of overfilling of the crane bucket during placement of the contaminated sediment into the Convair Lagoon site, which could result in spillage of sediments into the water column while the bucket is transporting sediments between the barge and the containment barrier area. Spillage of dredged sediment into the bay would result in an increase in suspended contaminated sediments, decreased dissolved oxygen, increased turbidity, and changes in water pH. Placed sediment within the containment barrier also has the potential to migrate outside of the containment barrier while they are suspended in the water column. This would result in a significant water quality impact.

During placement of dredged materials, a breach in the contaminant barrier could also occur. However, the containment barrier would be designed in accordance with the specifications provided in the Naval Facilities Engineering Command, DM-7.2, Foundations and Earth Structures, dated September 1986, and constructed to hold the anticipated volume and weight of the dredged sediments and equipped with berms around the perimeter to minimize the potential for water to enter the bay should a breach occur. Additionally, the containment barrier would be marked with dock blocks, or a similar marker, to identify areas where construction activities cannot occur due to proximity with the containment barrier. These markers would assist in preventing any accidental breaches of the contaminant barrier from construction activities. Due to design and anticipated construction methods, no water quality impacts are anticipated from a potential breach in the containment barrier. Refer to Section 5.10.6, Geology and Soils, for information related to potential breaches from seismic activity.

Construction Phase 5, Containment Cap Installation. Phase 5 of construction would involve the installation of a one-foot thick sand layer and asphalt containment cap. Grading and placement of the sand cap could result in increased sediments flowing to the bay from wind or water erosion. However, compliance with the GCP, SWPPP, JURMP, and USMP would reduce water quality impacts related to this construction. Impacts would be less than significant.

Post-Construction Operation. Upon completion of construction, sediments within the Convair Lagoon have the potential to migrate into the bay through tidal fluctuations. However, the potential for this migration is low because sediments would no longer be suspended in the water column and the filter associated with the containment barrier would mitigate the migration of fill particles into the bay. Due to the presence of the contaminant barrier, post-construction operation of the Convair Lagoon Alternative would result in less than significant impacts to water quality.

With respect to surface water quality runoff, this alternative would result in the conversion of approximately 10 acres of intertidal and submerged lagoon areas into paved upland areas. However, the addition of paved land would not result in a significant increase in polluted run-off from the site because the completed site would be designed to properly drain and filter surface water runoff pollutants through the use of drainage slopes, swales, storm water conveyance systems, or other methods through the implementation of the SWPPP. Therefore, impacts to surface water quality from the alternative would be less than significant. Water Quality impacts from dredging and dewatering construction activities are addressed in Section 4.2, Water Quality, of this EIR.

Mitigation Measures

In addition to the following mitigation measures, the Convair Lagoon Alternative is required to implement mitigation measures 4.2.1 through 4.2.13, listed in the Shipyard Sediment Site EIR, Section 4.2, Water Quality.

Threshold 5.10.9.1: Water Quality, All Phases Construction

Mitigation Measure 5.10.9.1: **Construction Equipment Spills/Leaks.** The following BMPs shall be implemented to minimize the potential for accidental spills/leaks to occur and to minimize fluids entering the bay:

1. Oils and fuels shall be housed in secondary containment structures.
2. Spill cleanup kits shall be available at various locations on site. Personnel shall be trained on the locations of the kits and their proper use and disposal.
3. Personnel shall be trained on the potential hazards from accidental spills and leaks to increase awareness of the materials being handled and the potential impacts.
4. Routine maintenance and inspections of equipment containing oil, fuel, or other hazardous fluids shall be performed to identify worn or faulty parts and needed repairs.

5. The contractor/operator for construction of the Convair Lagoon Alternative shall create and implement a Spill Prevention, Control and Countermeasure Plan, which shall apply to oil and hazardous material spills into waters of the U.S., in quantities that may be harmful. The Spill Prevention, Control and Countermeasure Plan shall identify the contractor's responsible parties, precautionary measures to reduce the likelihood of spills, and the spill response and reporting procedures in case a spill occurs, in compliance with the requirements of the Clean Water Act.
6. During operations, personnel shall perform visual monitoring of equipment for spills or leaks. If a spill/leak is observed, the equipment shall be immediately shut down, the source of the spill/leak shall be identified, and the spill/leak shall be contained, in accordance with the measures identified in the Spill Prevention, Control and Countermeasure Plan.
7. In the event of a spill of materials from a barge, an oil boom shall be deployed in the vicinity of the barge to facilitate the containment of the spill/leaks. An oil boom shall be located on site during all construction activities so that it is readily available in the event of a spill. Oil retrieval and disposal shall be conducted in accordance with the alternative's Spill Prevention, Control and Countermeasure Plan.

Mitigation Measure 5.10.9.2: **Water Quality Monitoring.** Water quality monitoring shall be performed during in-water activities (e.g., demolition, dredging, rock placement, dredge placement) to obtain real-time data so that potential impacts to water quality can be quickly detected and activities modified to avoid impairing or degrading water quality. A system for monitoring of turbidity in the water column in the vicinity of dredging and excavation activities shall be used to assist the operator in adjusting or modifying operations to reduce temporary water quality impacts. Prior to commencement of demolition activities on the project site, the construction contractor shall prepare and implement a water quality monitoring plan which shall include the evaluation of turbidity levels. Monitoring shall be performed in at least three locations. The monitoring stations shall be located: 1) approximately 500 feet upstream of the work area,

2) immediately inside the work area, 3) approximately 250 feet downstream from the work area. The station immediately inside the work area shall be visually monitored. If a turbidity plume is observed, then monitoring of the 250-foot and 500-foot stations shall begin. Samples collected at the 250-foot station are intended to be a screening tool to warn of potential impacts that may reach the 500-foot station. If the water quality samples downstream from the work area are 20 percent greater than the upstream samples, then work shall be halted, the cause of the exceedance shall be identified and additional BMPs, depending on the particular activity (demolition, rock placement or sediment placement) shall be implemented and monitored for effectiveness. Additional BMPs may require modifications to the activity (duration, frequency, location, equipment, and sequencing).

Threshold 5.10.9.1: Water Quality, Phase 1 Construction

Mitigation Measure 5.10.9.3: **Low Tide Demolition.** Demolition activities for submerged structures during Phase 1 of construction shall be scheduled during low tides to expose as much of the submerged structures as possible and to reduce disturbance of sediments or a silt curtain shall be used to control turbidity.

Threshold 5.10.9.1: Water Quality, Phase 4 Construction

Mitigation Measure 5.10.9.4: **Dredging Equipment Selection.** The dredge bucket shall be enclosed to reduce re-suspension caused by dredge spoils falling back into the bay.

Mitigation Measure 5.10.9.5: **Dredging Placement BMPs.** The following BMPs shall be implemented to minimize the re-suspension or spillage of sediments during the placement of dredged materials:

1. Dredged soils shall not be stockpiled on the floor of the San Diego Bay;
2. The dredge bucket shall be fully closed before withdrawing from loading activities;

3. The dredge bucket and barge shall not be overfilled. This shall occur by visual monitoring and visual markings on the barge to indicate limits of fill;
4. A spill plate shall be placed between the barge and the landside to prevent spillage from falling into the bay water;
5. A weir shall be constructed on or near the containment jetty to provide a method to release site water displaced during the placement of fill in CDF. The weir may consist of a low crest in the containment jetty or a pipe in the structural fill of the barrier. The weir outflow will be monitored as described in mitigation measure 5.10.9.2. If an exceedance occurs, a filter fabric barrier or floating silt curtain shall be installed across or just outside of the weir outflow to minimize the potential for suspended sediments to enter the water outside of the CDF.
6. Multiple bites with the dredge bucket shall be prohibited;
7. Dredged material shall be placed carefully and the bucket drop height shall be limited to minimize splashing or sloshing, based on crane operator observations and water quality turbidity;
8. Barge movement and speed shall be in conformance with safe practices.

Cumulative Impacts

The geographic scope of the cumulative impact analysis for hydrology and water quality varies depending on the type of resource that could be impacted. The geographic scope for each of the four hydrology and water quality topic areas is described below as part of the cumulative impact discussion for each of the topics.

Threshold 5.10.9.1: Water Quality Standards and Requirements. The geographic context for the analysis of cumulative impacts relative to water quality standards and requirements encompasses the Pueblo San Diego Hydrologic Unit, the watershed in which the Convair Lagoon Alternative site is located; and the San Diego Bay. Construction and development associated with cumulative projects, such as those identified in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon, would contribute both point and non-point source pollutants to downstream receiving waters that have the potential to violate water quality standards. However, development and construction proposed under these

cumulative projects would be subject to regulations that require compliance with water quality standards, including the CWA, Porter-Cologne Water Quality Control Act, NPDES, applicable basin plans, and local regulations. Refer to the Regulatory Setting section above for additional information on federal, state and local water quality regulations. Cumulative project compliance with applicable regulations would ensure that a significant cumulative impact would not occur. In addition, the implementation of Mitigation Measures 5.10.9.1 through 5.10.9.5, would reduce the direct impacts of the Convair Lagoon Alternative to less than significant. Therefore, the Convair Lagoon Alternative would result in a less than significant cumulative impact related to water quality standards and requirements.

Threshold 5.10.9.2: Groundwater Supplies and Recharge. Groundwater basins typically serve the local area and, therefore, any cumulative impacts would pertain to the local groundwater basin within which the alternative is located. Therefore, the geographic context for the analysis of cumulative impacts relative to groundwater supplies and recharge encompasses the Mission Valley Groundwater Basin. Generally, the cumulative area of analysis is urban in nature. It is unlikely cumulative projects would use groundwater sources for water supply, because the City of San Diego and surrounding areas distribute imported surface water in the cumulative area. Additionally, although cumulative projects may increase impervious surfaces over existing conditions, these projects would be required to adhere to existing regulations that reduce impacts to groundwater resources, including the Porter-Cologne Water Quality Control Act, which requires region-specific Basin Plans and the San Diego Basin Plan, which sets water quality objectives for the San Diego Basin. Refer to the Regulatory Setting section above for additional information on federal and state groundwater regulations. Cumulative project compliance would ensure that a significant cumulative impact would not occur. Therefore, the Convair Lagoon Alternative would result in a less than significant cumulative impact related to groundwater supplies and recharge.

Threshold 5.10.9.3: Drainage Pattern Alteration. The geographic context for the analysis of alteration of drainage patterns encompasses the Pueblo San Diego Hydrologic Unit, the watershed in which the Convair Lagoon Alternative site is located. Land disturbance and development activities are expected to continue within this watershed which could impact drainage patterns and contribute to erosion. However, cumulative projects would be required to comply with existing regulations relating to surface water runoff and flooding. Refer to the Regulatory Setting section above for additional information on federal, state and local regulations pertaining to drainage alteration. Cumulative project compliance with these regulations would ensure that a significant cumulative impact would not occur. Therefore, the Convair Lagoon Alternative would result in a less than significant cumulative impact related to the regional alteration of drainage patterns.

Threshold 5.10.9.4: Flooding. The geographic context for the analysis of flooding includes the Pueblo San Diego Hydrologic Unit. Cumulative projects may result in development that would convert permeable surfaces to impermeable surfaces, such as through the construction

of buildings, parking lots, and roadways. New development proposed under cumulative projects would have the potential to alter existing drainage patterns, increase the amount of runoff and potentially increase flooding in the area. Additionally, cumulative projects would potentially place housing or structures within a 100-year flood hazard area. However, cumulative projects in California would be required to conform to applicable regulations, such as National Flood Insurance Act, National Flood Insurance Reform Act, NPDES and Cobey-Alquist Floodplain Management Act. Refer to the Regulatory Setting section above for additional information on federal and state regulations pertaining to flooding. Cumulative project compliance with these regulations would ensure that a significant cumulative impact would not occur. Therefore, the Convair Lagoon Alternative would result in a less than significant cumulative impact related to impeding or redirecting flood flows.

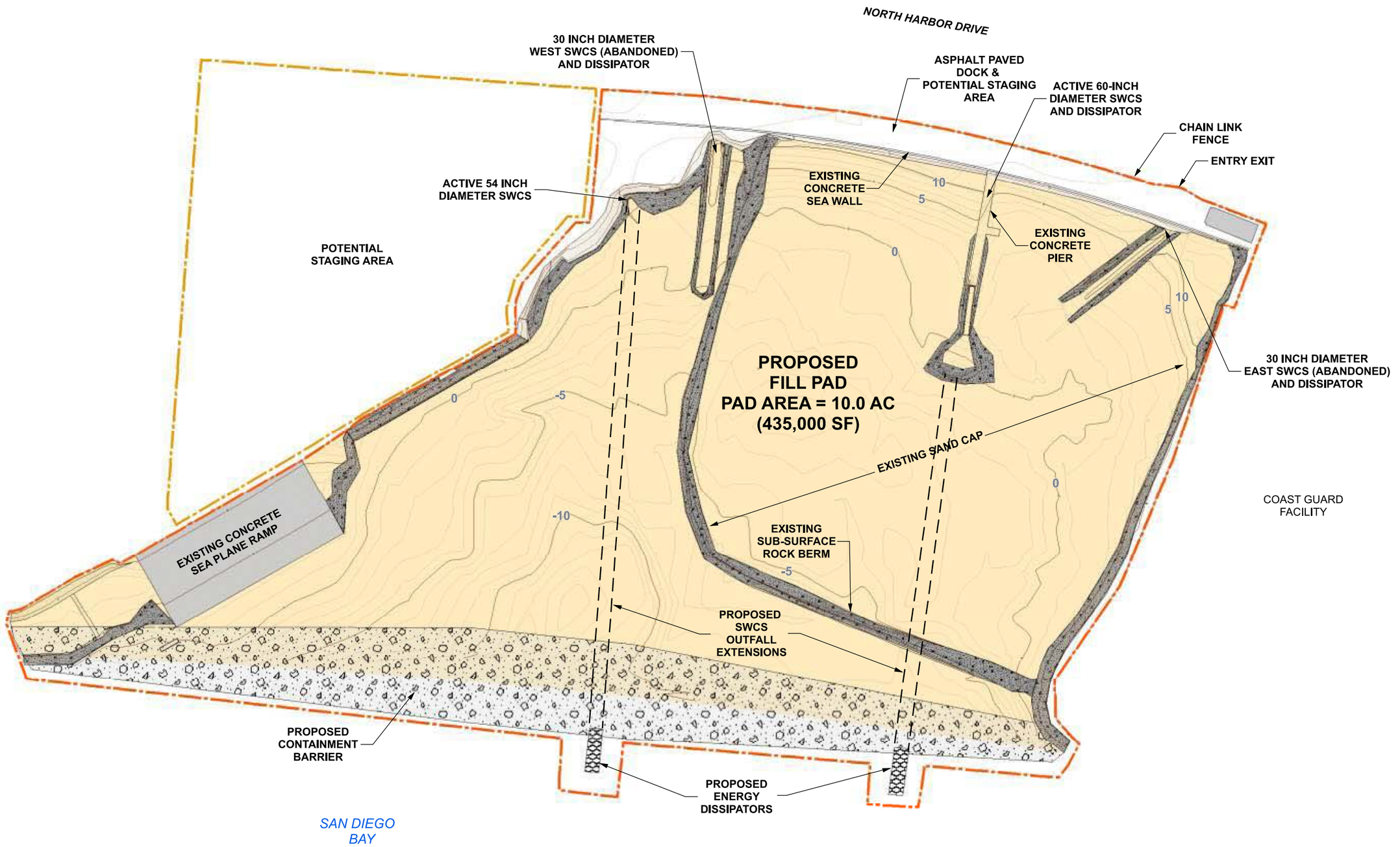
Level of Significance After Mitigation

Upon implementation of mitigation measures 5.10.9.1 through 5.10.9.5, in addition to mitigation measures 4.2.1 through 4.2.13, listed in the Shipyard Sediment Site EIR, Section 4.2, Water Quality, all hydrology and water quality impacts would be reduced to a less than significant level.

Significant Unavoidable Adverse Impacts

No significant and unavoidable adverse hydrology or water quality impacts would occur from implementation of the Convair Lagoon Alternative.

This page intentionally left blank



ATKINS

N

0 50 100

FEET

SOURCE: Nolte 2011

LEGEND

- Project Area
- Existing Concrete
- Proposed Fill Pad
- Existing Rip Rap
- Proposed Containment Barrier
- Proposed SWCS (Storm Drain Conveyance System)
- Existing Index Contour
- Existing Contour

Note: Directions, dimensions and locations are approximate

FIGURE 5-13

Convair Lagoon Alternative

Site Topography

This page intentionally left blank

5.10.10 Land and Water Use Compatibility

This section describes potential impacts to land and water use compatibility resulting from implementation of the Convair Lagoon Alternative. Information in this section is based on a review and analysis of the San Diego Unified Port District (District) Port Master Plan (PMP), the California Coastal Act, and other documents, as cited throughout the section.

5.10.10.1 Existing Environmental Setting

The following discussion identifies existing and planned on site and surrounding land and water uses for the Convair Lagoon Alternative.

On-site Land and Water Uses

The Convair Lagoon Alternative site, including potential staging areas, is approximately 15.4 acres in size and consists of open water, submerged facilities and land. Land facilities on the Convair Lagoon Alternative site are located along the periphery of the site, with the exception of the southern boundary of the site which is San Diego Bay (see Figure 5-4). Land facilities include an asphalt paved area along the northern boundary of the site, parallel to North Harbor Drive; a concrete seawall or rip-rap located along the north, east and west shorelines; and an abandoned concrete sea plane marine ramp located along the southwesterly interface between the land and water. The staging area for the project, located in the western and northwestern part of the site, is a large rental car parking lot.

Submerged facilities located on the Convair Lagoon Alternative site are illustrated in Figure 5-4. The submerged area of the site consists of an approximate seven-**acr**e sand cap that was designed to isolate sediment contamination associated with former Teledyne Ryan Aeronautical operations. In addition to the sand cap, submerged facilities on the site include a sub-surface rock berm and multiple submerged storm drains. The sub-surface rock berm transects the site from the northwest corner to the southeast corner in an "L" shape to contain the existing sand cap. On the northern shoreline, a 60-inch diameter storm drain, a 54-inch diameter storm drain, and two 30-inch diameter storm drains outlet into the lagoon. The two 30-inch diameter storm drains are abandoned in place and are no longer active.

The Convair Lagoon Alternative site is located within Planning District 2 (Lindbergh Field/Harbor Island) of the 2010 PMP. Planning District 2 is one of the nine planning districts that are covered by the PMP and encompasses approximately 996 acres, which consists of about 816 acres of tidelands and 180 acres of submerged tidelands. Within Planning District 2, the site is located in Planning Subarea 24 (East Basin Industrial). Planning Subarea 24 encompasses the entire Convair Lagoon Alternative site. The PMP recommends Planning Subarea 24 for eventual redevelopment into a light, marine-related industrial/business park land use that would allow such activities as scientific laboratories, office space, marine-oriented businesses and light manufacturing plants, with some ancillary storage and warehousing.

Within the PMP, approximately 5.4 acres of the Convair Lagoon Alternative site is designated for Harbor Services (both land and water) and 5.3 acres of the westerly portion of the site is designated for Specialized Berthing (water) (see Figure 5-5). A small portion of the site (1.3 acres), along the southeastern boundary, is designated for Boat Navigation Corridor (water). The western and northwestern portions of the site (3.4 acres), including the staging area, is designated as Industrial Business Park (land).

Surrounding Water and Land Uses

Areas surrounding the Convair Lagoon Alternative site are illustrated in Figure 5-3. Existing and planned water and land uses in the area surrounding the Convair Lagoon Alternative site are discussed below.

Land Uses to the West. Existing land uses adjacent and to the west of the site include a rental car parking lot. The PMP designates land to the west of the site for "Industrial Business Park." This area is recommended for eventual redevelopment into a light, marine-related industrial/business park which could include such uses as scientific laboratories, office space, marine-oriented businesses and light manufacturing plants, with some ancillary storage and warehousing.

Land Uses to the North. Existing land uses adjacent to the northern boundary of the Convair Lagoon Alternative site include a greenway and bicycle path that extend along North Harbor Drive. Land to the north of the Convair Lagoon Alternative site is located within Planning Subarea 24 of the 2010 PMP. Further north, across Harbor Drive, is the San Diego International Airport (SDIA). The SDIA is located partially on State tidelines leased from the District, but is operated, maintained and under the jurisdiction of the San Diego County Regional Airport Authority. The SDIA is located in Planning Subarea 25 of Planning District 2 within the PMP.

Land Uses to the East. The Convair Lagoon Alternative site is bounded to the east by land used for the U.S. Coast Guard Station San Diego. This area of land is under the jurisdiction of the federal government and therefore does not have a PMP land use designation. Activities conducted at the U.S. Coast Guard Station San Diego include maritime law enforcement, illegal immigration enforcement, drug enforcement, and search and rescue and homeland security operations.

Water Uses to the South. Water uses located to the south of the Convair Lagoon Alternative site are within San Diego Bay. This portion of the bay is located within Planning Subarea 24 of the 2010 PMP and is designated as "Boat Navigation Corridor" under the

Public Facilities land use category. Existing water uses to the south of the site include Anchorage A-9. Anchorage A-9 is a nine-acre water area which can accommodate approximately 30 transient water craft using vessels ground tackle.

5.10.10.2 Regulatory Setting

The following discussion describes the adopted plans and policies relevant to the project site and the surrounding area.

San Diego Unified Port District Master Plan (PMP)

The District's PMP provides the official planning policies for the physical development of the tidelands and submerged lands conveyed in trust to the District. Adoption of the PMP occurred in January of 1964, with the most current version dated January 2010, which includes all PMP amendments through 2009. The land use designations are illustrated graphically on maps with descriptions of the land uses and related policies provided in the PMP text. Eleven maps are included in the PMP, two of which illustrate bay-wide land uses and circulation and navigation systems. The remaining nine maps are identified as Precise Plans that pertain to Planning Districts within the bay and illustrate land and water use designations for each Planning District. Specific planning policies are provided in the PMP for each of the nine Planning Districts. The Convair Lagoon Alternative site is located in Planning District 2 (Lindbergh Field/Harbor Island). Planning District 2 is divided into nine subareas, with the Convair Lagoon Alternative located within Subarea 24 (East Basin Industrial).

PMP Planning District 2 (Lindbergh Field/Harbor Island)

The following discussion provides an explanation of each applicable on-site land and water use within Planning District 2 (Lindbergh Field/Harbor Island), Planning Subarea 24, as shown in Figure 5-5.

Industrial Uses. Industrial land and water uses within Planning District 2, Planning Subarea 24 include Aviation Related Industrial, Industrial Business Park and Specialized Berthing. Industrial land and water use objectives of the PMP state that each industrial area on the tidelands should:

8. Be located in convenient proximity to other industrial areas and to living areas from which there are interconnecting transit and thoroughfare routes.
9. Provide, under single ownership, a variety of reasonably level, well-drained sites on land that is either vacant or on developed lands that can be phased out economically for redevelopment.

10. Provide sites that are economical to develop and adequate for main buildings, accessory storage, off-street loading, off-street parking, and buffer strips.
11. Be designed to meet performance standards adequate to avoid nuisances, thereby insuring compatibility with surrounding uses.
12. Be limited to industrial uses which have a definite need for the availability of utilities, direct access to railroads and major thoroughfares, and the proximity of either airport or water frontage.
13. Provide substantial benefits to both local economic needs and to the regional hinterland.

Industrial Business Park. The Industrial Business Park use designation is a land category that permits a wide range of industrial and business uses that emphasize clustering of buildings, extensive landscaping, landscaping, and shared open space. The Industrial Business Park land use is reserved for the types of industrial activities associated with the manufacture, assemblage, processing, testing, servicing, repair, storage or distribution of products; wholesale sales; retail sales that are incidental to permitted uses; transportation and communication uses; parking; industrial, construction, government and business services; and research and development.

Specialized Berthing. The Specialized Berthing use designation is a water category devoted to marine commercial and industrial uses including ship building and repair, water taxi, excursion and ferry craft, commercial fishing boat berthing as a priority use, cruise ship berthing, maritime museum exhibits and historic craft replicas, water intake and discharge, industrial and commercial launching, vessel loading and unloading, marine contractors, rigged vessels, barges, tugs/tow boats, breakwater, launch ramps and lifts, seawall margin wharves, and any other facility supporting the marine craft engaged in commercial and industrial uses. Typical specialized berthing uses include dry docks, graving docks, heavy lift equipment, barge cranes, mooring dolphins, pile supported platforms, steel hatch decking, margin wharves, and ship berths for a variety of cargo, such as roll on/roll off containers, bulk loading, and break bulk.

Public Facilities. Public facilities within Planning District 2, Planning Subarea 24 include Harbor Services, Boat Navigation Corridors, and Boat Anchorage. The Public Facilities objectives of the PMP state that each public facility area on tidelands should:

14. Be located so as to not adversely affect adjacent properties and be designed so that the architectural theme is in harmony with the design theme of the Planning District.
15. Be provided for in advance of need.

16. Provide efficient and economical locations for emergency services along with up-to-date equipment and well trained personnel adequate to provide protection of life and property.
17. Contribute to a coordinated system of functional streets necessary for the safe, efficient and economical movement of people and goods within and through the tidelands.

Harbor Services. The Harbor Services use designation is both a land and water category that identifies land and water areas devoted to maritime services and harbor regulatory activities of the District, including remediation and monitoring.

Boat Navigation Corridor. The Boat Navigation Corridor use designation is a water category for those water areas delineated by navigational channel markers or by conventional waterborne traffic movements. Boat corridors are designated by their predominant traffic and their general physical characteristics. These channels are usually too shallow and too narrow to accommodate larger ships and serve the navigation system in a manner similar to that provided by streets in a land-based circulation system.

Boat Anchorage. Within Planning District 2, the Boat Anchorage water use designation is reserved for Anchorage A-9, Cruiser Anchorage. Anchorage A-9 is a nine-acre water area which can accommodate approximately 30 transient craft using vessels ground tackle. The anchorage is located south of the U.S. Coast Guard Station San Diego.

California Coastal Act

The California Coastal Act (Public Resources Code Sections 30000 et seq.) was passed by the State Legislature in 1976 and became effective January 1, 1977. The California Coastal Commission (CCC) has the authority to review and approve local government and District plans located within the coastal zone. The entire Convair Lagoon Alternative site, and adjacent area, is located within the coastal zone. The Coastal Act requires cities and counties in areas of the coastal zone to prepare local coastal programs (LCPs) to implement the conservation, development, and regulatory policies of the Coastal Act. The PMP implements the policies of the Coastal Act for property within the District's jurisdiction.

Chapter 8 of the Coastal Act sets forth the policies applicable to ports, including the District. The District has the authority to conduct coastal development permit reviews for projects within its jurisdiction. A proposed project must be consistent with the certified PMP to be issued a permit and may be appealed for CCC review only if uses authorized by the proposed project are specifically listed as appealable in section 30715 of Chapter 8, "Ports." Summaries of Coastal Act policies that are applicable to the Convair Lagoon Alternative are presented in the following section in Table 5-35.

San Diego International Airport Land Use Compatibility Plan

The San Diego County Regional Airport Authority is in the process of updating the Airport Land Use Compatibility Plan (ALUCP) for SDIA. SDIA is the primary commercial airport for the San Diego region. The ALUCP for SDIA plays an important role in ensuring that new development in the vicinity of the airport is compatible and safe, and that SDIA can continue to meet the region's aviation needs. The existing SDIA ALUCP was originally adopted in February 28, 1992 and last amended on October 4, 2004.

ALUCPs are plans that guide property owners and local jurisdictions in determining what types of proposed new land uses are appropriate around airports. They are intended to protect the safety of people, property and aircraft on the ground and in the air in the vicinity of the airport. They also protect airports from encroachment by new incompatible land uses that could restrict their operations. ALUCPs are based on a defined area around an airport known as the Airport Influence Area (AIA). AIAs are established by factors including airport size, operations, configuration, as well as the safety, airspace protection, noise, and overflight impacts on the land surrounding an airport. ALUCPs do not affect existing land uses.

San Diego International Airport Master Plan

According to the Federal Aviation Administration (FAA) Advisory Circular 150/5070-6A, the goal of an airport master plan is "to provide guidelines for future airport development which will satisfy aviation demand in a financially feasible manner, while at the same time resolving the aviation, environmental, and socioeconomic issues existing in the community." The SDIA Master Plan documents the San Diego County Regional Airport Authority's planning process for the 661 acres that comprise SDIA. Adopted by the Authority Board on May 1, 2008, the Airport Master Plan provides guidance for development of the airport to meet continued passenger, cargo and operations growth at SDIA. The Airport Master Plan represents the approved actions to be accomplished for phased development of the airport.

Rivers and Harbors Appropriation Act of 1899

Under section 10 of the Rivers and Harbors Appropriation Act of 1899, the building of any wharfs, piers, jetties, and other structures and excavation or fill within navigable waters requires the approval of the Chief of Engineers of the U.S. Army Corps of Engineers (ACOE). Contaminated sediments associated with dredge or fill projects in navigable waters must be addressed, if appropriate.

5.10.10.3 Methodology

To determine potential water and land use planning impacts from implementation of the Convair Lagoon Alternative, available aerial imagery, the California Coastal Act, and the PMP were reviewed. Relevant goals and policies within these documents were compared for consistency with the proposed features of the Convair Lagoon Alternative. Existing land uses were also evaluated for consistency with the features of the proposed Convair Lagoon Alternative.

The Convair Lagoon Alternative is located on State tidelands, which were conveyed, in trust, to the District to manage for the people of California. Consequently, only the PMP and Coastal Act have jurisdiction over the Convair Lagoon Alternative site. Local City plans and policies and policies of the San Diego County Regional Airport Authority are advisory in nature, and therefore, do not constitute regulations governing use or development within the District's jurisdiction. Accordingly, land and water use compatibility impacts associated with consistency with adopted City and San Diego County Regional Airport Authority plans and policies are not considered in this analysis.

5.10.10.4 Thresholds of Significance

Threshold 5.10.10.1: Physically Divide and Established Community. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant land use compatibility impact if it would physically divide an established community.

Threshold 5.10.10.2: Conflict with Applicable Plans and Policies. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant land and water use compatibility impact if it would conflict with an adopted policy of the PMP or the California Coastal Act.

Threshold 5.10.10.3: Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant land and water use compatibility impact if it would conflict with any applicable habitat conservation plan or natural community conservation plan.

5.10.10.5 Impacts and Mitigation Measures

Less than Significant Impacts

Threshold 5.10.10.1: Physically Divide an Established Community. The Convair Lagoon Alternative site is located in a developed urban area and is surrounded by industrial and governmental development. No residential development is located adjacent to the site and implementation of the Convair Lagoon Alternative would not create a physical barrier (ex. Highway), that would result in the physical division of an established community. Therefore,

the Convair Lagoon Alternative would not physically divide an established neighborhood and no impact would occur.

Threshold 5.10.10.2: Consistency/Conformance with Adopted Plans and Policies and Compatibility with Surrounding Land and Water Uses. The following section evaluates the Convair Lagoon Alternative in terms of consistency with the PMP and the California Coastal Act and compatibility with surrounding land and water uses.

Port Master Plan. Because the Convair Lagoon Alternative involves an amendment to the PMP, consistency with the PMP is evaluated based on the changes proposed by the PMPA, the effect of those changes in relation to the currently approved PMP, and the underlying goals of the PMP.

No existing use designations for land areas on the Convair Lagoon Alternative site would be changed under the proposed PMPA. These areas would remain Industrial Business Park (3.4 acres) and Harbor Services (land) (0.4 acre).

The proposed PMPA would result in changes to the 10 acres of water use designations on the site. Under the proposed PMPA, all existing water areas of the Convair Lagoon Alternative site would change their use designation to Harbor Services (land), as illustrated in Figure 5-6, and be converted to land facilities. The Harbor Services use category in the PMP identifies land and water areas devoted to maritime services and harbor regulatory activities of the District, including remediation and monitoring. As illustrated in Figure 5-5**,** the area within the proposed PMPA boundary is designated as Harbor Services (water), Industrial Specialized Berthing (water), and Boat Navigation Corridor (water) under the current PMP. The proposed water use changes that would occur with approval of the Convair Lagoon Alternative PMPA are summarized in Table 5-34. Minor textual changes to the PMP would also be implemented as part of the PMPA to describe the land uses changes associated with the proposed PMPA.

Table 5-34: Proposed Port Master Plan Amendment Land Use Acreage Changes for the Convair Lagoon Alternative

Land Use Designation	Existing (acres)	Proposed (acres)	Net Change (acres)
Boat Navigation Corridor (water)	0.5	0.0	-0.5
Industrial Specialized Berthing (water)	4.5	0.0	-4.5
Harbor Services (water)	5.0	0.0	-5.0
Harbor Services (land)	0.0	10.0	+10.0

Implementation of the Convair Lagoon Alternative would result in the conversion of five acres of Harbor Service (water) use designation to five acres of Harbor Service (land) use designation. The Harbor Service use definition, for both land and water, is the

same and identifies areas devoted to maritime services and harbor regulatory activities of the District, including remediation and monitoring. The existing Convair Lagoon Alternative site contains a seven-acre sand cap for remediation purposes. Implementation of the Convair Lagoon Alternative would continue to use the site for remediation, by placing contaminated dredge from the Shipyard Sediment site into the lagoon and capping it with sand and asphalt. Therefore, the conversion of five acres of Harbor Service (water) use designation to Harbor Service (land) use designation would result in a less than significant impact because the proposed land use designation would be essentially the same as the existing land use designation. No conflict with the PMP would occur as a result of this land use change.

The proposed PMPA would also convert 4.5 acres of Industrial Specialized Berthing (water) use designation to 4.5 acres of Harbor Service (land) use designation. The Convair Lagoon Alternative site is not currently used to conduct any activities typically associated with Industrial Specialized Berthing, such as ship building and repair, water taxi, excursion and ferry craft, commercial fishing boat berthing, and other marine-related uses. It is unlikely to be used for these activities in the future due to the shallow depth of the site, which would preempt the ability to lower the elevation in this water area to accommodate industrial specialized berthing uses. Therefore, the conversion of 4.5 acres of Industrial Specialized Berthing (water) use designation to 4.5 acres of Harbor Service (land) use designation would not be inconsistent with the PMP and would not result in a significant impact.

Within the Convair Lagoon Alternative site, the proposed PMPA would also result in the conversion of 0.5 acres of Boat Navigation Corridor (water) use designation to 0.5 acres Harbor Service (land) use designation. The existing boat navigation corridor on the site is located on the northern periphery of this use area and provides a corridor for small boat traffic traveling between Anchorage A-9 and the main navigation corridor in San Diego Bay, as well as small boat traffic traveling from the East Harbor Island Marina. The loss of 0.5 acres of Boat Navigation Corridor water use from implementation of the Convair Lagoon Alternative on the northern periphery of this corridor would not impact the ability for boats to navigate between the marina, anchorage and the main navigation corridor in San Diego Bay. Therefore, this would not result in an inconsistency with the PMP and a significant impact would not occur.

California Coastal Act. The Convair Lagoon Alternative site is located within the California Coastal Zone and must comply with the California Coastal Act. Table 5-35 identifies Chapter 8, "Port" policies within the California Coastal Act that are applicable to the Convair Lagoon Alternative and provides an analysis of the alternative's consistency with those policies.

Table 5-35: Applicable California Coastal Act Chapter 8 "Ports" Policies and Proposed Project Consistency

Section	California Coastal Act (CCA) Policy	Convair Lagoon Alternative Consistency Evaluation

Table 5-35: Applicable California Coastal Act Chapter 8 "Ports" Policies and Proposed Project Consistency

Section	California Coastal Act (CCA) Policy	Convair Lagoon Alternative Consistency Evaluation
Article 2 – Policies		
30703	**Protection of commercial fishing harbor space.** The California commercial fishing industry is important to the state of California; therefore, ports shall not eliminate or reduce existing commercial fishing harbor space, unless the demand for commercial fishing facilities no longer exists or adequate alternative space has been provided. Proposed recreational boating facilities within port areas shall, to the extent it is feasible to do so, be designed and located in such a fashion as not to interfere with the needs of the commercial fishing industry.	The Convair Lagoon Alternative would convert 10 acres of water use designation to land use designation within the PMP, requiring a PMPA. The 10 acres of land would remain under District control and would be designated as Harbor Services (land) use. The eastern five-acre portion of the site is currently used for sediment remediation and monitoring, consistent with the existing Harbor Services (water) use designation. Changing the designation to Harbor Services (land) use designation would result in the continued use of this area for remediation, consistent with the proposed designation. It would not eliminate or reduce existing commercial fishing harbor space or interfere with the needs of the commercial fishing industry. The 0.5 acres of Boat Navigation Corridor (water) use on the northern periphery of the PMPA area is not currently used for commercial fishing harbor space. The change in designation of this 0.5 area to Harbor Services (land) use would not interfere with existing commercial fishing harbor space. The existing 4.5-acre Industrial Specialized Berthing (water) use designation would be changed to Harbor Services (land) use designation and would not impact existing commercial fishing facilities because the current use is tidal and intertidal habitat. The PMPA does not propose additional recreational boating facilities that would interfere with the commercial fishing industry. Therefore, the Convair Lagoon Alternative would be consistent with CCA section 30703.
30705	**Diking, filling or dredging water areas.** (a) Water areas may be diked, filled, or dredged when consistent with a certified port master plan only for the following: 1) Such construction, deepening, widening, lengthening, or maintenance of ship channel approaches, ship channels, turning basins, berthing areas, and facilities as are required for the safety and the accommodation of commerce and vessels to be served by port facilities. 2) New or expanded facilities or waterfront land for port-related facilities. 3) New or expanded commercial fishing facilities or recreational boating facilities. 4) Incidental public service purposes, including, but not limited to, burying cables or pipes or inspection of piers and maintenance of existing intake and outfall lines. 5) Mineral extraction, including sand for restoring beaches, except in biologically sensitive areas.	(a) The Convair Lagoon Alternative would place dredged sediment from the Shipyard Sediment site into Convair Lagoon in order to meet the project objectives to minimize the short-term loss and result in no long-term loss of use of shipyard and other San Diego Bay-dependent facilities. This alternative is consistent with section 30705 (a) (1) because it proposes dredging of the Shipyard Sediment site and filling of Convair Lagoon in order to allow for the continued use of the berthing area and related facilities at the Shipyard Sediment site, which are dependent upon adequate depth to continue to conduct existing shipyard operations. The filling of Convair Lagoon under this alternative would reduce the logistical difficulties associated with the proposed project by reducing truck traffic associated with sediment transportation and disposal. Therefore, the Convair Lagoon Alternative would be consistent with CCA section 30705 Policy (a) (1). The Convair Lagoon Alternative also includes mitigation for the loss of eel grass, tidal, intertidal and marsh habitat. The mitigation for the loss of these

Table 5-35: Applicable California Coastal Act Chapter 8 "Ports" Policies and Proposed Project Consistency

Section	California Coastal Act (CCA) Policy	Convair Lagoon Alternative Consistency Evaluation
	6) Restoration purposes or creation of new habitat areas. 7) Nature study, mariculture, or similar resource-dependent activities. 8) Minor fill for improving shoreline appearance or public access to the water. (b) The design and location of new or expanded facilities shall, to the extent practicable, take advantage of existing water depths, water circulation, siltation patterns, and means available to reduce controllable sedimentation so as to diminish the need for future dredging. (c) Dredging shall be planned, scheduled, and carried out to minimize disruption to fish and bird breeding and migrations, marine habitats, and water circulation. Bottom sediments or sediment elutriate shall be analyzed for toxicants prior to dredging or mining, and where water quality standards are met, dredge spoils may be deposited in open coastal water sites designated to minimize potential adverse impacts on marine organisms, or in confined coastal waters designated as fill sites by the master plan where such spoil can be isolated and contained, or in fill basins on upland sites. Dredge material shall not be transported from coastal waters into estuarine or fresh water areas for disposal. (d) For water areas to be diked, filled, or dredged, the commission shall balance and consider socioeconomic and environmental factors.	habitats would occur in other parts of San Diego Bay and would be consistent with CCA section 30705 Policy (a) (6). (b) The existing Convair Lagoon Alternative site contains a seven-acre sand cap, which remediates contamination related to former Teledyne Ryan Aeronautical operations. The Convair Lagoon Alternative is designed to take advantage of this existing condition by placing additional contaminated dredged sediment on the site, contained by a containment barrier, sand cap and asphalt pavement. The installation of the containment barrier, sand cap and asphalt pavement would reduce on-site sedimentation. Therefore, the Convair Lagoon Alternative would be consistent with CCA section 30705(b). (c) The Convair Lagoon Alternative site is not an estuarine or fresh water area. The alternative would potentially result in disruption to fish and bird breeding and migrations, marine habitats, and water circulation; however, these impacts would be mitigated to a level below significant through implementation of mitigation measures 5.10.4.1 through 5.10.4.4 described in this alternative. In addition, the alternative would potentially result in water quality impacts from re-suspension of contaminated sediments into the water column, a decrease in dissolved oxygen, an increase in turbidity and changes in water pH, resulting in significant impacts to water quality. However, these impacts would be mitigated to a less than significant level through implementation of mitigation measures 5.10.9.1 through 5.10.9.5. Sediments dredged from the Shipyard Sediment site would be placed in Convair Lagoon, which is a confined coastal water area designated for sediment contamination and isolation. Prior to construction of the alternative, any existing, on-site contamination would be resolved to the satisfaction of the San Diego Water Board. Within Subarea 24 of the PMP, the Convair Lagoon Alternative site is designated for sediment remediation and monitoring; therefore, the alternative would place contaminated fill in an appropriate bay location. Therefore, the Convair Lagoon Alternative would be consistent with CCA section 30705 (c). (d) The District's preparation and processing of the draft PMPA for the Convair Lagoon Alternative will consider both socioeconomic and environmental factors. The environmental impacts associated with implementation of the Convair Lagoon Alternative are evaluated in Sections 5.10.3 through 5.10.10, of this analysis. Therefore, the Convair Lagoon Alternative would be consistent with CCA section 30705 (d).
30706	**Fill.** Specifies policies, in addition to the other provisions of Chapter 8, which govern filling seaward	(a) The Convair Lagoon Alternative would fill Convair Lagoon with only enough materials to achieve

Table 5-35: Applicable California Coastal Act Chapter 8 "Ports" Policies and Proposed Project Consistency

Section	California Coastal Act (CCA) Policy	Convair Lagoon Alternative Consistency Evaluation
	of the mean high tide line within the jurisdiction of ports. States the following: (a) The water area to be filled shall be the minimum necessary to achieve the purpose of the fill. (b) The nature, location, and extent of any fill, including the disposal of dredge spoils within an area designated for fill, shall minimize harmful effects to coastal resources, such as water quality, fish or wildlife resources, recreational resources, or sand transport systems, and shall minimize reductions of the volume, surface area, or circulation of water. (c) The fill is constructed in accordance with sound safety standards which will afford reasonable protection to persons and property against the hazards of unstable geologic or soil conditions or of flood or storm waters. (d) The fill is consistent with navigational safety.	the purpose of the fill, which is to dispose of contaminated dredge from the Shipyard Sediment site in a manner that would not require substantial truck traffic. Therefore, the Convair Lagoon Alternative would be consistent with CCA section 30706 (a). (b) The Convair Lagoon Alternative site was chosen for the placement of dredged fill from the Shipyard Sediment project because Convair Lagoon already contains a sand cap that remediates sediment contamination from former Teledyne-Ryan Aeronautical operations. Impacts to water quality from implementation of the Convair Lagoon Alternative would be reduced to a level below significant with implementation of mitigation measures 5.10.9.1 through 5.10.9.5. Impacts to biological resources, including a reduction of San Diego Bay surface water, would be mitigated to a level below significant with implementation of mitigation measures 5.10.4.1 through 5.10.4.4. Implementation of specified mitigation measures would minimize harmful effects to coastal resources and waters. Therefore, the Convair Lagoon Alternative would be consistent with CCA section 30706 (b). (c) The Convair Lagoon Alternative would be consistent with the standards and specifications provided in the Naval Facilities Engineering Command, DM-7.2, Foundations and Earth Structures, dated September 1986. Geologic hazards would be mitigated to a less than significant level with implementation of mitigation measure 5.10.6.1. Therefore, the Convair Lagoon Alternative will afford reasonable protection to persons and property against the hazards of unstable geological or soils conditions or of flood or storm waters. The alternative would be consistent with CCA section 30706 (c). (d) The Convair Lagoon Alternative would result in the filling of a 0.5-acre area of San Diego Bay currently designated as Boat Navigational Corridor, which accommodates small boat traffic traveling between Anchorage A-9 and the main boat channel in San Diego Bay. This 0.5-acre areas would be designated Harbor Services (land) with implementation of the alternative. As discussed above, the loss of 0.5 acres of Boat Navigation Corridor water use as a result of the alternative would not impact the ability for boats to navigate between these two locations. Therefore, the fill would not compromise navigational safety and the Convair Lagoon Alternative would be consistent with CCA section 30706 (d).
30708	**Location, design and construction of port-related developments**. All port-related developments shall be located, designed, and constructed so as to: (a) Minimize substantial adverse environmental	(a) Chapter 5.10.2, "Environmental Analysis," addresses potential impacts to the environment from the siting, design, and construction of the Convair Lagoon Alternative. For each issue analyzed in

Table 5-35: Applicable California Coastal Act Chapter 8 "Ports" Policies and Proposed Project Consistency

Section	California Coastal Act (CCA) Policy	Convair Lagoon Alternative Consistency Evaluation
	impacts. (b) Minimize potential traffic conflicts between vessels. (c) Give highest priority to the use of existing land space within harbors for port purposes, including, but not limited to, navigational facilities, shipping industries, and necessary support and access facilities. (d) Provide for other beneficial uses consistent with the public trust, including, but not limited to, recreation and wildlife habitat uses, to the extent feasible. (e) Encourage rail service to port areas and multicompany use of facilities.	Chapter 5.10, potential substantial adverse environmental impacts are identified and mitigation measures are provided to minimize these impacts to the extent feasible. Therefore, the Convair Lagoon Alternative would be consistent with CCA section 30708(a). (b) The Convair Lagoon Alternative would result in the filling of a 0.5-acre area of San Diego Bay currently designated as Boat Navigational Corridor, which accommodates small boat traffic traveling between Anchorage A-9 and the main boat channel in San Diego Bay. This 0.5-acre areas would be designated Harbor Services (land) with implementation of the alternative. As discussed above, the loss of 0.5 acres of Boat Navigation Corridor water use as a result of the alternative would not impact the ability for boats to navigate between these two locations. Therefore, the project would minimize conflicts between vessels and the Convair Lagoon Alternative would be consistent with CCA section 30708 (b). (c) Implementation of the Convair Lagoon Alternative would result in the conversion of the entire site to an above ground, paved parcel of land with a Harbor Service (land) use designation. The Harbor Service (land) use designation allows areas devoted to maritime services and harbor regulatory activities of the District including remediation and monitoring. As a result of the project, the Convair Lagoon Alternative would provide a new land use area for District to use for port purposes. Therefore, the Convair Lagoon Alternative would be consistent with CCA section 30708(c). (d) The project provides a beneficial use to the public by providing a site to place contaminated dredge materials from the Shipyard Sediment site, thus allowing the shipyard to continue to provide berthing areas and related facilities necessary to maintain existing shipyard operations. The Convair Lagoon Alternative site was chosen for the placement of dredged fill from the Shipyard Sediment project because Convair Lagoon already contains a sand cap that remediates sediment contamination from former Teledyne-Ryan Aeronautical operations. The current use of this site for remediation and monitoring precludes it from uses such as recreation. Impacts to existing wildlife habitat within Convair Lagoon resulting from implementation of this alternative would be mitigated to a level below significant with implementation of mitigation measures 5.10.4.1 through 5.10.4.4, including the creation, protection and/or enhancement of wildlife habitat in other areas of San Diego Bay. Therefore, the Convair Lagoon Alternative would be consistent with CCA section 30708 (d).

Table 5-35: Applicable California Coastal Act Chapter 8 "Ports" Policies and Proposed Project Consistency

Section	California Coastal Act (CCA) Policy	Convair Lagoon Alternative Consistency Evaluation
		(e) The project would not utilize rail service or provide development that multiple companies could jointly utilize. Therefore, section 30708 (e) is not applicable to the Convair Lagoon Alternative. No further discussion is required.

Compatibility with Surrounding Land and Water Uses. Land and water use compatibility impacts are based on the compatibility of the Convair Lagoon Alternative with existing and proposed neighboring land uses. Land and water use compatibility is based on a number of factors that relate to the characteristics and activities associated with the proposed Convair Lagoon Alternative and the characteristics and activities of the existing and proposed neighboring land and water uses. These characteristics can be general, such as the type and density of uses, or more specific, including visual design attributes, traffic and pedestrian circulation, and other specific features of the land uses. The visual quality and traffic issues related to this alternative are addressed in Section 5.10.11, Other Environmental Issues, of this analysis. Therefore, this section focuses primarily on existing and proposed land and water use compatibility.

Existing Land Uses. Under the Convair Lagoon Alternative, the 10-acre proposed fill pad area portion of the proposed 15.4-acre project site would be converted from water uses to land uses, as proposed in the PMPA. In other words, the site would be converted from existing submerged land to an above-ground, undeveloped, paved parcel of land. The existing water use areas of the site include 5.0 acres of Harbor Services (water), 4.5 acres of Specialized Berthing (water) and 0.5 acre of Boat Navigation Corridor (water) (see Figure 5-5). These areas total 10 acres in size and would be designated as Harbor Services (land) under the Convair Lagoon Alternative. The land use designations of the remaining 5.4-acre area of the project site located along the northern and western project boundaries would not change, and would remain Industrial Business Park (3.4 acre) and Harbor Services (land) (0.4-acre). An additional 1.6 acres of the site area that is not included in the PMPA located adjacent to the southern part of containment barrier would be submerged under water and would remain 0.8 acres of Boat Navigation Corridor and 0.8 acres of Specialized Berthing.

The site is located in a highly developed urban area, bounded by San Diego Bay to the south, North Harbor Drive and SDIA to the north, the U.S. Coast Guard Station to the east and a rental car parking lot to the west. The conversion of a portion of the site from water to land would be compatible with the area because of the industrial and commercial nature of the surrounding area. A large paved parking lot is located to the west of the site, and implementation of the Convair Lagoon Alternative would result in a similar land use. The

conversion of the site would not impact any U.S. Coast Guard or SDIA operations and would also be considered compatible with these surrounding land uses, which include manufacturing, aviation and industrial facilities. Implementation of the Convair Lagoon Alternative would not conflict with the Airport Land Use Compatibility Plan for the San Diego International Airport. Refer to section 4.7.8, Hazards and Hazardous Materials, for additional information regarding this conclusion

San Diego Bay is located to the south of the site. The conversion of the site from water to land would not substantially conflict with the water uses within San Diego Bay because the Convair Lagoon Alternative site is currently used for remediation and monitoring activities and is not used for any recreational, fishing or boating activities. Boat Anchorage A-9 is located south of the Convair Lagoon Alternative site and implementation of the alternative would not result in any water use impacts to this anchorage because upon completion of the alternative, boats would continue to be able to navigate through the area of water south of the site and would continue to be able to utilize Anchorage A-9, as well as the marina facilities found at the Harbor Island East Basin.

Furthermore, implementation of the Convair Lagoon Alternative would continue the existing use of the site as remediation and monitoring, with the only major conversion being the change from water to land. For these reasons, the Convair Lagoon Alternative would be compatible with the surrounding land uses and would not result in a significant land use compatibility impact.

Proposed Land Uses. The Convair Lagoon Alternative site is located within Subarea 24 of Planning District 2 within the 2010 PMP. As discussed above, the 10-acre portion of the proposed fill pad area (see Figure 5-4) would be converted from Harbor Services (water), Specialized Berthing (water) and Boat Navigation Corridor (water) uses to Harbor Services (land) use under the Convair Lagoon Alternative. Land to the north of the site is designated as Harbor Services (land); land to the east of the site is under the jurisdiction of the federal government and does not have a PMP land use designation; land to the west of the site is designated as Industrial Business Park; water to the south of the site is designated as Boat Navigation Corridor.

Within the PMP, Subarea 24 land sites are recommended for eventual redevelopment into a light, marine-related industrial/business park to include such uses as scientific laboratories, office space, marine-oriented businesses and light manufacturing plants, with some ancillary storage and warehousing where necessary to conduct primary industrial activities. The Convair Lagoon Alternative site is designated as Harbor Services which identifies sediment remediation and monitoring as a use allowed within this designation. The conversion of the site from water to land is consistent with this use because the proposed land use is industrial in nature and a paved lot would result in a compatible land use. Furthermore, implementation of the Convair Lagoon Alternative would be consistent with the PMP's intent to use the site for sediment remediation and monitoring. Therefore, the Convair

Lagoon Alternative would not result in a significant impact to proposed land uses and the impact would not be significant.

Threshold 5.10.10.3: Conflict with Applicable Habitat Conservation Plan. The Convair Lagoon Alternative site is under the jurisdiction of the District and is not subject to the requirements of any habitat conservation plan. Local biological resource policies and ordinances relevant to the Convair Lagoon Alternative include the Port Master Plan, the Southern California Eelgrass Mitigation Policy and the Magnuson-Stevens Fishery Conservation and Management Act. Refer to Section 5.10.4, Biological Resources, for an analysis of consistency with these policies.

Potentially Significant Impacts

Potential impacts to specific issues such as biological resources and water quality are addressed in Sections 5.10.3 through 5.10.10 of this analysis. Other than the impacts addressed in these other sections of this EIR, the proposed Convair Lagoon Alternative would not result in a significant land and water use compatibility impacts relating to general land use compatibility and plan conformance. Any potentially significant impacts associated with changes to the land use designations within the Convair Lagoon Alternative site would be mitigated with approval of the proposed PMPA.

Mitigation Measures

No additional mitigation would be required because mitigation measures are specified in the corresponding sections for more specific issues listed in Sections 5.10.3 through 5.10.10 and no additional significant impacts associated with general land use compatibility and plan conformance were identified.

Cumulative Impacts

Threshold 5.10.10.1 and Threshold 5.10.10.2: Compatibility with Surrounding Land and Water Uses and Consistency/Conformance with Adopted Plans and Policies. The geographic scope of analysis for cumulative impacts includes lands under the jurisdiction of the District and California Coastal Act, which is also where the Convair Lagoon Alternative site is located. It is anticipated that development of future cumulative projects would undergo CEQA review which would require a consistency analysis with applicable plans and policies and existing and proposed surrounding land and water uses. As required by CEQA, cumulative projects would be consistent with the existing adopted plans and surrounding land uses, or require mitigation measures or design review to ensure consistency, in order for project approvals to occur. Therefore, it is anticipated that cumulative development, in combination with the Convair Lagoon Alternative, would be consistent with applicable plans, policies and surrounding land uses, resulting in a less than significant cumulative impact.

Level of Significance After Mitigation

With implementation of the mitigation measures specified in Sections 5.10.3 through 5.10.10 of this analysis, significant cumulative impacts associated with surrounding land uses and consistency with adopted plans and policies would be reduced to a level below significant.

Significant Unavoidable Adverse Impacts

No significant and unavoidable adverse land use impacts would occur from implementation of the Convair Lagoon Alternative.

5.10.11 Other Environmental Issues

This section contains a brief statement disclosing the reasons that various possible significant effects of the Convair Lagoon Alternative were found not to be significant and, therefore, were not discussed in detail in the analysis. Environmental issue areas found to have potentially significant impacts are addressed in the various subsections of Section 5.10 of this analysis.

5.10.11.1 Effects Found Not to be Significant

The Convair Lagoon Alternative does not have the potential to result in significant impacts to: Aesthetics; Agricultural Resources; Mineral Resources; Noise; Population and Housing; Public Services; Recreation; and Utilities and Service Systems. The exception is Transportation/Traffic which would result in impacts that are the same as those identified for the proposed project and would be mitigated to a less than significant level with the same measures as are identified for the proposed project. The discussion of each topic is addressed by issue questions provided in Appendix G, Environmental Checklist Form, of the CEQA Guidelines.

Aesthetics

Would the Convair Lagoon Alternative have a substantial adverse effect on a scenic vista?

The Convair Lagoon Alternative is located within Planning District 2 Precise Plan, Lindbergh Field/Harbor Island, of the Port Master Plan (PMP). The PMP provides a framework for the consideration of vistas and views that have been recognized as scenic and important to the area and the region. Within the PMP, vista areas are identified as areas that include points of natural visual beauty, photo vantage points, and other panoramas. The intent of the PMP is to guide the arrangement of development on designated vista areas to preserve and enhance such vista points. Major vista areas are indicated by a symbol on the PMP Precise Plan Maps.

The Planning District 2 Precise Plan identifies six different scenic vista areas. All of these areas are located on Harbor Island, with views oriented south towards San Diego Bay. The closest scenic vista to the alternative's site is located to the southwest, along Harbor Island Drive at the most eastern portion of Harbor Island (see Figure 5-14). The viewshed for this vista area extends to the south, in the opposite direction of the Convair Lagoon Alternative site. Although the Convair Lagoon Alternative site is visible to the north of this identified scenic vista, it is not within the identified viewshed, which extends to the south of Harbor Island towards San Diego Bay. Therefore, implementation of the Convair Lagoon Alternative would not impact a scenic vista and no further analysis is required. Additionally, the Convair Lagoon Alternative site is not visible from any designated scenic vista areas located in Planning District 1, Planning District 3 or Planning District 6, due to the orientation of the identified scenic vistas and view obstructions from land facilities, such as the US Coast Guard Station.

Would the Convair Lagoon Alternative substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?

The Convair Lagoon site is located along North Harbor Drive, which is not a State designated scenic highway. Additionally, no significant trees, rock outcroppings, historical buildings or other designated scenic resources are located on the alternative's site. Due to the absence of State scenic highways in the site area, no impacts to scenic resources associated with scenic highways would occur. Refer to Section 5.10.5, Cultural Resources, for an evaluation of structures on the alternative's site and their potential to be classified as historic. Therefore a significant impact would not occur.

Would the Convair Lagoon Alternative substantially degrade the existing visual character or quality of the site and its surroundings?

The existing visual character of the Convair Lagoon Alternative site includes a small waterfront embayment and associated land facilities used, in part, for sediment remediation and monitoring. Submerged facilities include a sand cap, a rock berm and multiple storm drains. Land facilities include an asphalt paved dock, an abandoned pier, a concrete seawall, rip-rap, an abandoned sea plane marine ramp, and a chain link fence.

The visual character of areas to the west of the Convair Lagoon Alternative site includes a large rental car parking lot. Beyond the rental car facility, the visual character is an industrial/business park development. The visual character of areas to the north of the site includes a bicycle path, North Harbor Drive and the San Diego International Airport. The visual character of the area to the east of the site includes the United States San Diego Coast Guard Station. The visual character to the south of the site includes San Diego Bay.

During construction, the existing visual character of the site would be altered through the presence of construction equipment such as barges, trucks, cranes and pumps. However, the presence of construction equipment would be temporary and would be removed upon completion of construction. Visual impacts associated with construction would be occur for a period of approximately 15 months and would not permanently degrade the visual character of the site or surrounding area.

Upon completion of construction, the existing visual character of the Convair Lagoon site would be permanently altered. Convair Lagoon Alternative site would be converted from an embayment to an undeveloped, above-ground, paved parcel of land, which would permanently change the visual character of the site. However, this permanent change would not degrade the visual character of the site because the paved site would be consistent with the visual character of land facilities to the north, east and west, which include parking lots, roadways, airport runways and facilities, and a Coast Guard complex. No structures or buildings would be placed on the Convair Lagoon Alternative site upon completion of construction. Upon completion of the containment cap, the elevation of the site would be approximately 10 feet MLLW. The elevation transition between the existing, surrounding ground surface, which is 12 feet MLLW, would be gradual across the site and would be based on surface drainage requirements. Therefore, the finished elevation of the project would not visually impair views from Harbor Drive or adjacent sidewalks. Although implementation of the Convair Lagoon Alternative would permanently alter the visual character of the site, for the reasons described above it would not do so in a way that would degrade the existing visual quality of the site or surrounding area.

Would the Convair Lagoon Alternative create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Construction of the Convair Lagoon Alternative would occur during daytime hours. Nighttime construction and associated lighting would not occur. Upon completion of construction, the Convair Lagoon Alternative site would not contain any new structures or lighting facilities. Therefore, the Convair Lagoon Alternative would not create any new sources of light or glare that would adversely affect day or nighttime views in the area. Therefore, no impact would occur and no further analysis is required.

Agricultural and Forest Resources

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

The Convair Lagoon site and surrounding area is classified as Urban and Built-up land by the Farmland Mapping and Monitoring Program (FMMP) of the California Department of Conservation (Department of Conservation, 2008). No portion of the site or surrounding

area is designated as Prime Farmland, Unique Farmland or Farmland of Statewide Importance by the FMMP. No farmland or row crops exist within the site or in the vicinity of the site. Therefore, construction of the Convair Lagoon Alternative would not convert any agricultural resources to non-agricultural use. Therefore no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative conflict with existing zoning for agricultural use, or a Williamson Act contract?

The Convair Lagoon Alternative is located within the PMP Planning District 2 Precise Plan. The PMP identifies a variety of land and water uses, such as commercial, industrial, and recreation. The PMP has no agricultural land use designations and Convair Lagoon has a PMP land use designation of Harbor Services, Industrial Specialized Berthing and Boat Navigation Corridor. No agricultural resources exist on the Convair Lagoon Alternative site or within surrounding areas, as discussed above. The alternative would not conflict with existing zoning for agriculture use or a Williamson Act Contract. Therefore, no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4256), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

The Convair Lagoon Alternative site is located within a highly developed urban area that lacks forest, timberland or timberland production. Under the Port Master Plan, the Convair Lagoon Alternative site is designated Harbor Services, Industrial Specialized Berthing, Industrial Business Park and Boat Navigation Corridor. No forest land, timberland or timber land production exists within the site or the surrounding vicinity. Therefore, the Convair Lagoon Alternative would not conflict with existing on-site or off-site zoning for forestland, timberland or timberland production. Therefore, no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative result in the loss of forest land or conversion of forest land to non-forest use?

As discussed above, no forest land, timberland or forest resources exist on the Convair Lagoon Alternative site or within the vicinity of the site. Therefore, implementation of the Convair Lagoon Alternative would not result in the loss of forest land or the conversion of forest land to non-forest use. Therefore, no impact would occur and no further analysis is required.

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

No agricultural resources exist on the Convair Lagoon Alternative site or in the surrounding area. Additionally, no forest land resources exist on the Convair Lagoon Alternative site or in the surrounding area. Implementation of the Convair Lagoon Alternative would not involve any changes to the existing environment that would result in the conversion of farmland to non-agricultural use or would result in the conversion of forest land to non-forest use. Therefore, no impact would occur and no further analysis is required.

Mineral Resources

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

No commercial mining operations exist on the Convair Lagoon Alternative site or within San Diego Bay. Additionally, the Port Master Plan has not identified any important mineral resources in the area or designated plans for mineral resource extraction (District, 2010). The Surface Mining and Reclamation Act require the classification of land into Mineral Resource Zones (MRZ), according to the land's known or inferred mineral resource potential. The Convair Lagoon Alternative site and vicinity are located MRZ-1 (SD, 2007). MRZ-1 areas are defined as areas where adequate geologic information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence. The MRZ-1 zone is applied by the California Geological Survey to lands where well developed lines of reasoning, based on economic-geologic principles and adequate data, indicate that the likelihood for occurrence of significant mineral deposits is nil or slight. The Convair Lagoon Alternative site does not have mineral resources and would not result in the loss of availability of a known mineral resource that is of value to the region or residents of the state. Therefore, no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

As discussed above, no mineral resources exist on the Convair Lagoon Alternative site or surrounding areas, including locally-important mineral resource recovery sites. The applicable land use plan for the Convair Lagoon site is the Port Master Plan, which does not identify any important mineral resources in the area and does not designate plans for mineral resource extraction (District, 2010). The Convair Lagoon Alternative would not result in the loss of any locally-important minerals. Therefore, no impact would occur and no further analysis is required.

Noise

Would the Convair Lagoon Alternative result in 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?

Convair Lagoon is located in a heavily developed urban area with no surrounding noise-sensitive land uses. Noise generated from construction operations associated with this alternative would come from the use of barges, dump trucks, cranes and hydraulic pumps. Construction activities would generate temporary, periodic increases in noise levels on and near the site. However, construction operations would comply with the City of San Diego Noise Level Compatibility Standards and City of San Diego Noise Ordinance. Compliance with these regulations would ensure that construction of the Convair Lagoon Alternative would not generate noise in excess of established standards. Additionally, upon completion of construction, only an undeveloped, paved parcel of land would remain and no operational noise would occur. Therefore, a significant impact would not occur and no further analysis is required.

Would the Convair Lagoon Alternative result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Construction of the Convair Lagoon Alternative would generate temporary periodic increases in noise levels. However, the site is located within a heavily developed urban area where construction related noises would be consistent with ambient noise levels. For example, the SDIA is located approximately 1,000 feet directly north of the alternative's site. Noise associated with aircraft operations at the San Diego International Airport average 99 decibels for departures and 95 decibels for arrivals near the runway approximately 2,000 feet from the project site (single event noise exposure level) (SDCRAA, 2010a). However, the noise levels at the site from aircraft operations at the SDIA are currently 65 dBA CNEL (SDCRAA, 2010a). In addition, the nearest sensitive receptor (residences) is located approximately 0.8 mile to the east near the intersection of West Laurel Street and Kettner Boulevard, where the CNEL associated with SDIA operations is 75 dBA CNEL (SDCRAA, 2010b). The distance from the construction site to these residences is approximately 0.8 mile, which is a sufficient distance to attenuate noise levels from construction equipment to ambient levels, assuming noise levels associated with the operation of heavy construction equipment typically range from about 78 to 88 decibels Leq at 50 feet from the source (FHWA, 2006), and the standard distance attenuation criteria of 3dBA per doubling of distance.

Construction of the Convair Lagoon Alternative would comply with the City of San Diego Noise Level Compatibility Standards and City of San Diego Noise Ordinance. Noise generated from these construction activities would be temporary in nature and due to the surrounding land uses, would not exceed the existing noise levels in the area. Further, construction activities would not involve blasting or pile driving, and therefore would not

result in excessive groundborne vibration. Additionally, upon completion of construction, only an undeveloped, paved parcel of land would remain and no operational noise would occur. Therefore, the Convair Lagoon Alternative would not result in excessive noise levels or vibration.

Would the Convair Lagoon Alternative result in a substantial permanent increase in ambient noise levels in the Convair Lagoon Alternative vicinity above levels existing without the Convair Lagoon Alternative?

Noise generated from construction activities would be temporary in nature. Upon completion of the Convair Lagoon Alternative, the site would be converted from a submerged lagoon to an undeveloped, above-ground, paved parcel of land. No permanent operational noise would occur and the Convair Lagoon Alternative would not result in any permanent increase in ambient noise. Therefore, no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative result in a substantial temporary or periodic increase in ambient noise levels in the Convair Lagoon Alternative vicinity above levels existing without the Convair Lagoon Alternative?

Construction of the Convair Lagoon Alternative would generate temporary periodic increases in noise levels. However, the site is located within a heavily developed urban area where construction related noises would be consistent with ambient noise levels. For example, the SDIA is located approximately 1,000 feet directly north of the alternative's site. Noise associated with aircraft operations at the San Diego International Airport average 99 decibels for departures and 95.2 decibels for arrivals near the runway approximately 2,000 feet from the project site (single event noise exposure level) (SDCRAA, 2010a). However, the noise levels at the site from aircraft operations at the SDIA are currently 65 dBA CNEL (SDCRAA, 2010a). In addition, the nearest sensitive receptor (residences) is located approximately 0.8 mile to the east near the intersection of West Laurel Street and Kettner Boulevard, where the CNEL associated with SDIA operations is 75 dBA CNEL (SDCRAA, 2010b). The distance from the construction site to these residences is approximately 0.8 mile, which is a sufficient distance to attenuate noise levels from construction equipment to ambient levels, assuming noise levels associated with the operation of heavy construction equipment typically range from about 78 to 88 decibels Leq at 50 feet from the source (FHWA, 2006), and the standard distance attenuation criteria of 3dBA per doubling of distance.

Furthermore, construction operations would comply with the City of San Diego Noise Level Compatibility Standards and the City of San Diego Noise Ordinance. Therefore, the Convair Lagoon Alternative would not result in a substantial increase in ambient noise and no impact would occur.

For an area located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Convair Lagoon Alternative expose people residing or working in the area to excessive noise levels?

The Convair Lagoon Alternative is located within the Airport Land Use Compatibility Plan Airport Influence Area for the San Diego International Airport. However, the Convair Lagoon Alternative would not include the construction of any structure or building in which people would work or reside. Therefore, implementation of the Convair Lagoon Alternative would not expose people to excessive noise levels from the San Diego International Airport. Therefore, no impact would occur and no further analysis is required.

For a Convair Lagoon Alternative within the vicinity of a private airstrip, would the Convair Lagoon Alternative expose people residing or working in the Convair Lagoon Alternative area to excessive noise levels?

The site is not located within a private airport land use plan or located within two miles of a private airport. Additionally, the Convair Lagoon alternative does not include the construction of any structure or building where people would work or reside. Therefore, the Convair Lagoon Alternative would not expose people residing or working in the area to excessive noise levels from a private airport. Therefore, no impact would occur and no further analysis is required.

Population and Housing

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

The Convair Lagoon Alternative would not directly or indirectly induce population growth in the area because this alternative would not create any new housing units or employment generating land uses. Upon completion of this alternative, Convair Lagoon would be converted from a submerged lagoon to an undeveloped, above-ground, paved parcel of land. No structures, water infrastructure or wastewater infrastructure would be constructed on the completed site. Therefore, the Convair Lagoon Alternative would not directly or indirectly induce substantial population growth and no impact would occur.

Would the Convair Lagoon Alternative displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

No homes exist and no people reside on the Convair Lagoon Alternative site. Therefore, construction of this alternative would not displace any existing housing units, necessitating

the construction of replacement housing elsewhere. Therefore, no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No homes exist and no people reside on the Convair Lagoon Alternative site. Therefore, implementation of this alternative would not displace any people and would not require the construction of replacement housing elsewhere. Therefore, no impact would occur and no further analysis is required.

Public Services

Would the Convair Lagoon Alternative result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection services?

The City of San Diego Fire-Rescue Department provides fire protection services to the site and surrounding areas. Upon completion of this alternative, the site would be converted from a submerged lagoon to an undeveloped, above-ground, paved parcel of land with no structures. The Convair Lagoon Alternative would not include the construction of any new buildings or structures that would involve human habitation or occupancy. Therefore, the Convair Lagoon Alternative would not increase the local population and would not impact the service standards of the City of San Diego Fire-Rescue Department by increasing service demand. As a result there would be no need to develop new or physically alter existing fire protection facilities. Therefore, no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for police protection services?

Police protection service is provided to the site and surrounding area from the Harbor Police and City of San Diego Police Department. Upon completion of this alternative, the site would be converted from a submerged lagoon to an undeveloped, above-ground, paved parcel of land with no structures. The Convair Lagoon Alternative would not include the construction of any new buildings or structures that would involve human habitation or occupancy. Therefore, the Convair Lagoon Alternative would not increase the local population and would not impact the service standards of the Harbor Police or the City of San Diego Police Department by increasing service demand. As a result there would be no

need to develop new or physically alter existing police protection facilities. Therefore, no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for school services?

School service is provided to the site and surrounding area by the San Diego Unified School District. Upon completion of this alternative, the site would be converted from a submerged lagoon to an undeveloped, above-ground, paved parcel of land with no structures. The Convair Lagoon Alternative would not include the construction of any new buildings or structures that would involve human habitation or occupancy. Therefore, the Convair Lagoon Alternative would not increase the local population and would not impact the service standards of the San Diego Unified School District by increasing service demand. As a result there would be no need to develop new or physically alter existing school facilities. Therefore, no impact would occur and no further analysis is required.

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

Upon completion of the Convair Lagoon Alternative, the site would be converted from a submerged lagoon to an undeveloped, above-ground, paved parcel of land with no structures. The Convair Lagoon Alternative would not include the construction of any new buildings or structures that would involve human habitation or occupancy. Therefore, the Convair Lagoon Alternative would not increase the local population and would not impact the performance objectives for any other public facility. As a result, there would be no need to develop new or physically alter existing governmental facilities. Therefore, no impact would occur and no further analysis is required.

Recreation

Would the Convair Lagoon Alternative 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?

The Convair Lagoon Alternative does not include the construction of any new buildings or structures that would involve human habitation or occupation. Upon completion of the

Convair Lagoon Alternative, the site would be converted from a submerged lagoon to an undeveloped, above-ground, paved parcel of land with no structures. The Convair Lagoon Alternative would not increase population in the area and would not increase the demand for existing recreational facilities. Therefore, no impact to existing recreational facilities would occur and no further analysis is required.

Does the Convair Lagoon Alternative include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

The Convair Lagoon Alternative does not include the construction of any new buildings or structures that would involve human habitation or occupation. Upon completion of the Convair Lagoon Alternative, the site would be converted from a submerged lagoon to an undeveloped, above-ground, paved parcel of land with no structures. The Convair Lagoon Alternative would not increase population in the area and would not require the construction or expansion of recreational facilities elsewhere. Therefore, no impact would occur and no further analysis is required.

Transportation and Traffic

Would implementation of the Convair Lagoon Alternative conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit or conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

The Convair Lagoon Alternative would generate truck trips during the 15-month construction period. All five phases of construction would generate a total of 7,714 truck trips. The maximum daily truck trips that would occur during the construction period would be 98 truck trips per day.

For this analysis, truck trips have been converted to passenger car equivalents (PCEs) using a factor of three (one truck = three passenger cars). Therefore, the alternative would generate a total of 23,142 PCE truck trips during the 15-month construction period. The maximum daily trips during the construction period would be 294 PCE truck trips.
Once construction is completed, no permanent vehicular trips would be associated with operation of the Convair Lagoon Alternative.

The Convair Lagoon Alternative would generate daily construction-related trips for the following two purposes, which are discussed further under separate headings below:

1. Disposal of highly contaminated materials
2. Construction of the confined disposal facility (CDF) at Convair Lagoon

Disposal of Highly Contaminated Materials. The Convair Lagoon Alternative would result in the generation of truck trips associated with the implementation of Phase 4, Sediment Transport and Placement, Sub-Phase B: Dewatering and Disposal. Under this alternative, approximately 21,510 cy, or 15 percent, of dredged sediment from the Shipyard Sediment site would not qualify for placement in the Convair Lagoon Alternative CDF because of high contamination levels. This 21,510 cy of contaminated dredged sediment would be transported to land via barge and would require dewatering prior to loading the dredge materials onto trucks and transporting it to a Class I landfill for disposal. It is estimated that approximately 2,205 truck trips (6,615 PCE truck trips) would be required to transport the highly contaminated materials to the Class I landfill site, which most likely would be Kettleman Hills Landfill in Kings County, California. The preferred route to Kettleman Hills Landfill in Kings County, California is via I-5 north. Trucks departing from potential Staging Areas 1 through 4 would access I-5 south via E. Harbor Drive and 28th Street; trucks departing from Staging Area 5 would access I-5 south either directly from Bay Marina Drive or from W. 32nd Street to Marina Way to Bay Marina Drive.

The process regarding the dredging, dewatering and transport of 15 percent of highly contaminated materials removed from the Shipyard Sediment site is exactly the same as is described in Chapter 3.0 Project Description. Therefore, the analysis provided in Section 4.1, Traffic, for the Shipyard Sediment Site Project addressing conflicts with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system would apply to this portion of the Convair Lagoon Alternative and is not repeated here. Section 4.1, Traffic, identifies three mitigation measures to reduce impacts associated with truck traffic from the five potential staging areas to the selected Class I disposal facility, most likely Kettleman Hills Landfill in Kings County, California. These mitigation measures would also be implemented under the Convair Lagoon Alternative to reduce impacts associated with truck trips transporting highly contaminated materials. No new impacts associated with the disposal of highly contaminated materials would occur under this alternative that were not adequately addressed in and mitigated by the proposed project analysis. Therefore, no new mitigation measures beyond those identified for the proposed project would be required.

Construction of the Confined Disposal Facility (CDF) in Convair Lagoon. The Convair Lagoon Alternative would also result in the generation of truck trips associated with the construction of the CDF in Convair Lagoon. As identified in Table 5-6, Convair Lagoon Alternative Truck and Barge Trips (by Construction Phase), Phases 2, 3 and 5 would generate a combined total of 5,509 truck trips (16,527 PCE truck trips) during construction. Phase 2 (Containment Barrier Construction) would generate a total of 4,174 truck trips (12,522 PCE truck trips); Phase 3 (Storm Drain Outlet Extension) would generate 205 truck

trips (615 PCE truck trips); and Phase 5 (Containment Cap Installation) would generate 1,310 truck trips (3,930 PCE truck trips). However, the maximum daily truck trips that would occur during the 15-month construction period would be 98 truck trips per day or 294 PCE truck trips as part of Phase 2 of construction.

Construction truck trips associated with the Convair Lagoon Alternative would mostly occur on city of San Diego streets; therefore, the City of San Diego Traffic Impact Study Manual (1998) was used as the basis for the analysis of impacts associated with construction truck trips. According to the Traffic Impact Study Manual, traffic impact studies are required for developments that generate more than 500 daily trip ends and do not conform to the applicable community plan. The threshold is 1,000 daily trip ends if a project conforms to the community plan. These thresholds were set by the City to allow projects that do not generate a substantial amount of traffic to avoid preparation of a traffic impact study, since the trip ends they generate are generally too small to result in a significant impact on the surrounding circulation system. Since the project is not within an applicable City of San Diego community plan, the 500 daily trip end threshold was used for this analysis.

Construction of the Phase 2 would generate a maximum of 294 PCE truck trips, which is less than the 500 daily trip end threshold set by the City. Therefore, in accordance with the City's Traffic Impact Study Manual (1998), a traffic impact study would not be required. Because the number of trips is too low to trigger the preparation of a traffic impact study, the District has determined that the generation of a maximum of 294 PCE truck trips per day during construction of the CDF would not result a significant impact on the local circulation system. Therefore, implementation of the Convair Lagoon Alternative would not conflict with any applicable circulation system traffic performance measures or plans.

It should be noted that the Convair Lagoon Alternative would implement a Parking Management Plan, as outlined in Section 4.1, Traffic, of this EIR and a Traffic Control Plan as outlined in Section 4.3, Hazards and Hazardous Materials, of this EIR. Further, the Convair Lagoon Alternative would implement mitigation measure 4.6-1, outlined in Section 4.6, Air Quality, of this EIR, which requires construction activities to be timed so as not to interfere with peak hour traffic and to minimize obstructions of traffic lanes adjacent to the site. Implementation of these mitigation measures would reduce indirect traffic-related impacts to a less than significant level.

Would the Convair Lagoon Alternative result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

Refer to Section 5.10.8, Hazards and Hazardous Materials, for a detailed discussion regarding construction activities associated with the Convair Lagoon Alternative and their potential to impair air traffic patterns. Upon completion of construction, the Convair Lagoon Alternative site would consist of an above-ground, undeveloped, paved parcel of land. No structures or buildings would occur on the site that could impact air traffic patterns.

Therefore, implementation of the Convair Lagoon Alternative would not require changes in air traffic patterns that could result in substantial safety risks. No impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The Convair Lagoon Alternative does not involve any roadway or intersection improvements, and does not involve any uses that are not compatible with the surrounding area. Upon completion of construction, the Convair Lagoon Alternative site would consist of an above-ground, undeveloped, paved parcel of land. No vehicular trips would be associated with operation of the Convair Lagoon Alternative. Therefore, the Convair Lagoon Alternative would not increase traffic hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses. No impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative result in inadequate emergency access?

As described in Section 5.10.1, Alternative Description, construction of the alternative would result in approximately 7,714 truck trips and 116 barge trips taking place over a 15 month construction period. The maximum daily truck trips that would occur during construction would be 98 trips per day.

To mitigate indirect impacts associated with construction traffic, the Convair Lagoon Alternative would implement a Parking Management Plan, as outlined in Section 4.1, Traffic, of this EIR and a Traffic Control Plan as outlined in Section 4.3, Hazards and Hazardous Materials, of this EIR. Furthermore, the Convair Lagoon Alternative would implement mitigation measure 4.6.1, outlined in Section 4.6, Air Quality, of this EIR, which requires construction activities to be timed so as not to interfere with peak hour traffic and to minimize obstructions of traffic lanes. Implementation of these mitigation measures would ensure that the alternative would not result in inadequate emergency access during construction. Upon completion of construction, the Convair Lagoon Alternative site would consist of an above-ground, undeveloped, paved parcel of land. No vehicular trips or structures would be associated with operation of the Convair Lagoon Alternative, which could result in inadequate emergency access. Therefore, no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

Construction of the Convair Lagoon Alternative may result in the temporary closure of the bicycle path located immediately north of the site along Harbor Drive. However, this impact would be temporary in nature and the bicycle path would re-open upon completion of construction. No permanent impacts to the bicycle route would occur as a result of the alternative. In addition, the alternative would not conflict with policies, plans or programs adopted for other modes of alternative transportation, such as buses, trolleys/trains, or pedestrian paths because the construction activities would not occur in public rights-of-way where these facilities area located. Therefore, the Convair Lagoon Alternative would not conflict with adopted policies, plans or programs supporting alternative transportation. No impact would occur and no further analysis is required.

Utilities and Service Systems

Would the Convair Lagoon Alternative exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

The Convair Lagoon Alternative would not create any residential, commercial, industrial or institutional development that would require wastewater treatment. Upon completion of construction, the site would consist of an undeveloped, above-ground, paved parcel of land with no structures or wastewater infrastructure. The Convair Lagoon Alternative would not create any wastewater treatment demand and would therefore not exceed the wastewater treatment requirements of the San Diego Water Board. Therefore, no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

The Convair Lagoon Alternative would not create any residential, commercial, industrial or institutional development that would require new water facilities or wastewater treatment facilities. Upon completion of construction, the site would consist of an undeveloped, above-ground, paved parcel of land with no structures or wastewater infrastructure. The Convair Lagoon Alternative would not create any water or wastewater demand and would not require or result in the construction of new water or wastewater facilities. Therefore, no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

As part of the Convair Lagoon Alternative, two on-site storm drains would be extended. The environmental impacts associated with the expansion of these facilities are evaluated in the various environmental topics within Section 5.10 of this analysis.

Would the Convair Lagoon Alternative have sufficient water supplies available to serve the Convair Lagoon Alternative from existing entitlements and resources, or are new or expanded entitlements needed?

The Convair Lagoon Alternative would not create any residential, commercial, industrial or institutional development that would require water supplies. Upon completion of construction, the site would consist of an undeveloped, above-ground, paved parcel of land with no structures or water infrastructure. The alternative would not require the provision of a potable water supply. Therefore, no impact would occur and no further analysis is required.

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

The Convair Lagoon Alternative would not create any residential, commercial, industrial or institutional development that would require wastewater treatment. Upon completion of construction, the site would consist of an undeveloped, above-ground, paved parcel of land with no structures or wastewater infrastructure. The alternative would not require the provision of wastewater facilities. Therefore, no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative be served by a landfill with sufficient permitted capacity to accommodate the Convair Lagoon Alternative's solid waste disposal needs?

The Convair Lagoon Alternative would not create any residential, commercial, industrial or institutional development that would generate solid waste or impact landfill capacity because of its operational characteristics. The project would involve demolition of existing facilities at the Convair Lagoon site; however, these materials would be placed in the CDF created by this alternative. This alternative would also generate approximately 21,510 yards of contaminated sediment that would be exported to the Kettleman Hills Landfill located near Kettleman City, California. The Kettleman Hills Landfill currently has capacity to accommodate this material. In addition, "The Kettleman Hills Landfill is currently proposing an expansion project to increase its hazardous waste operations. The proposed expansion would increase the capacity at the existing hazardous waste landfill and would construct a new hazardous waste landfill once the currently open landfill has reached its capacity.

Implementation of this project would ensure long-term hazardous waste disposal capacity at the facility for an additional 30 to 35 years (WM, 2011)."

Upon completion of construction, the site would consist of an undeveloped, above-ground, paved parcel of land with no structures. Operation of the alternative would not generate solid waste or reduce landfill capacity. Therefore, no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative comply with federal, state, and local statutes and regulations related to solid waste?

The Convair Lagoon Alternative would comply with federal, state, and local statutes and regulations related to solid waste through the testing of contaminated sediment dredged from the Shipyard Sediment site to ensure that only the sediments with high levels of contamination would be exported to the Kettleman Hills Landfill, with the remaining sediments transported to the CDF at Convair Lagoon.

This page intentionally left blank

ATKINS

LEGEND

Convair Alternative Site Boundary

Scenic Vista Point

N

0 750 1,500

FEET

SOURCE: SanGIS 2011

Note: Directions, dimensions and locations are approximate.

FIGURE 5-14

Convair Lagoon Alternative

Port Master Plan Scenic Vistas in the Vicinity of the Convair Lagoon Alternative Site

This page intentionally left blank