3.0 PROJECT DESCRIPTION

3.1 INTRODUCTION

This Environmental Impact Report (EIR) has been prepared to evaluate environmental impacts that will result from habitat and recreation improvements to the Colorado Lagoon (Lagoon) and adjacent areas, including Marina Vista Park and a small area at Marine Stadium, which comprise a 48.61-acre (ac) project area/park site in the City of Long Beach (City), as shown on Figure 3.1.

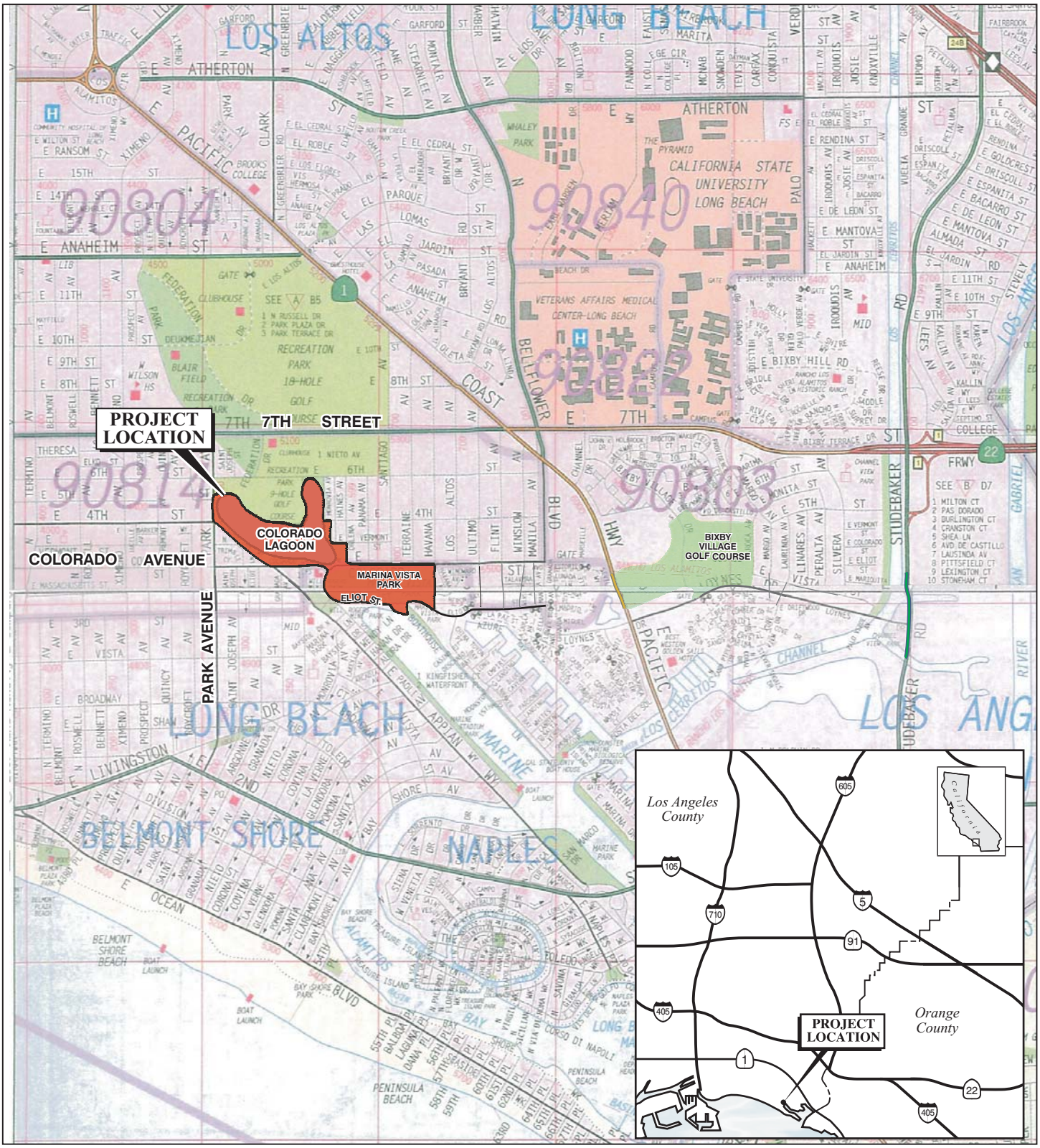
The Lagoon is an approximately 11.7 ac tidal water body[1] that is connected to Alamitos Bay and the Pacific Ocean through an underground tidal culvert to Marine Stadium. The Lagoon is located in a park setting and is owned and maintained as a City park by the City Department of Parks, Recreation, and Marine. The Lagoon serves three main functions: hosting estuarine habitat, providing public recreation (including swimming), and retaining and conveying storm water drainage. The water and sediment quality within the Lagoon are degraded. The Lagoon is listed on California's 303(d) list of impaired water bodies due to elevated levels of lead, zinc, chlordane, and polycyclic aromatic hydrocarbons (PAHs) in the sediment and chlordane, dichloro-diphenyl-trichloroethane (DDT), dieldrin, and polychlorinated biphenyls (PCBs) in fish and mussel tissue. In addition, testing confirmed the presence of PCBs, cadmium, copper, mercury, and silver as secondary contaminants of concern. Bacterial contamination of the Lagoon water is also a major concern, and indicator bacteria was added in 2006 to California's 303(d) list. The purpose of the proposed project is to restore the site's ecosystem, provide enhanced recreation facilities, and improve water and sediment quality while managing storm water.

3.2 PROJECT LOCATION

The City is approximately 20 miles (mi) south of downtown Los Angeles and is adjacent to the Pacific Ocean. The Lagoon, Marina Vista Park, and Marine Stadium (which comprise the proposed project site) are located in the southeastern portion of the City. The Lagoon lies northwest of the mouth of the San Gabriel River and is north of Marine Stadium and Alamitos Bay. The Lagoon is primarily accessible from East Appian Way and East Colorado Street via Park Avenue from East 7th Street. However, many local streets provide access to the Lagoon and its surrounding areas. Regional access to the project site is provided by Interstate 405 (I-405), Interstate 605 (I-605), and Interstate 710 (I-710) to the north and west. Figure 3.1 shows the project location.

Recreation Park is adjacent to the Lagoon on the north and includes a 9-hole and 18-hole golf course, a baseball stadium, a casting pond, picnic areas, a dog park, tennis courts, a community center, lawn bowling, and a playground. In addition, Marina Vista Park is located to the southeast of the Lagoon, on the south side of East Colorado Street. Marina Vista Park overlooks the water of Marine Stadium to the south and provides the following amenities: two soccer fields, tennis courts,

[1] Lagoon water body acreage was estimated by LSA Associates, Inc. (LSA) geographic information systems (GIS) based on a 2006 aerial photo and varies with the tides.



LSA

FIGURE 3.1

PROJECT AREA

N

0 1000 2000
FEET

SOURCE: Thomas Guide, 2007

Colorado Lagoon Restoration Project

Project Location

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a baseball diamond, play equipment, picnic areas, and restrooms. Additionally, Marina Vista Park is the site of municipal band concerts in the summer.

The project area also includes a small triangle-shaped area (0.282 ac) at Marine Stadium, which is a water body and park area on the south side of East Eliot Street. The Marine Stadium amenities include Mothers Beach, an activity center, boating facilities, coastal viewing, a rowing center, green open space, benches, and picnic tables. The entire project area is owned and operated by the City Department of Parks, Recreation, and Marine.

The Colorado Lagoon Playgroup Preschool, which is a program for three- to five-year-old children, and a model boat shop are located on the south side of the Lagoon. Other on-site facilities at the Lagoon include the City's Colorado Lagoon Marine Science Center, which is staffed by the City and Friends of the Lagoon (FOCL), restrooms, parking, a pedestrian bridge, a lifeguard station, sandy shoreline areas, play equipment, picnic areas, and grassy open-space areas.

3.3 HISTORY OF THE COLORADO LAGOON

The Lagoon was once a part of the historic Los Cerritos Wetlands. In 1923, the low-lying tidelands of Alamitos Bay were dredged to form the Lagoon and Marine Stadium, which were used for recreational rowing. The City then purchased the Lagoon area and Recreation Park in the 1920s through general revenue bond funding. The 1932 Los Angeles Olympic Committee chose the Lagoon for diving trials and Marine Stadium for rowing events. High diving was performed from a three-story structure that was floating in the Lagoon. To prepare for the diving trials, the Lagoon was separated from Marine Stadium by a tide gate, which was installed to maintain adequate diving depth. In 1968, the City remodeled Marine Stadium for the Olympic rowing and canoeing team trials. Also, in the late 1960s, the area between what is now the north end of Marine Stadium and the south end of the Lagoon was filled and the existing underground box culvert was constructed, thereby further separating the Lagoon from Marine Stadium. This was done as part of the construction for the then-proposed Pacific Coast Freeway. This "filled" area is now Marina Vista Park.

The deteriorated ecological health of the Lagoon has been established for the past several decades. In addition to tidal influence, the Lagoon receives inflow from 11 storm water drains. Since the Lagoon is a natural low point in the watershed, it accumulates pollutants deposited over the entire watershed that enter the storm drains by storm flows and dry weather runoff. Additionally, sediment deposition and marine growth have reduced the capacity of the culvert, resulting in a lack of tidal flushing at low tides and increased degradation of water quality.

The Lagoon's watershed is 1,172 ac and composed of 773 ac of residential, 125 ac of commercial, 55 ac of institutional (schools), and 219 ac of open-space land uses. Urban runoff contains many pollutants such as heavy metals, pesticides, petroleum, hydrocarbons, nutrients, and bacteria. As a result, the Lagoon is listed in the 2002 and 2006 Clean Water Act Section 303(d) lists as an impaired water body for lead, zinc, sediment toxicity, chlordane, DDT, dieldrin, PAHs, PCBs, and bacteria. Beach advisory postings due to elevated bacteria levels are frequent.

In 1998, a group of local residents formed FOCL specifically to advocate for improving the Lagoon. FOCL is a coalition of citizens working to restore and preserve the Lagoon. FOCL promotes solutions to restore a healthy balance between recreation, flood management, safe water, and the wildlife

habitat of the Lagoon. FOCL's concerns include improving the Lagoon's native habitat and water quality to protect both public health and the Lagoon's environmental and recreational (swimming) resources.

FOCL's activities began when the organization challenged the County of Los Angeles (County) Public Works Department regarding the environmental documentation that was prepared for the Termino Avenue Drain project (TADP) as originally proposed. Since then, FOCL has been working closely with the City to procure the funds necessary to clean the Lagoon water, address the contaminants in the Lagoon bed, enhance the wetland habitat, and educate the public. Education has been one of FOCL's primary goals. Education efforts include: conducting community meetings; staffing the Marine Science Center; educating school groups; hosting bird walks, cleanups, and Earth Day events at the Lagoon; publishing quarterly newsletters and e-mails to the community; and maintaining a Web site with pertinent habitat information. Currently, FOCL's volunteer 15-member Board of Directors meets monthly to discuss Lagoon matters. Yearly fundraisers are also held to bring in monies to continue the support for restoration and education at the Lagoon.

The Los Angeles County Department of Public Works is proposing to replace and reroute the Termino Avenue Drain that currently drains to the Lagoon. The Termino Avenue Drain is a major outfall structure at the Lagoon that consists of two side-by-side storm water drainage lines. The project would extend and reroute the drain to empty into Marine Stadium, thereby bypassing the Lagoon. The Termino Avenue Drain is a lead source of the contamination detected in the Lagoon. The TADP would also intercept three additional drainpipes that currently discharge into the Lagoon. While this project would benefit water quality within the Lagoon, additional measures, as included within this proposed project, would provide more complete and long-term benefits to water quality, habitat restoration, and recreational enhancements.

3.4 PROJECT OBJECTIVES

Pursuant to Section 15124 of the California Environmental Quality Act (CEQA) Guidelines, the description of the proposed project contains a statement of the objectives sought for development of the proposed project.

The Lagoon Restoration Project is a comprehensive plan for enhancement of the Lagoon, which is owned and maintained by the City Department of Parks, Recreation, and Marine. The City is committed to preserving and improving the open space, recreational resource, and biodiversity that this area provides. The primary goals of the proposed project are to: (1) create habitat that can successfully establish and support native plant and animal communities in the long term, (2) implement long-term water quality control measures, and (3) enhance the Lagoon's value as a recreational resource. The proposed project provides a framework to coordinate these various and potentially competing interests.

Specifically, the objectives of the proposed project are to:

- Reduce and treat storm and dry weather runoff to minimize contamination of water and sediment in the Lagoon.

- Improve water quality by increasing the Lagoon's circulation and enhancing the tidal connection with Marine Stadium.
- Improve water quality by removing contaminated sediments.
- Restore and maintain the estuarine habitats.
- Balance flood control, water quality, and the recreation demands of the Lagoon.
- Enhance public enjoyment of the Lagoon.

The project objectives listed above are intended to implement the following goals, objectives, and policies of the City's Open Space and Recreation Element of the General Plan and the Long Beach Department of Parks, Recreation, and Marine Strategic Plan:

- Develop well-managed, viable ecosystems that support the preservation and enhancement of natural and wildlife habitats (Open Space and Recreation Element, Goals/Objectives 1.1).
- Preserve, keep clean, and upgrade beaches, bluffs, water bodies and natural habitats (Open Space and Recreation Element, Goals/Objectives 1.2).
- Design and manage natural habitats to achieve environmental sustainability (Open Space and Recreation Element, Goals/Objectives 1.4).
- Promote the creation of new and reestablished natural habitats and ecological preserves, including wetlands, woodlands, native plant communities, and artificial reefs (Open Space and Recreation Element, Policy 1.1).
- Protect and improve the community's natural resources, amenities, and scenic values, including nature centers, beaches, bluffs, wetlands, and water bodies (Open Space and Recreation Element, Policy 1.2).
- Promote and assist with the remediation of contaminated sites (Open Space and Recreation Element, Policy 1.4).
- Restore Lagoon to serve as both a productive wetland habitat and recreational resource by reducing pollutant discharges into the water, increasing water circulation with Alamitos Bay, and/or restocking or planting appropriate biological species (Open Space and Recreation Element, Program 1.6).
- Maintain a sufficient quantity and quality of open space in the City to produce and manage natural resources (Open Space and Recreation Element, Goals/Objectives 2.1).
- Preserve, enhance, and manage open areas to sustain and support marine life habitats (Open Space and Recreation Element, Policy 2.4).
- Make all recreation resources environmentally friendly and socially and economically sustainable (Open Space and Recreation Element, Goals/Objectives 4.5).
- Establish lifetime use opportunities. Recreation programs and facilities will be designed to develop and serve a lifetime user through active, passive, and educational experiences (Department of Parks, Recreation, and Marine Strategic Plan, Strategy 9, page 62).
- The Department of Parks, Recreation, and Marine should be a steward for preserving the environmental, cultural, and historical resources in the City (Department of Parks, Recreation, and Marine Strategic Plan, Strategy 11, page 63).

- Support efforts to improve the water quality and cleanliness of City beach areas (Department of Parks, Recreation, and Marine Strategic Plan, Strategy 13, page 66).

3.5 PROJECT COMPONENTS

The following components of the proposed project are categorized into water and sediment quality improvements, habitat improvements, recreation improvements, and operational protocols that would maintain the environment at the Lagoon. Furthermore, as described in Section 3.6, the project components are divided into two construction phases. Phase 1 includes improvements at the Lagoon and to the existing culvert that connects the Lagoon and Marine Stadium. Phase 2 involves improvements within Marina Vista Park, which includes developing an open channel that would replace the existing culvert.

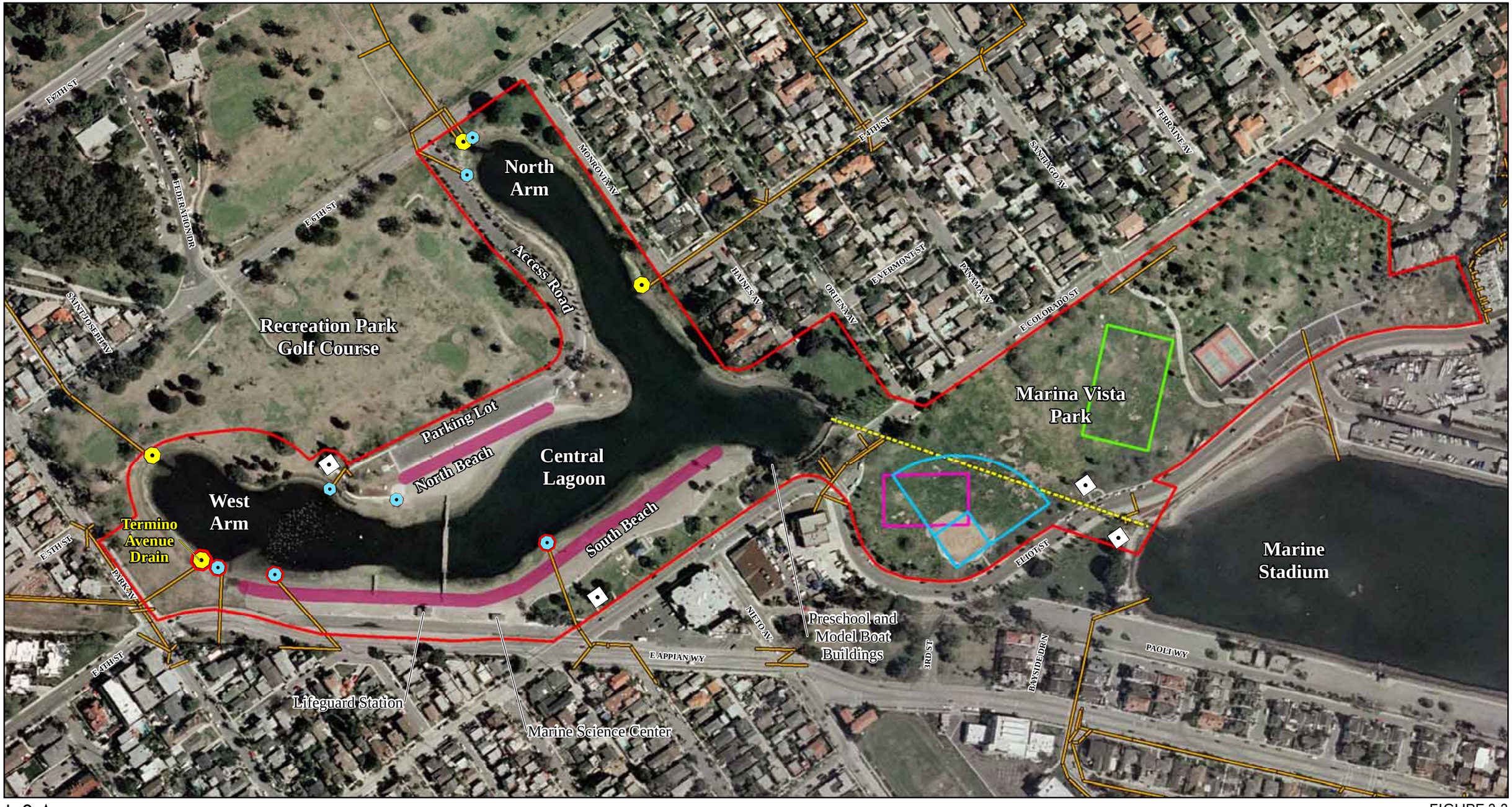
3.5.1 Improvements Benefiting Water and Sediment Quality

Improved water and sediment quality would enhance recreational opportunities at the Lagoon, may lead to a more diverse invertebrate and fish community, and would increase the potential for the Lagoon to support a variety of plant and animal species.

Clean Culvert and Remove Tidal Gates, Sill, and Other Structural Impedances. This is a short-term project component that would be superseded by development of the open-channel component, as described later in this Section.

Currently, the Lagoon is connected to Marine Stadium via an underground box culvert under Marina Vista Park. The culvert is approximately 900 feet (ft) long and provides tidal exchange between the Lagoon and Marine Stadium. The cross-section of the culvert is not constant throughout its length. The opening on the Lagoon side is 14 ft wide by 7 ft high, and the opening on the marine stadium side is 12 ft wide by 8 ft high. The existing culvert location and length are shown in Figure 3.2. The existing culvert design and degraded condition is limiting the amount of tidal flushing between Marine Stadium and the Lagoon, which contributes to the Lagoon's water quality problem. Measured tide data shows that spring low tides in the Lagoon are perched above those of Marine Stadium and the ocean by approximately 3 ft. This indicates that something in the culvert restricts the low tide elevation from dropping below a certain level. There is also a tidal time lag between the Marine Stadium and the Lagoon, which further indicates a reduction in tidal exchange.

The existing culvert has not been cleaned since it was built in the 1960s. Because of this, the culvert is impeded by sediment that has accumulated on the bottom, extensive marine growth that has accumulated on the sides and ceiling, and debris that is trapped within the trash racks on the tide gate screens at both ends of the culvert. The culvert was most recently inspected via a dive survey in 2005, which covered the entire length of the culvert, and measurements were taken every 50 ft. The amount of sediment buildup on the floor ranged from 9 to 30 inches along the length of the culvert and was mainly clam and mussel growth with some sand mixed in. The side walls had up to 3 inches of soft and hard barnacle and mussel growth on them. The top of the culvert had up to 4 inches of soft and hard mussel growth.



LSA

LEGEND

- Project Boundary
- Culvert
- Sand Nourishment Areas
- Existing Storm Drain Pipelines
- Existing Restrooms
- Major System Outfall
- Local Drain
- Indicates Drain Diverted by Termino Project
- Baseball Field
- Adult Soccer Field
- Youth Soccer Field

0 125 250 Feet

FIGURE 3.2

Colorado Lagoon Restoration Project

Existing Conditions

SOURCE: Air Photo USA (2007), Moffat & Nichol (2007), Thomas Bros. (2007).

I:\CLB0702\GIS\ExistingConditions_Fig3.2.mxd (5/6/2008)

In addition, sills exist within the culvert. The sills perch the Lagoon's low tide level, thus limiting the Lagoon's tidal range and tidal flushing. On the Marine Stadium side, there is a visible rock basin sill at the entrance to the culvert that causes impedance of tidal flow. The 2005 dive survey noted that rocks are 3.5 ft above the invert and "are impeding the flow out of the Lagoon." A structural sill may also be present within the culvert at the Lagoon end.

There are side-by-side motorized tide gates on the Lagoon end of the culvert that are in a degraded condition. The gates were designed to be able to open 7 ft on the Lagoon side. However, lack of maintenance has caused the gates to not operate to this design capability and to only open to approximately 5.5 ft high.

Cleaning the existing culvert and removing impedances to flow is a short-term component of the proposed project. To implement this component, the culvert would have to be plugged to prevent flow through it. This would be done by removing the trash racks and installing "stop logs" (sheet pile or timber panels) within the vertical slots found on both ends of the culvert. The remaining water would be pumped out to the nearest water body. The culvert design includes removable access panels on the top to allow for a small track-loader and cleaning equipment to be lowered into the culvert by crane. The track-loader and hydroblasting equipment would scrape the bottom, sides, and ceiling to remove sediments and marine growth. The sediment collected by the track-loader would be removed via excavator (or a crane with a bucket) through an access opening and hauled off site. All of the impedances would be removed from in and around the culvert, and the tide gates would be removed to provide a maximum culvert opening size. It is estimated that up to 900 cubic yards (cy) of sediment and trash and 130 tons of rock would be removed and hauled off site.

Cleaning the culvert and trash racks and removing the tidal gates, sill, and other structural impedances would result in an increase in the tidal range and tidal flushing (as detailed in Table 3.A), which would in turn increase water circulation throughout the Lagoon. Increased tidal ranges and tidal flushing are anticipated to result in a notable improvement in water quality.

Table 3.A: Hydrologic/Hydraulic Conditions

	Existing Conditions	Cleaned Culvert	Open Channel (with no culvert)
Spring Tidal Range (feet)	4.4	5.6	8.2
Spring Tidal Prism (acre-feet)	64	73	114
Residence Time from Ocean (days)	8.5	8.0	7.3

Source: Moffatt & Nichol, 2008.

Implementation of this component would lower the maximum (spring) low tide in the Lagoon and may result in a smaller subtidal area over short periods of time and expanded mudflat habitat. Views of mudflat areas currently exist along the western arm, and these areas would expand during low tides. Because the mudflat areas would be aerated (exposed) more often as a result of increased range of tidal flows, the Lagoon waters will not experience eutrophication (excessive nutrient concentrations) and odors are not expected to increase. This component will result in a conversion of some areas from open-water habitat (areas composed of tidal waters) to intertidal habitat (areas that are submerged at high tide and exposed at low tide) by increasing tidal range.

As mentioned previously and further described below, culvert cleaning and removing impedances is a near-term component. The ultimate improvement would be replacement of the culvert with an open channel, as detailed below.

Build Open Channel between Lagoon and Marine Stadium. This is a long-term project component that will supersede the previous component. This component consists of replacing the existing concrete box culvert with an open channel that would run from the Lagoon through Marina Vista Park to Marine Stadium in generally the same alignment as the existing culvert. Creating an open channel would improve tidal flushing by increasing the tidal range and result in a corresponding improvement in water and habitat quality. In addition, it would provide improved flood flow conveyance.
The proposed open channel would run a meandering course from the Lagoon to Marine Stadium in approximately the same alignment as the existing culvert. The channel would have curvilinear edges to create a natural-looking feature (as shown in Figure 3.3). The open channel will be characterized by a soft bottom, gently sloping banks constructed with erosion-control blankets and riprap on the curves to maintain the integrity of the channel design, native landscaping buffer areas along the banks, and a walking trail along the eastern bank. The open channel would be 14 ft deep, have 3:1 (H:V) sideslopes, and would be approximately 100 ft across at the top. This design would provide an aesthetically pleasing, natural-looking feature and also provide for biological enhancements such as marsh areas and eelgrass beds.

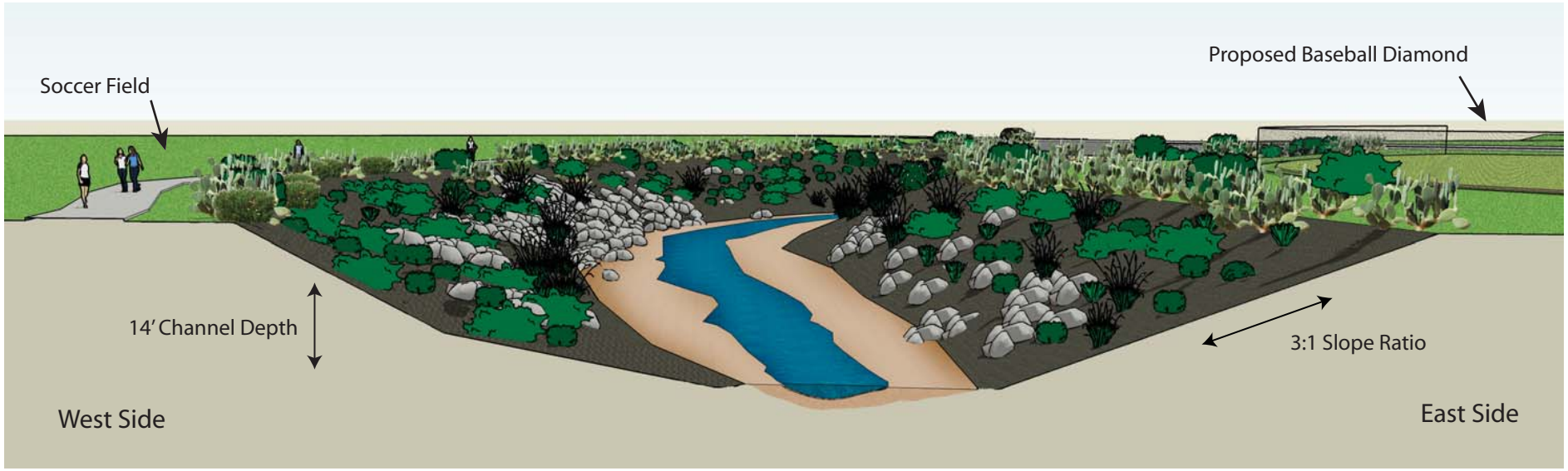
The existing culvert will be demolished as part of the open channel construction. The open channel design has a cross-sectional area large enough to provide unrestricted tidal flows between the Lagoon and Marine Stadium, which would maximize tidal flushing of the Lagoon. The channel would be deeper than the lowest predicted tidal water level and higher than the highest predicted design flood levels. This would be at least as low as 7 ft below the mean sea level for tides and as high as 2 ft aboveground (low dikes) along its banks to provide sufficient freeboard to protect against a 50-year flooding event.

A landscaped buffer would be installed along the sides of the channel. The landscaped buffer would contain a mixture of armor rock and native plantings that would also create a safety barrier where necessary. Signage will be installed along the channel to deter pedestrians and children from entering the channel area. A meandering walking trail would be installed on the eastern side of the channel. This walking trail would connect to the proposed walking trail at the Lagoon, across East Colorado Street.

Two vehicular bridges with pedestrian and bicycle facilities would be built over the open channel at East Colorado Street and East Eliot Street crossings, in order to maintain existing traffic circulation. One bridge would be for East Colorado Street and one for East Eliot Street. The two bridges would both be at-grade and would be approximately 160 ft in length (due to the angle of the street/bridge and the proposed channel alignment) and approximately 45 ft in width. Each bridge would include two 12 ft lanes, two 5 ft sidewalks, and an 8 ft wide bike path on one side. Piles would be constructed to allow the bridges to span the open channel. The space between the piles would be approximately 35 ft. Construction of the bridges would occur one at a time so as to provide for adequate circulation during construction. Construction is anticipated to take approximately 6 months for each bridge.

Open Channel Profile

With contouring of slopes and varying widths.



Looking Toward Marine Stadium

LSA

FIGURE 3.3

Colorado lagoon Restoration Project

Open Channel Profile Oblique Angle

I:\CLB0702\G\Channel Profile Oblique_v3.ai (2/22/08)

In addition, two existing public restrooms near the Marine Stadium end of the proposed open channel (one in Marina Vista Park and one south of East Eliot Street at Marine Stadium) will be demolished and replaced with the new public restroom design that is recommended by the Long Beach Police Department. The excavated soils from development of the open channel (approximately 25,500 cy) debris from the demolished culvert, restrooms, and roadways would be disposed of at a Class III landfill.

Replacing the existing culvert with an open channel would significantly improve the circulation and water quality in the Lagoon. Under the existing conditions, tidal flow, tidal prism, and low tides are muted by the effects of the culvert and tide gates. Tidal prism is the volume of water exchanged between the Lagoon and the Marine Stadium during one tidal period. Measured low tides during average tidal conditions in the Lagoon are approximately 2 ft less than those in the Marine Stadium The existing tidal prism (64 acre-feet [af]) is much less than what the open channel would provide. This results in less-than-optimal tidal circulation and flushing. The residence time of the Lagoon water is approximately 8.5 days, while the Marine Stadium water residence is approximately 6.9 days under similar conditions. The existing rates of circulation and flushing cause water in the Lagoon to gradually build up nutrients, bacteria, and other pollutants.

Increased tidal flow and tidal prism would result in lowering the lower low tide in the Lagoon and may result in a smaller subtidal area and expanded intertidal habitat. Similar to the effects of the culvert cleaning and repair component above, mudflat areas would expand during low tides. Because the mudflat areas would be exposed more often, the Lagoon waters will not experience eutrophication (excessive nutrient concentrations), and odors should not increase. This component will result in a conversion of some areas from Lagoon habitat (areas composed of subtidal waters) to intertidal habitat (areas that are submerged at high tide and exposed at low tide) by increasing tidal range.

Table 3.A details the difference between existing conditions and those expected after implementation of the cleaned culvert and open-channel components in conjunction with dredging of the Lagoon. As shown, cleaning the culvert would increase the tidal range and the tidal prism. This would enable more rapid tidal flushing. The open channel would be more effective at transferring water between the Lagoon and Marine Stadium than the cleaned culvert. The proposed open channel would increase the spring tidal range by approximately 86 percent and the tidal prism by approximately 77 percent, which would cause more rapid tidal flushing and more frequent turnover of Lagoon water as shown by the residence time reduction of 14 percent.

The open channel will be constructed by excavating the soil above and along the sides of the concrete culvert. The culvert would remain operational during this period. Following soil excavation, the culvert would be plugged to prevent water flow through it, and water would be removed from inside the culvert via a pump. After the culvert is drained of water, the culvert demolition would begin in the center of the culvert. The culvert would be demolished, debris removed, and the underlying soil would be excavated. That particular section of the channel would be fully built (erosion control blankets and riprap). After one section is complete, construction of the channel would move outward toward each end, demolishing the culvert and building the channel until both ends were reached. During the construction period, the ends of the culvert will be opened periodically to convey flows from/to the Lagoon through the remaining culvert sections and newly constructed open channel stretch. Following this tidal flushing, the culvert ends would be closed again, water pumped out, and culvert demolition/open channel construction would continue along a new section. This process

would repeat until both ends are reached. The remaining culvert end sections would be demolished, the channel ends breached (at low tide), and the new tidal connection would be established.

As described, demolition of the existing concrete culvert and construction of the open channel will eliminate the tidal connection during portions of the construction activities. Because this may lead to stagnation and water quality problems, the culvert will be opened periodically during spring tides to convey flows to Marine Stadium and allow tidal flushing to occur. The culvert will be opened once every 2 weeks during construction activities that close the tidal connection (culvert and open channel components). The opening will occur during the period of the greatest tidal fluctuations for 2 to 3 days to allow for maximum exchange. Construction of the open channel may take place during wet months, which may require the channel to be opened more frequently to allow storm flows to dissipate. In addition to coordination with the tidal regime, two subsurface aeration systems will be installed and utilized to maintain water quality during construction periods, which close the tidal connection.

Remove Contaminated Sediment in the Western Arm. The Lagoon is listed as impaired on California's 303(d) list of water quality limited segments, due to lead, zinc, chlordane, and PAHs in the sediment and chlordane, DDT, dieldrin, and PCBs in tissues of marine organisms. These contaminants were deposited over time from the particulates in the runoff brought to the Lagoon through the existing storm drains. Sediment sampling was conducted in 2004 and 2006 to determine the depths and spatial distribution of contamination within the Lagoon. Both surveys confirmed the presence of the 303(d) list constituents and indicated a strong contamination gradient with high levels of contaminants in the western arm of the Lagoon, transitioning to much lower levels toward the central Lagoon area. Five metals, including cadmium, copper, lead, mercury, and zinc, exhibited this distributional pattern. Among the organic contaminants, DDT compounds, chlordane, dieldrin, PCBs, and PAHs also demonstrated this strong gradient. It is estimated that the layer of contaminated sediment reaches 4 to 5 ft deep. Removal of sediment to a depth of 6 ft provides a safeguard that only clean sediment remains. Hence, the excavation design is based on removing 6 ft of sediment at the uppermost portion of the western arm, with the excavation depth gradually decreasing toward the footbridge. The sediment assessments concluded that the existing pedestrian footbridge provides a reasonable and conservative boundary for removal of the contaminated sediment. The depth of excavation at the deepest point would be down to 19 ft below the mean sea level point of 1929. The width of the excavation footprint is intended to be as wide as possible to remove the maximum quantity of sediment while still providing for stable side slopes around the Lagoon perimeter. Slopes are to be dredged to create a smooth transition from the Lagoon floor up the side slopes. Approximately 16,000 cy of sediment would be removed from the western arm of the Lagoon.

There are two methods related to dredging and disposing of the contaminated sediment within the western arm of the Lagoon. The dry dredge method would install a temporary cofferdam just west of the footbridge to isolate the west arm of the Lagoon. The dredge area would be drained of water, and the bottom sediment would be dewatered. An excavator would be used to remove the dry sediment, which would be temporarily stockpiled in the parking lot along the Lagoon's north shore and the southwest shore of the Lagoon. Plastic tarps and containment structures would be placed under and around the stockpile area to minimize runoff back into the Lagoon and surrounding areas. Due to the contamination levels within the western arm of the Lagoon, the dredge materials from this Lagoon

location would be hauled to a Class 1 hazardous waste disposal facility or an approved Port of Long Beach site via truck.

The second method, which is the wet dredge method, would not dewater the west arm of the Lagoon prior to dredging. The dredge area would be isolated by a silt curtain to maintain water quality. Clamshell/bucket-type dredging equipment would be used and temporary shore-perpendicular berms or piers would be built into the Lagoon to allow the dredger to access depths not within reach from the Lagoon's shores. Similar to the first method, the dredged material would be temporarily stock-piled in the parking lot along the northern shore until it was drained and loaded onto trucks. Plastic tarps and containment structures would be placed under and around the stockpile areas to minimize runoff back into the lagoon and surrounding areas.

Remove Sediment in the Central Lagoon. The sediments in the central region of the Lagoon are not hazardous per State standards. This project component would remove sediment and sand that has eroded and been deposited into the Lagoon waters over the years and create a larger subtidal area. Approximately 5,500 cy of sediment would be removed from the central Lagoon utilizing the wet dredge method discussed previously.

Storm Drain Upgrades. There are 11 storm drains that currently discharge into the Lagoon, as identified on Figure 3.2. Four of these are major system outfalls, serving large areas of the watershed. One of the major system outfall structures entering the Lagoon is called the Termino Avenue Drain and is currently proposed by the County of Los Angeles to be modified to no longer discharge into the Lagoon. Instead, the drain would bypass the Lagoon and discharge storm water flows into Marine Stadium and dry weather flows into the sanitary sewer system. This project would also redirect flows from three other storm drains located on the south shore of the Lagoon that currently discharge into the Lagoon. The drains that would be diverted by the County Termino Avenue Drain Project (TADP) are shown on Figure 3.2. The purpose of the TADP is to construct a storm drain that would alleviate flooding problems in the area and accommodate a 50-year storm event.

The TADP would consist of 8,090 linear feet of a storm drain mainline from the terminus at Termino Avenue and Anaheim Street to Marine Stadium and would connect to the existing drainage system at various locations. In addition to the mainline, the proposed drain would include six lateral lines. A double-box culvert outlet structure with an opening of approximately 25 ft would be constructed at Marine Stadium.

The TADP would also include a low-flow diversion system to divert nonstorm flows from the storm drain to an existing County sanitary sewer line. An underground storage box and a pump unit would be constructed to temporarily store the nonstorm flows diverted from the proposed project until the water is conveyed to the sewer. The Los Angeles County Sanitation Districts would be responsible for treating the storm water at existing sewage treatment plants. Based on an agreement with the County, the City would accept ownership and be responsible for operation and maintenance of the low-flow diversion system.

The implementation of the County project affects the proposed improvements to the Lagoon because one major storm drain and three local storm drains would no longer discharge into the Lagoon.

Approximately 139.4 af of storm water would be diverted during a 50-year flood event from Colorado Lagoon to Marine Stadium with implementation of the TADP.[1] This results in a diversion of approximately 55 percent of the flood water volume entering the Lagoon. In addition, the TADP would abandon in place the four existing drain discharge structures at the Lagoon. The proposed Lagoon project would close off the ends of these drains and remove the outlet structures. For the purposes of the proposed project and environmental documentation, it is assumed that the TADP will be implemented.

The storm drain upgrade components of the Lagoon Restoration Project would upgrade the seven remaining storm drains (three major system outfalls and four local drains) that discharge into the Lagoon. These components would redirect or treat low flows from these drains to minimize contamination of water and sediment. Specifically, this project component consists of: (1) development of a vegetated bioswale to treat discharge from the four local drains along the north shore of the Lagoon (discussed further below under a separate project component); (2) construction of low-flow diversions to a water storage area (wet well) that would discharge into the sanitary sewer system from the three remaining major system outfall drains; and (3) installation of trash separation devices on the same three remaining major system outfall drains.

The trash separation devices would trap trash and debris prior to entering the wet well for the diverted runoff and/or discharge into the Lagoon during storm events. These filtration devices would be installed within the pipe just upstream of the diversion structure. These filtration devices would need to be cleaned on a periodic basis. The storm drain locations and the proposed upgrades are shown in Figure 3.4.

To divert low storm drain flows, diversion structures/mechanisms would be installed a short distance upstream of the discharge ends of the three major system outfalls. The diversion system would be designed so that storm flows would bypass the diversion and discharge directly into the Lagoon, whereas the dry weather runoff discharge would be diverted to a wet well. The diversion system would include flow meters and valve control devices such that during a large storm event, the control device would shut off when the meter indicated that the flow had reached the upset limit of the available storage within the wet well. One-way flap gates would be installed at the end of these storm drain pipes so as to preclude tidal saltwater from entering into the storm drain (and, thus, potentially the sanitary sewer diversion system) while allowing storm flows to freely discharge into the Lagoon.

New diversion pipes would be installed underground to carry the diverted storm water from the storm drain outlet locations to the underground wet well. The underground wet well and aboveground pump station would be built on the golf course at the corner of East 6th Street and Park Avenue. The size of the underground wet well would be approximately 40 ft by 40 ft and 12 ft deep. The locations of the new diversion pipes and wet well are shown on Figure 3.4. The runoff collected in the wet well would

[1] Termino Avenue Drain Hydrologic and Water Quality Analyses Report, Everest International Consultants, Inc., February 2007.

LSA

0 100 200 Feet

LEGEND

- Project Boundary
- Major System Outfall with Trash Separation Device
- Proposed Bioswale
- Proposed Open Channel (Top of Channel 100')
- Proposed Stormwater Diversion Pipes
- Proposed Wetwell
- Existing Storm Drain Pipelines
- Dredge Area
- Shrubs
- Vegetated Buffer/Berm

FIGURE 3.4

Colorado Lagoon Restoration Project

Proposed Water and Sediment Quality Improvements

SOURCE: Air Photo USA (2007), Moffat & Nichol (2007), Thomas Bros. (2007).

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be pumped via the County sewer line located on East 6th Street near the intersection of Park Avenue to the Los Angeles County Sanitation Districts treatment plant. Due to a County-imposed restriction, pumping operations would be limited to only certain times of day (midnight to 5:00 a.m.).

Replace Local Hard Drain Outlets in the Lagoon with a Vegetated Bioswale. As discussed above, 4 of the 11 storm drains that discharge into the Lagoon would be diverted to Marine Stadium as part of the TADP, and this project would upgrade the remaining three major outfall drains with end-of-pipe diversion systems and trash separation devices. The flows from the remaining four local storm drains would be treated via a vegetated bioswale. A bioswale would also be developed on the north shore between the Lagoon and Recreation Park Golf Course. The vegetated bioswale would treat storm water and dry weather runoff through filtration to remove sediment and pollutants prior to discharge into the Lagoon. The bioswale would treat the discharge from the local drains and any runoff from the golf course. The bioswale is designed to be 3 ft deep and 15 ft wide at the top. The swale would have a V-shaped cross-section with sides sloping at a 2:1 ratio down to the channel centerline. Locations of all upgraded drains and proposed bioswale are shown on Figure 3.4.

Approximately 2,500 cy of sediment would be removed from development of the bioswale. The sediment from the proposed bioswale area is not considered hazardous and will be disposed of at an appropriate undesignated landfill.

3.5.2 Habitat Improvements

Remove North Parking Lot and Access Road and Create Side Slope Recontouring and Revegetation. This component would remove the existing access road from East 6th Street and the parking lot on the north shore of the Lagoon and create native upland, sand dunes, salt marsh, and intertidal habitat areas around the Lagoon. Habitat areas would be created through native vegetation planting and Lagoon bank recontouring that would promote the establishment of salt marsh habitat, including intertidal zones. The objective of this component is to restore and improve the estuarine habitat. This component also includes demolishing the existing restroom on the north shore of the Lagoon. The existing recreation improvements (e.g., barbeques and picnic tables) will remain on the north shore of the Lagoon.

The north parking lot and access road would be removed to provide more space for native vegetation planting and habitat restoration. The existing access road from East 6th Street is a private road on City property that is open to the public. The road functions as a driveway to the north parking lot.

In many areas of the Lagoon, the existing banks are steep and intertidal habitat area is limited. In addition, no substantial native upland habitat exists at the Lagoon. Most of the shoreline areas of the Lagoon are composed of ornamental landscaping and nonnative vegetation.

As shown on Figure 3.5, the slopes of several areas of the Lagoon shoreline would be recontoured to create areas for the establishment of low marsh habitat. The approach to designing the area of intertidal habitat is to flatten the entire intertidal slope by installing a bench-type of feature between elevations of -1.75 ft and +1.5 ft above mean sea level (amsl). The bench represents a longer, flatter, sandy-bottomed slope that is exposed at low tide and inundated at high tide and where cordgrass *(Spartina foliosa)* and mudflat habitat would colonize. The new side slope profiles would be designed

LSA

0 100 200 Feet

LEGEND

- Project Boundary
- Low Marsh (Coastal Salt Marsh, Cordgrass, Unvegetated Mud Flats)
- Mid Marsh
- High Marsh/Upland
- Native Upland CSS Vegetation
- Park
- Parking/Road
- Sand
- Shrubs
- Trail (Decomposed Granite)
- Vegetated Buffer/Berm
- Proposed Bioswale
- Existing Sidewalk
- Proposed Bridge
- Proposed Open Channel (Top of Channel 100')
- Proposed Viewing Platform

FIGURE 3.5

Colorado Lagoon Restoration Project

Proposed Habitat Improvements

SOURCE: Air Photo USA (2007), Moffat & Nichol (2007), Thomas Bros. (2007).

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to maximize the area within this elevation range. Pickleweed (*Salicornia* spp.) habitat will colonize elevations between +1.5 and +2.75 ft amsl (mid-marsh). High marsh/upland habitat will be established at elevations between +2.75 ft and +5.0 ft amsl. Any existing exotic vegetation in this area would be removed. Native salt marsh species would be planted in the appropriate elevation ranges and maintained until the habitats are established and self-sustaining (Figure 3.5).

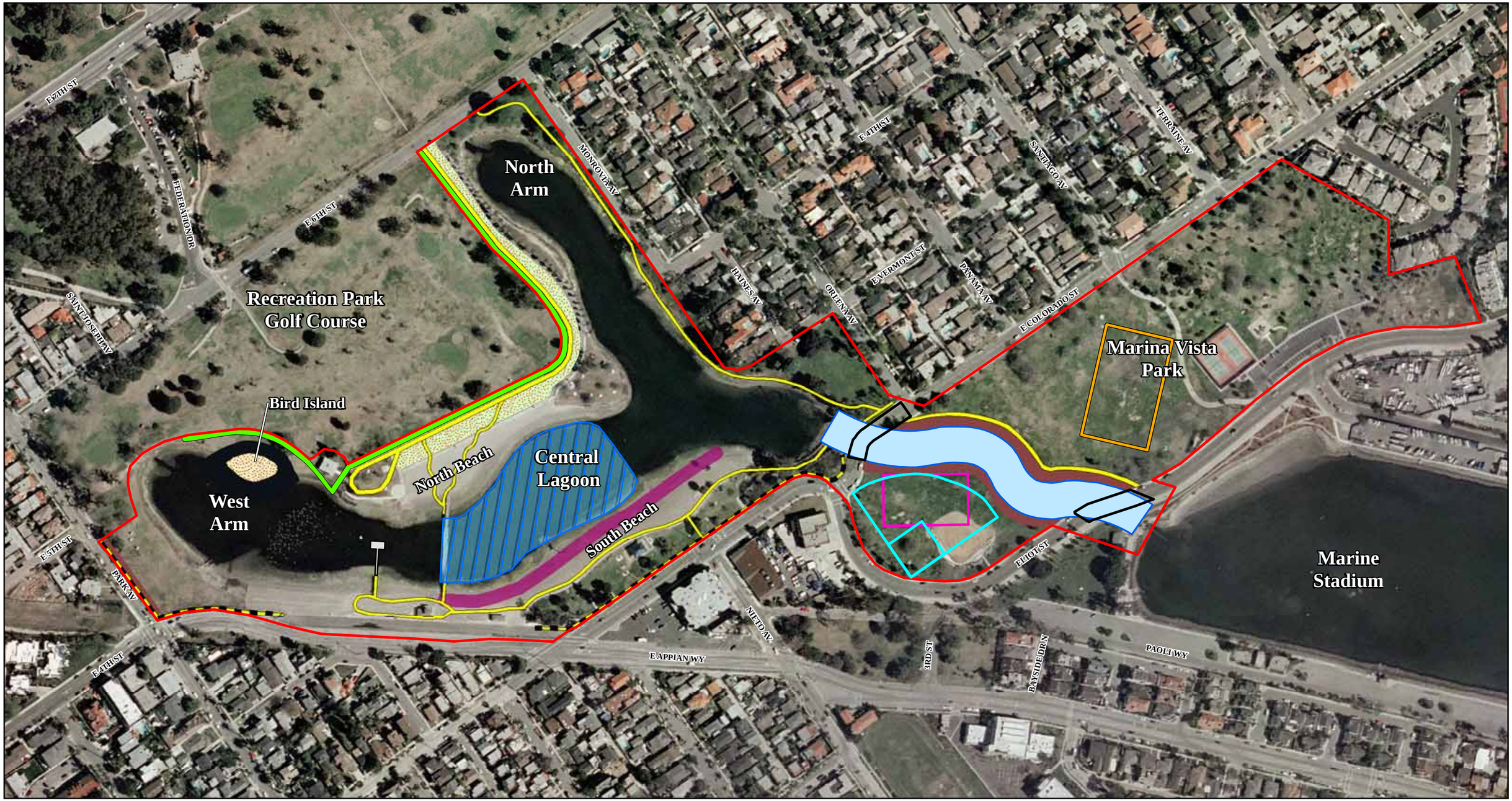
Vegetated biological buffer strips consisting of aesthetically appealing native shrubs and grasses would be installed in various areas, as shown on Figure 3.5. The buffer strip species would be selected and located according to the desired viewsheds throughout the buffer alignment to allow for a combination of visual screening using taller species and to allow for viewsheds through the use of low-growing species and species that can be selectively pruned.

Recontouring of the side slopes would be done concurrently with sediment removal of the western arm and central Lagoon areas. The recontouring component would generate approximately 5,100 cy of material. Some of this material is presumed to be contaminated. Therefore, the excess recontouring sediment would be disposed of with the dredge material from the western arm.

A meandering trail (as also discussed under recreational improvements and shown in Figure 3.6) composed of compacted decomposed granite would course the perimeter of the Lagoon, with the exception of the western arm. The trail will be 8 ft in width except for the portion of the trail on the north shore of the Lagoon that connects to East 6th Street, which will be 12 ft in width to provide for emergency access.

The removal of nonnative vegetation and installation of native vegetation would include the following areas:

- **Western Arm/Western Shore.** The existing exotic vegetation (grass) would be removed, existing native saltgrass *(Distichlis spicata)* would be salvaged for transplantation in appropriate areas, and native vegetation (including low marsh and upland habitat) would be installed.
- **Western Arm/Eastern Shore.** The existing exotic vegetation (shrubbery and grass) would be removed, and native vegetation would be installed. In addition, Bird Island (detailed below) would be developed and would consist of sand.
- **Northern Arm/Northwestern Corner.** The existing exotic vegetation, Mexican fan palms (*Washingtonia robusta*), would be removed, and native vegetation would be installed.
- **Northern Arm/Northeastern Corner.** This area would remain in the existing condition. The park setting will be retained to allow for ongoing existing public recreational uses.
- **Eastern Shore.** The existing exotic vegetation (iceplant) would be removed, and a native vegetation buffer consisting of selected coastal sage scrub components would be installed.
- **Southern Shore.** Low shrubs would be installed between the concrete walk path and the sand (near the playground equipment), along the street-side sidewalks of East Colorado Street and Appian Way, along the Appian Way parallel parking strip (near the lifeguard station), and along the edge of the sand. In addition, the asphalt strip that currently exists between Appian Way and the Lagoon access road parking area would be removed and planted with native trees and shrubs. The type and spacing of the trees and shrubs would be designed to minimize obstruction of the view from the homes to the southwest. This portion of the component would involve some



LSA

0 125 250 Feet

Project Boundary
Swimming Area
Sand Nourishment Area
Existing Sidewalk
Proposed Bioswale
Bird Island
Proposed Trail (Decomposed Granite)
Vegetated Buffer/Berm
Proposed Bridge
Proposed Open Channel (Top of Channel 100')
Proposed Viewing Platform
Baseball Field (New Location)
Adult Soccer Field (Existing Location)
Youth Soccer Field (New Location)
Access Road and Parking Lot to be removed with proposed project

FIGURE 3.6

Colorado Lagoon Restoration Project
Proposed Recreation Components

SOURCE: Air Photo USA (2007), Moffat & Nichol (2007), Thomas Bros. (2007).

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demolition of pavement. Pavement debris would be hauled off site. New topsoil would be imported as necessary for the areas to be replanted. Irrigation lines and new plants would be installed. In addition, along the southwestern shore, a berm would be installed along Park Avenue. Both the shrubs and the berm would reduce the storm water sheet flow that currently enters the Lagoon from these areas during storm events.

A conceptual planting plan showing the proposed new vegetation communities is shown on Figure 3.5. These habitats would support a diversity of native plant species that would be used by native birds, primarily for foraging and resting. The restored habitat is expected to increase the abundance and diversity of birds using the Lagoon and would provide viewing and educational opportunities for the public.

Import and Plant Eelgrass in the Lagoon. There are small patches of eelgrass currently existing in the Lagoon that would be supplemented by planting additional eelgrass and creating eelgrass beds. Eelgrass beds are nutrient-rich and extremely productive, providing food and shelter for a variety of marine invertebrates and fishes.

Eelgrass (*Zostera*) is a marine flowering plant that grows in soft sediments in coastal bays and estuaries, and occasionally offshore to depths of 50 ft. Eelgrass canopies are approximately 2 to 3 ft long (consisting of shoots and leaves). This vegetation enhances the abundance and diversity of the habitat by attracting many marine invertebrates, fishes, and marine life. Diverse communities of bottom-dwelling invertebrates (i.e., clams, crabs, and worms) live on eelgrass or within the soft sediments that cover the root and rhizome mass system. The vegetation also serves a nursery function for many juvenile fishes, including species of commercial and/or sports fish value (California halibut [*Paralichthys californicus*] and barred sand bass [*Paralabrax nebulifer*]). Eelgrass beds are critical foraging centers for seabirds (such as the endangered California least tern [*Sternula antillarum brownii*]) that seek out baitfish (i.e., juvenile topsmelt) attracted to the eelgrass cover. Last, eelgrass is an important contributor to the detrital (decaying organic) food web of bays, as the decaying plant material is consumed by many benthic invertebrates (such as polychaete worms) and reduced to primary nutrients by bacteria.

The newly introduced eelgrass beds would be located in the north arm of the Lagoon and in the newly developed open channel, and would be located below the lowest tidal elevation. The eelgrass plants would be hand-planted via scuba diver on the bottom of the Lagoon and channel.

Develop a Bird Island. A bird island to provide a safe refuge for roosting birds will be developed by excavating (approximately 6,600 cy of soils) an area adjacent to the north shoreline in the western arm of the Lagoon. The island will be isolated from other lands by a -7 ft deep, below mean sea level channel. Maintenance requirements are assumed to be minimal, consisting of periodic cleaning, inspection, and repairs as needed.

3.5.3 Recreational Improvements

Construct a Walking Trail around the Lagoon and Open Channel. This component would provide additional public recreation amenities at the Lagoon through improved pedestrian access and

learning opportunities. A walking trail would be extended around portions of the perimeter of the Lagoon and the eastern side of proposed open channel, extending through areas that currently provide no public access. As shown on Figure 3.6, the trail would not extend around the western arm of the Lagoon. A viewing platform will be located at the end of the trail toward the western arm. The trail would connect to the existing footbridge on both the north and south shores of the Lagoon. As mentioned previously, the existing recreation improvements (e.g., barbeques and picnic tables) will remain on the north shore of the Lagoon.

The trail would be generally 8 ft wide, except along the north shore where the access trail from East 6th Street would be 12 ft wide to provide emergency access along the western shore of the northern arm. The trail would be constructed of decomposed granite in the new areas, which would connect to the existing sidewalk. Interpretive kiosks, seating benches, picnic tables, and shade structures would be installed along the trail. The kiosks would provide educational information about the Lagoon. The trail is shown on Figure 3.6.

Reconfigure Sports Fields in Marina Vista Park. Due to the location of the proposed open channel, the baseball diamond in Marina Vista Park would be moved slightly north. The new location would provide an area large enough to maintain functionality for league sports and provide for a youth soccer field overlay (as currently provided). The adult-sized soccer field would remain in its current location. In summary, the proposed project would reconfigure the baseball and youth overlay soccer fields, but continue to provide the same number of fields and the same functionality that is currently provided in the park.

3.5.4 Operational Components

These are operational features that could be implemented without additional CEQA clearance and that complement the water quality strategies described above.

Implement Trash Management Protocols. More frequent and effective trash management would reduce refuse in the water and adjacent areas, especially during summer months, when the Lagoon is utilized most by picnickers. Proposed trash management protocols include ensuring that all trash containers are covered, disallowing trash trucks to drive on the sand areas, providing additional trash containers at key locations, educating Lagoon users on litter control and its effect on the environment, and enforcing littering laws. The use of landscaping as barriers to prevent trash from blowing across the site and into the Lagoon will also be considered.

Implement Bird Management Protocols. The objective of this component is to reduce direct contribution of bird feces (bacteria) into the Lagoon, thereby improving water quality. This component would prohibit the release of domestic birds such as ducks and geese and involve installing signs to discourage people from feeding any birds.

Modify Sand Nourishment Practices. The City imports sand for beach fill at the Lagoon. Beach fill is currently done on the north and south shores of the Lagoon, mostly in the swimming areas.

Approximately 60–100 cy of sand is brought in annually, and some of this sand erodes into the Lagoon waters. Hence, there is a concern that this sand is filling the Lagoon, as well as adversely impacting the Lagoon's intertidal habitat. Because of these concerns, this component would modify the existing sand nourishment practices by limiting sand nourishment to only the south shore swimming area to the east of the footbridge. This component would result in a 50 percent reduction in the volume of sand that is currently being imported. Additionally, sand quality would be assessed to optimize grain size so that it remains on the beach longer. Figure 3.6 shows the proposed sand placement area.

3.6 PROJECT PHASING

It is anticipated that Phase 1 would involve the improvements at the Lagoon and to the existing culvert connecting the Lagoon and Marine Stadium and Phase 2 would involve improvement within Marina Vista Park. Specifically, the improvements within Marina Vista Park are anticipated to occur at least 1 year following the commencement of Lagoon improvements, depending upon the availability of funding. Construction of Phase 1 improvements are estimated to take approximately 10 months, and construction of Phase 2 improvements are estimated to take approximately 15 months plus an additional 6 months for turf reestablishment on the sports fields in Marina Vista Park. The project components of each phase are listed below.

- **Phase 1: Lagoon Improvements**
  - Clean culvert and remove tidal gates, sill, and other structural impedances at culvert.
  - Dredge western arm and central Lagoon areas.
  - Implement storm drain upgrades, including the development of a storm water diversion system and bioswales.
  - Remove the north parking lot and access road, and the restroom on the north shore of the Lagoon.
  - Recontour Lagoon side slopes, develop Bird Island, revegetate land areas, and plant eelgrass.
  - Develop the walking trail and viewing platform at the Lagoon.
- **Phase 2: Marina Vista Park Improvements**
  - Construct two roadway bridges spanning the open channel at East Colorado Street and East Eliot Street. Demolish and replace two public restrooms. Build the open channel between the Lagoon and Marine Stadium.
  - Develop the walking trail on the eastern side of the open channel and vegetation buffers on both sides of the channel.

3.7 PROJECT DISCRETIONARY ACTIONS

The purpose of this EIR is to analyze the proposed development and activities further described and analyzed in Section 4.0, and it is intended to apply to all listed project approvals as well as to any other approvals necessary or desirable to implement the project.

This EIR is intended to inform decision makers and the public of the environmental effects of implementing the proposed project and of the alternatives available that lessen or avoid significant impacts. This EIR analyzes and documents the impacts of the proposed project and all discretionary and ministerial actions associated with the project.

Development of the proposed project will require discretionary approvals by the City, the Lead Agency. These discretionary actions are listed below:

- Local Coastal Program Amendment to update the existing and proposed conditions at the Lagoon
- Zoning Code Amendment to refine the definition of "passive park"
- California Coastal Development Permit for improvements in the Coastal Zone
- Local Coastal Development Permit for improvements in the local Coastal Zone
- Site Plan Review of proposed improvements
- Stormwater Pollution Prevention Plan (SWPPP)
- Standard Urban Stormwater Mitigation Plan (SUSMP)
- City Water Department Permit for the diversion to the sewer system
- EIR certification

Because the project also involves consultation with and/or approvals from other agencies, the following agencies are Responsible Agencies under CEQA: South Coast Air Quality Management District (SCAQMD); Los Angeles Regional Water Quality Control Board (RWQCB); State Water Resources Control Board (SWRCB); United States Fish and Wildlife Service (USFWS); United States Army Corps of Engineers (Corps); California Coastal Commission (CCC); Los Angeles County Sanitation Districts; and Los Angeles County Department of Public Works, Flood Control District (for drainage system facility improvements). Section 15381 of the CEQA Guidelines defines Responsible Agencies as public agencies other than the Lead Agency that will have discretionary approval power over the project as defined under CEQA.

A comprehensive list of future actions by Responsible Agencies is presented in Table 3.B.

3.8 PROJECT FUNDING

The Colorado Lagoon Restoration project is being funded by several sources, as listed in Table 3.C.

Table 3.B: Future Actions by Responsible Agencies

Responsible Agency	Action
Los Angeles County Department of Public Works, Flood Control District	Approve plans for modification of and connection with on-site and off-site drainage facilities.
Los Angeles County Sanitation Districts	Sewer diversion permit.
Los Angeles Regional Water Quality Control Board (RWQCB)	Section 401 Water Quality Certification and Waste Discharge Identification (WDID) and Waste Discharge Report (WDR) for dewatering.
State Water Resources Control Board (SWRCB)	City must submit a Notice of Intent (NOI) to comply with General Construction Activity National Pollution Discharge Elimination System Permit.
South Coast Air Quality Management District (SCAQMD)	Prior to grading, the City of Long Beach must obtain a Rule 1166 Permit related to release of airborne contaminants.
United States Army Corps of Engineers (Corps)	Section 404 Permit for Lagoon dredging and discharge.
California Coastal Commission (CCC)	Approval of a Coastal Development Permit for proposed improvements and approval of the Local Coastal Program (LCP) amendment.
United States Fish and Wildlife Service (USFWS)	Endangered Species Act, Section 7 Consultation.

Table 3.C: Colorado Lagoon Restoration Project Funding

Funding Source	Grant Program	Grant Amount	Grant Funds to be Used Toward
Rivers and Mountains Conservancy Grant	Rivers & Tributaries Urban Core Program; Prop. 50: Water Security, Clean Drinking Water, Coastal & Beach Protection Act of 2002	$150,000	Funding will be used exclusively for CEQA review.
Clean Beaches Initiative Grant	Prop. 40 Grant: Clean Beaches Initiative Program	$3,823,868	A) $3,186,557 to upgrade storm drains with low-flow diversions to the sanitary sewer system and trash separators; to construct bioswales; and to upgrade the culvert. B) $637,311 for CEQA, required permits, and engineering design.
State Coastal Conservancy	State Coastal Conservancy: Resource Enhancement Prop. 50 Grant	$500,000	Funding for design development, environmental documentation, and necessary technical studies.
Port of Long Beach Grant		$235,000	This grant will be used to assist funding CEQA costs.
United States Army Corps of Engineers	United States Army Corps of Engineers Grant	$900,000	Funding for dredging the western arm to remove contaminated sediment; recontouring banks of the Colorado Lagoon to create mudflat intertidal habitat.
Total Funding		**$5,608,868**	

CEQA = California Environmental Quality Act

4.0 EXISTING SETTING, IMPACTS, AND MITIGATION MEASURES

Section 4.0 describes the existing setting for the areas potentially affected by the proposed Colorado Lagoon Restoration project. The existing setting is the base environmental condition for which potential environmental effects of the proposed Colorado Lagoon Restoration project and the project alternatives in the Environmental Impact Report (EIR) are evaluated.

The analyses in Section 4.0 include the existing setting, regulatory setting applicable to the environmental topic, methodology of the impact analysis, identification of direct and indirect project impacts, and mitigation measures identified to avoid or substantially reduce potentially significant adverse project impacts. Graphic exhibits and data matrices are included throughout Section 4.0 where applicable to support the impact analyses.

The following environmental issues are assessed in accordance with California Environmental Quality Act (CEQA) Guidelines and CEQA requirements in Section 4.0:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural and Paleontological Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use
- Noise
- Public Services and Utilities
- Recreation
- Transportation and Circulation

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

- **Less Than Significant Impacts** are those project impacts that are determined to be less than significant such that no additional requirements, conditions, or mitigation measures are needed.

- **Potentially Significant Impacts** are those project impacts that cannot be reduced to a less than significant level by project design features alone and that would require additional mitigation measures to further reduce the impacts. Impacts in this category may be reduced to a less than significant level with mitigation measures (if feasible) or may remain unavoidable adverse impacts.