4.1 AESTHETICS

INTRODUCTION

This section provides a discussion of the existing visual and aesthetic resources on the project site and in the surrounding area as well as an analysis of potential impacts from implementation of the proposed project. A field survey of the project site and the immediately surrounding area (areas within view of the site) was conducted to evaluate the existing setting and develop an informed assessment of the potential effects of the proposed project on visual and aesthetic resources. The term "project area" is used to refer to the combination of the Colorado Lagoon (Lagoon) and Marina Vista Park project sites.

4.1.1 EXISTING ENVIRONMENTAL SETTING

Existing Visual Character in the Vicinity of the Project Site

The proposed project area, which includes the Lagoon site and Marina Vista Park, consists of approximately 48.61 acres (ac) of open space and recreational lands and a water body within the City of Long Beach (City). The project area lies northwest of the mouth of the San Gabriel River and is north of Marine Stadium and Alamitos Bay. The project area is primarily accessible from East Appian Way and East Colorado Street via Park Avenue from East 7th Street. The project site includes the Colorado Lagoon Park, Marina Vista Park, and a small portion of adjacent parkland at Marine Stadium. The Lagoon area includes 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 serves three main functions: hosting estuarine habitat, providing public recreation (including swimming), and retaining and conveying storm water drainage. The project area is owned and maintained as City parkland by the City Department of Parks, Recreation, and Marine.

The area surrounding the proposed project is composed primarily of park and recreational land, residential development, and small areas of commercial and institutional land uses.

Recreation Park, which is a City park, is adjacent to the Lagoon on the north and includes 9-hole and 18-hole golf courses, a baseball stadium, a softball stadium, a casting pond, picnic areas, a dog park, tennis courts, a community center, lawn bowling, and a playground. A chain link fence separates the Lagoon project site from the Recreation Park 9-hole golf course along the west side of the north arm of the Lagoon and along the existing north parking lot to the existing restroom. The chain link fence does not separate the Recreation Park golf course and the project site around the west arm of the Lagoon, which is west of the restroom.

Developed neighborhoods, which are largely composed of residential land uses, are located to the south, east, and west. Small areas of commercial and institutional development are located to the

[1] Lagoon water body acreage varies with tides and was estimated by LSA Associates, Inc. using Geographic Information System (GIS) data based on a 2006 aerial photo.

south of the Lagoon and to the west of Marina Vista Park. In addition, Marine Stadium, which is a recreational water body, is located adjacent to the south of Marina Vista Park.

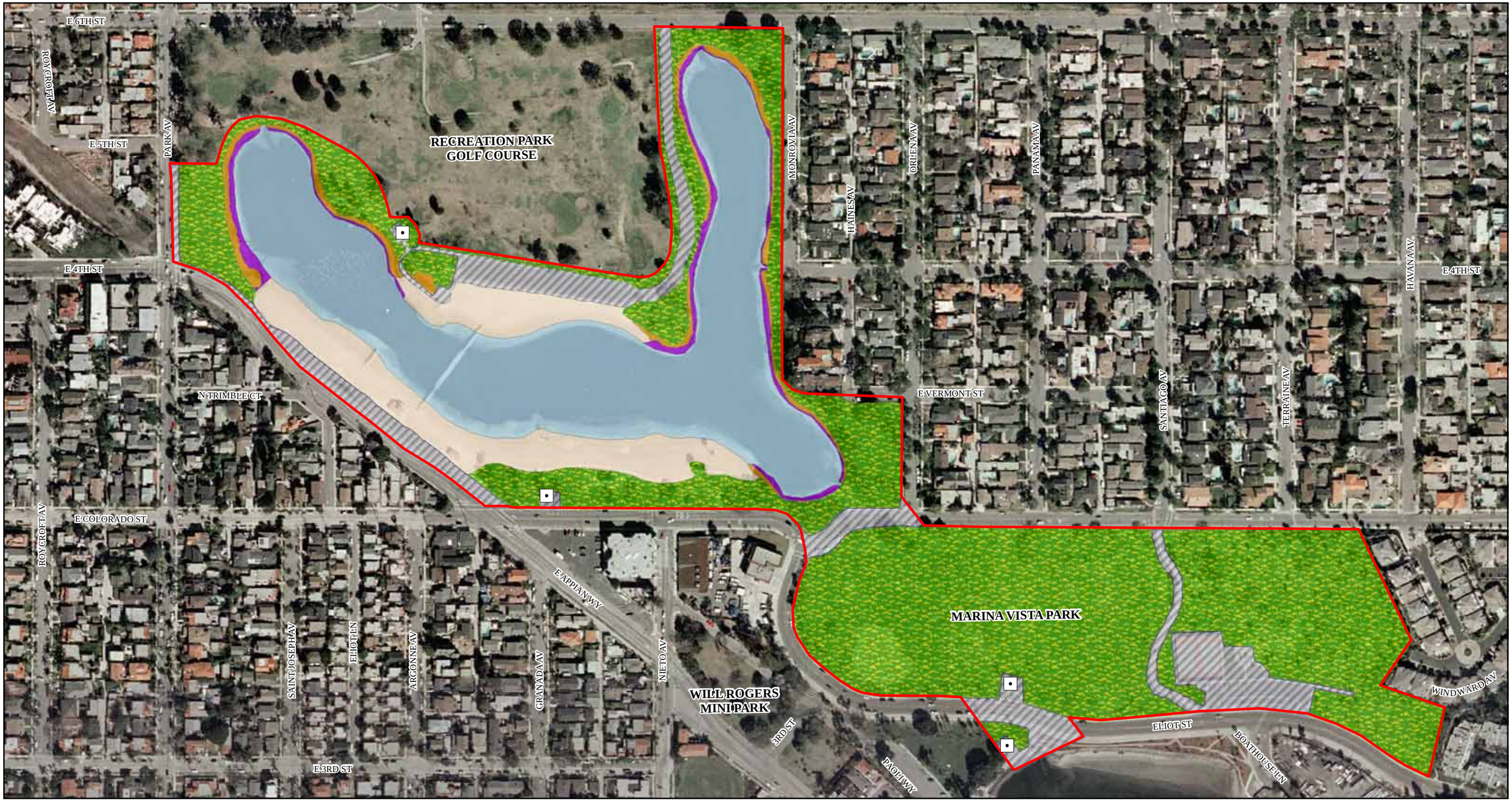
Existing Visual Character of the Project Site

Colorado Lagoon. The Lagoon was once a part of the historic Los Cerritos Wetlands and historically consisted of coastal salt marsh. 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 original vegetation communities have been eliminated or severely degraded due to disturbances related to human activity, steepness of the banks along the northern arm of the Lagoon, the presence of invasive nonnative vegetation, and degraded water quality and pollutants in the Lagoon. A few isolated stands of coastal salt marsh occur within highly degraded habitat areas and other nonnative species. The project area supports two plant communities and four habitat types. The plant communities within the project area include parks and ornamental plantings (approximately 23.61 ac) and southern coastal salt marsh (approximately 0.94 ac). The four habitat types within the project area include mudflats (approximately 0.83 ac), sandy beach (approximately 4.34 ac), developed land (approximately 5.18 ac), and marine open water and subtidal (approximately 13.12 ac). Figure 4.1.1 illustrates the distribution of these areas within the project site.

The Lagoon is largely characterized as a water body and park comprised of ornamental landscaping. The dominant herbaceous plant is turf grass, which is a mixture of multiple nonnative grasses such as Bermuda grass (*Cynodon dactylon*) and annual bluegrass (*Poa annua*). Scattered throughout the project area are mature trees typically used in Southern California park landscaping. The dominant ornamental plant species are gum tree (*Eucalyptus* sp.), Canary Island pine (*Pinus canariensis*), carrotwood (*Cupaniopsis anacardioides*), myoporum (*Myoporum laetum*), southern magnolia (*Magnolia grandifolia*), Peruvian pepper (*Schinus molle*), and European olive (*Olea europaea*).

Within the project area, there are two sandy beach areas located along the north and south portions of the Lagoon. There is no vegetation growing on these beaches since they are frequently machine groomed. The sandy beaches are used by the public for various recreational activities and as a roosting site for gulls and resting waterfowl. The area has a high recreation value.

The northern portion of the Lagoon area is developed with a parking lot on the north shore and a driveway entrance from East 6th Street to the parking lot. As stated above, a chain link fence separates the Lagoon project site from Recreation Park along the north arm and north beach/north parking lot boundary. The driveway entrance from East 6th Street to the parking lot is lined with approximately 32 Mexican fan palms (*Washingtonia robusta*) along the shore and approximately 16 palms along the chain link fence. Also along the chain link fence are various species of nonnative shrubs and trees. Vegetation within the developed area consists of some individuals of nonnative turf grass, mainly Bermuda grass, growing along the sides of the access road and in the cracks of the asphalt. The access road and parking lot area currently do not support any native vegetation and have little to no habitat value.



LSA

LEGEND

- Project Boundary
- Restrooms

Habitat Type and Acreage within Project Boundary

- Sandy Beach - 4.338 ac
- Developed - 5.182 ac
- Mudflats - 0.834 ac
- Marine Open Water and Subtidal- (High Tide) - 13.122 ac
- Parks and Ornamental Landscaping - 23.612 ac
- Southern Coastal Salt Marsh - 0.942 ac

N

0 125 250 Feet

SOURCE: Eagle Aerial (2007).

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FIGURE 4.1.1

Colorado Lagoon Restoration Project

Existing Vegetation Communities

The Lagoon water body comprises 11.7 ac within the Lagoon project area. The Lagoon water quality is currently degraded due to urban runoff impairments and the culvert restrictions that limit tidal flushing. Due to the limited capacity and perching of the culvert that connects the Lagoon to Marine Stadium, tidal flushing is restricted, and water levels do not fluctuate at the same level as the tides. This effect has contributed to the degradation of the water quality at the Lagoon. As a result, the Lagoon waters have limited aesthetic appeal due to high turbidity (less clarity) and the potential for periodic blooms of algae. In addition, the major storm drains and several of the minor storm drains visibly outlet into the Lagoon.

There are several physical structures at the Lagoon. The existing restroom structures on the north and south shores are old but maintained in good condition (Figure 4.2.3). The existing pedestrian bridge at the Lagoon is in need of minor repairs to deteriorated portions of the wood structure (Figure 4.1.6). The preschool and model boat structures are currently being renovated and are therefore in excellent condition. The Marine Science Center building was painted with a mural several years ago. The Marine Science Center and lifeguard structures to the south side of the Lagoon are maintained in good condition. The picnic tables, playground, and other recreation features are maintained in operational condition by the City. Generally, the physical structures at the Lagoon are in a moderate to excellent state of repair. These structures are small in scale compared to the overall site and do not dominate the visual features at the Lagoon.

In summary, the existing aesthetic quality of the Lagoon area is characterized by passive and active recreation open space represented primarily by grassy areas with ornamental trees, beach, and a water body. The visual quality of the water is somewhat degraded by turbidity and visible outlet structures. Physical improvements are maintained in moderate to excellent condition. Overall, the Lagoon is a visual asset to the community by providing open space in an urban environment.

Marina Vista Park. The Marina Vista Park area of the proposed project is 19.41 ac[1] and is 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 (one adult field and one youth field that overlays the baseball/softball field), tennis courts, a baseball/softball field, play equipment, picnic areas, and a restroom building on the north side of East Eliot Street. Marina Vista Park is primarily ornamental landscaping consisting of nonnative grasses and several mature trees. Other improvements at the park include a pedestrian path that connects East Colorado Street and East Eliot Street near the tennis courts.

The project area also includes a triangle-shaped parkland that is adjacent to the north end of Marine Stadium waters, just south of East Eliot Street. This area is similar to the rest of Marina Vista Park in that it is primarily ornamental landscaping with nonnative trees (several palms) and does include a restroom building.

Overall, the existing aesthetic quality of Marina Vista Park is characterized by passive and active recreation open space represented primarily by grassy areas with ornamental trees and palms and a baseball/softball diamond. The existing restroom structures are not remarkable in appearance.

[1] Acreage was estimated by LSA Associates, Inc. using GIS data based on a 2006 aerial photo.

Marine Stadium. Marine Stadium is a water body and park area adjacent to Marina Vista Park to the south of East Eliot Street. The park amenities include Mothers Beach, an activity center, boating facilities, coastal viewing, a rowing center, green open space, benches, and picnic tables. The north end of Marine Stadium is lined with riprap and is less used by the public. The mouth of the culvert opening to the Lagoon can be seen from Marine Stadium and the sidewalk just south of East Eliot Street, as the culvert opening is approximately 12 x 8 feet (ft).

Light and Glare. Currently, low-level security lighting is provided on the streets surrounding the project area, at Marine Stadium, and at the adjacent golf course to provide illumination for roadway traffic, adjacent residential areas, and the golf course users. The Lagoon currently has two restroom structures with two mercury vapor lights on the outside of the buildings (Figure 4.1.1). One restroom building is located on the north side of the Lagoon, and the second restroom building is located on the south side of the Lagoon. Marina Vista Park currently has one restroom structure located to the north of East Eliot Street, which is illuminated by two light poles (Figure 4.1.1). A fourth restroom structure is located south of East Eliot Street at Marine Stadium and is illuminated with two lights on the outside of the building (Figure 4.1.1).

4.1.2 REGULATORY SETTING

The City's Open Space and Recreation Element of the General Plan and the Long Beach Department of Parks, Recreation, and Marine Strategic Plan contain objectives and policies related to aesthetics and visual character. The applicable objectives and policies are listed below.

- 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).
- 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).

Local Tree Protection

The City of Long Beach Municipal Code (Ordinance C-7642) requires that a permit be obtained from the Director of Public Works prior to removal of trees from City-owned property. The City also requires that the trees be identified, mapped, and measured prior to removal. The project will remove existing trees, including the Mexican fan palm along the access road on the west side of the northern arm of the Lagoon as well as other mature trees in the Lagoon, Marina Vista Park, and Marine Stadium.

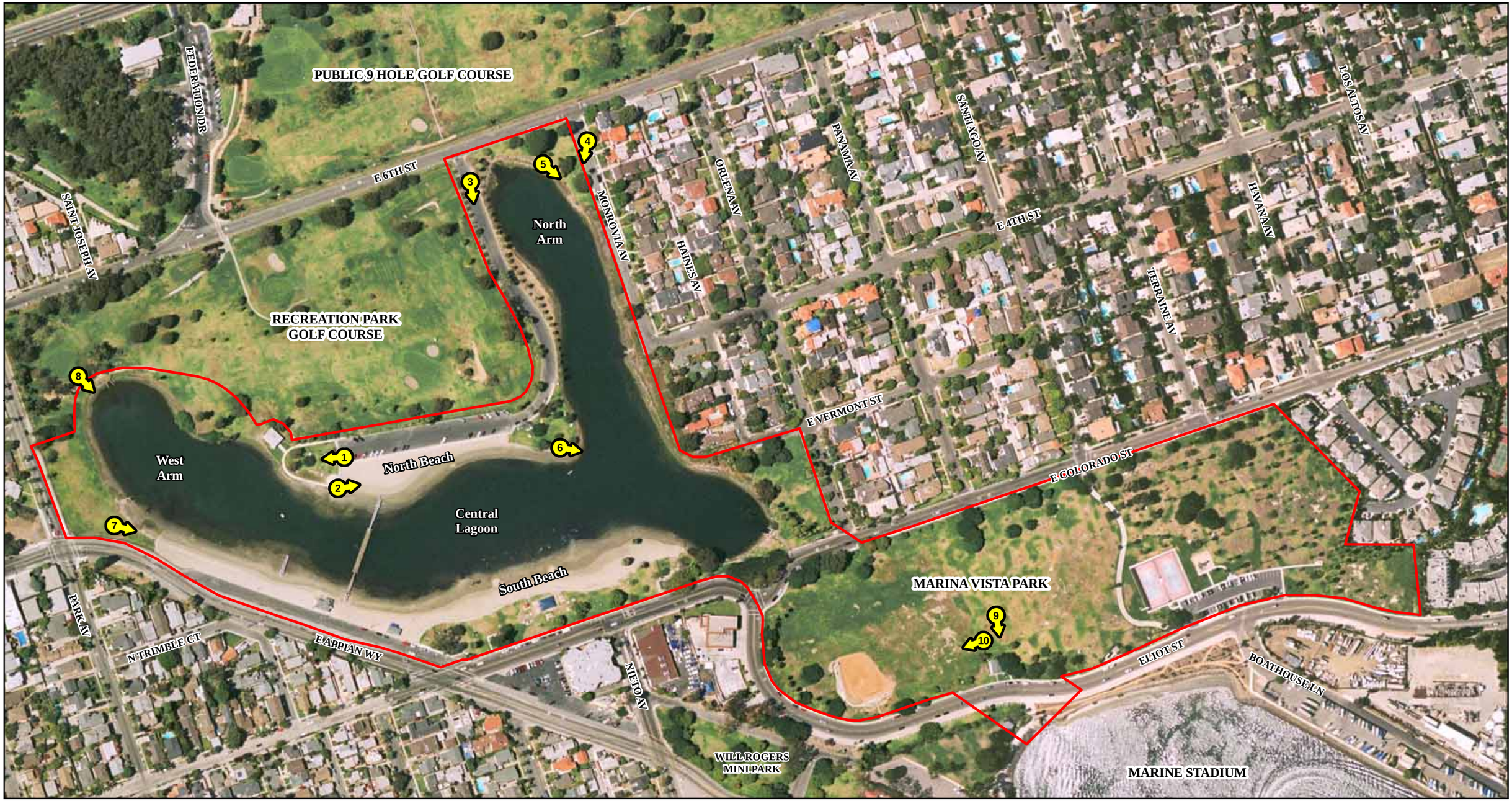
4.1.3 METHODOLOGY

The proposed project includes water quality, habitat restoration, and recreation improvements to the project area. The potential exists for impacts of the view to the project area from the surrounding areas, as well as to motorists passing through the area on surrounding streets, including East Colorado Street, East Eliot Street, East 6th Street, East Appian Way, Park Avenue, and Monrovia Avenue due to on-site construction activities.

This section assesses the aesthetic compatibility of the proposed project with the surrounding area and potential impacts to any sensitive viewers that may exist in the project vicinity. Sensitive viewers are generally associated with land uses such as residential, school, church, and passive open space/recreation uses. In the project vicinity, the majority of surrounding land uses would be considered sensitive viewers, such as the adjacent residential areas and the Lagoon Playgroup Preschool, as well as recreational visitors to Marina Vista Park, Marine Stadium, and the 9-hole Recreation Park golf course.

The potential aesthetic impacts of the proposed project are further evaluated considering such factors as the scale, mass, proportion, orientation, and landscaping/buffering associated with the design of the proposed project. In order to conduct this analysis, photographs of existing views of the project site are provided, along with photographs depicting similar environments after completion of the proposed project. Ten view locations of the project site from publicly accessible vantage points were selected to best depict the change if the proposed project were developed. Locations were chosen to best determine the potential change in views from the current condition. These view selections are graphically presented in Figures 4.1.2 through 4.1.7 and illustrate the current conditions (before development) of the project site.

A photo location key map, Figure 4.1.2, shows the locations of the representative views or the points from which site photographs were taken, and the photographs showing the existing visual character of the project site and the surrounding area are provided in Figures 4.1.3 through 4.1.7.



LSA

FIGURE 4.1.2

LEGEND

Project Boundary

Photo Location

0 125 250 Feet

SOURCE: AirPhoto USA (2007)

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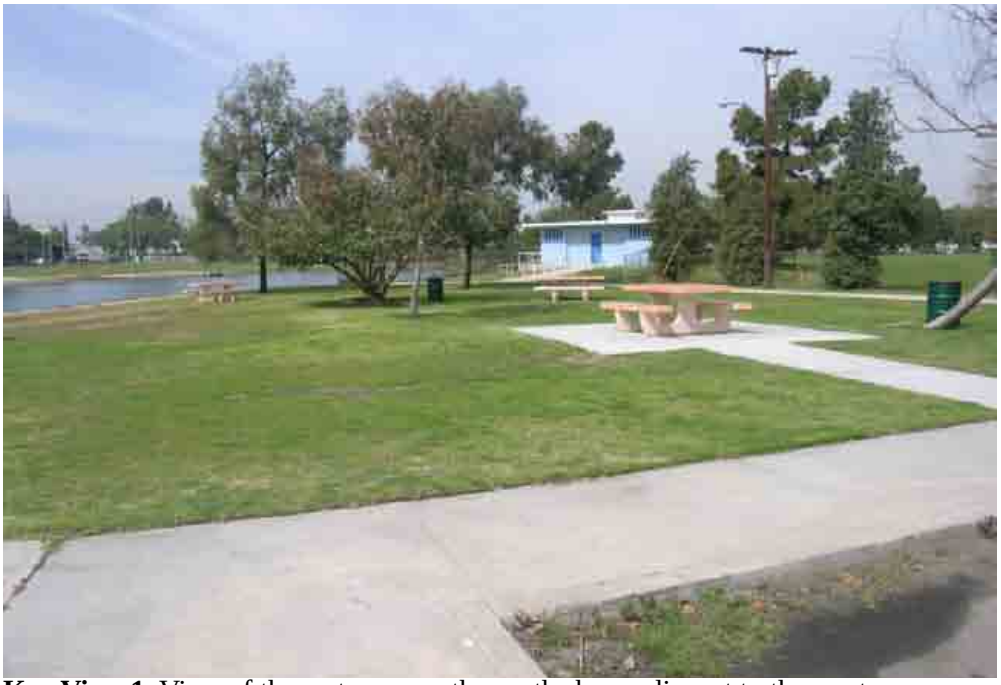
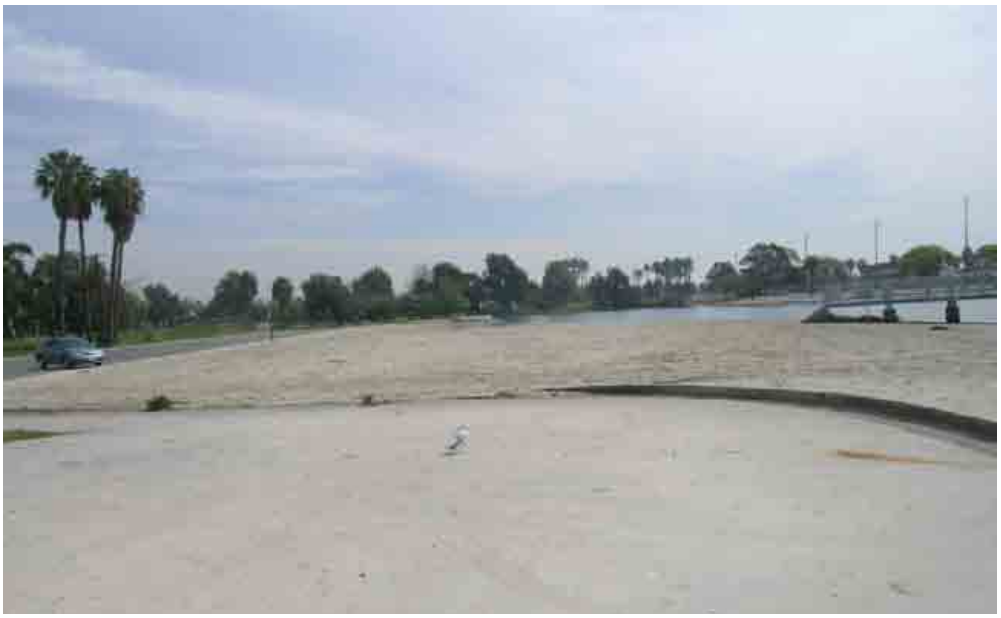
Colorado Lagoon Restoration Project

Photo Locations



Key View 1. View of the restroom on the north shore adjacent to the west arm. Improvements to this area include removal of the restroom and revegetating with low marsh, high marsh, and native upland coastal sage scrub vegetation. Bird Island will also become visible from this view.



Key View 2. View of the north beach and parking lot. Improvements to this area include removing the parking lot and revegetating with native upland coastal sage scrub vegetation, sand dunes, low marsh, and a walking trail.

LSA

FIGURE 4.1.3

Colorado Lagoon Restoration Project

Key Views

SOURCE: LSA Associates, Inc.

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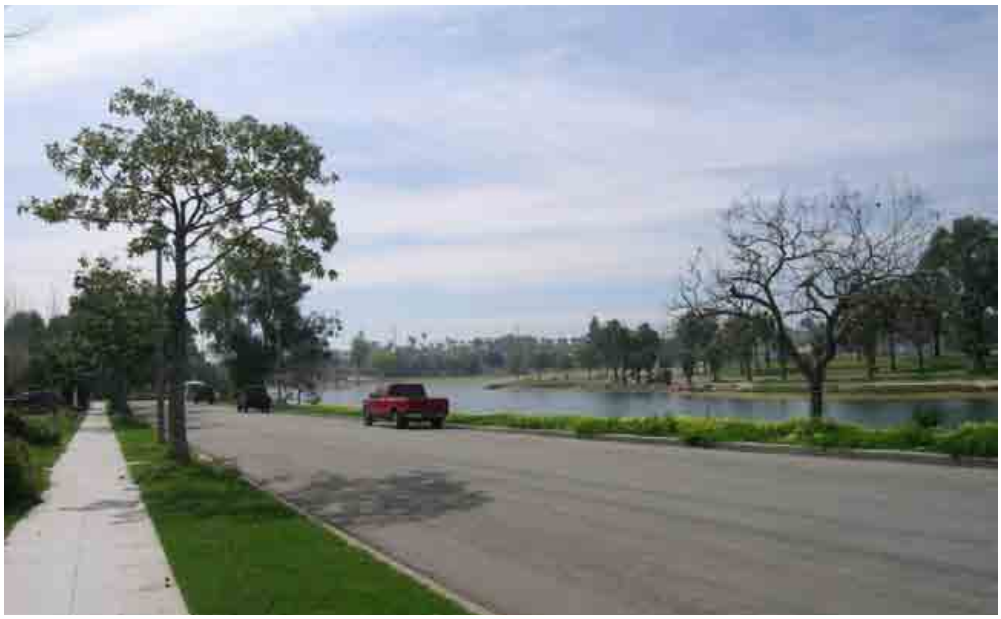
Key View 3. View of 6th Street entrance into the Colorado Lagoon. Improvements in this area include removal of the existing access road and revegetating with low and high marsh/upland with an 8-foot-wide walking trail constructed from decomposed granite.



Key View 4. View of the Colorado Lagoon from the residential area along Monrovia Avenue. Views from this area will change as a result of the removal of the nonnative habitat. The iceplant in the foreground (between the curb and water body) and palms in the distance will be revegetated with native habitat. The improvements will result in more expansive views of the Lagoon and golf course due to the nonnative tree removal.

LSA

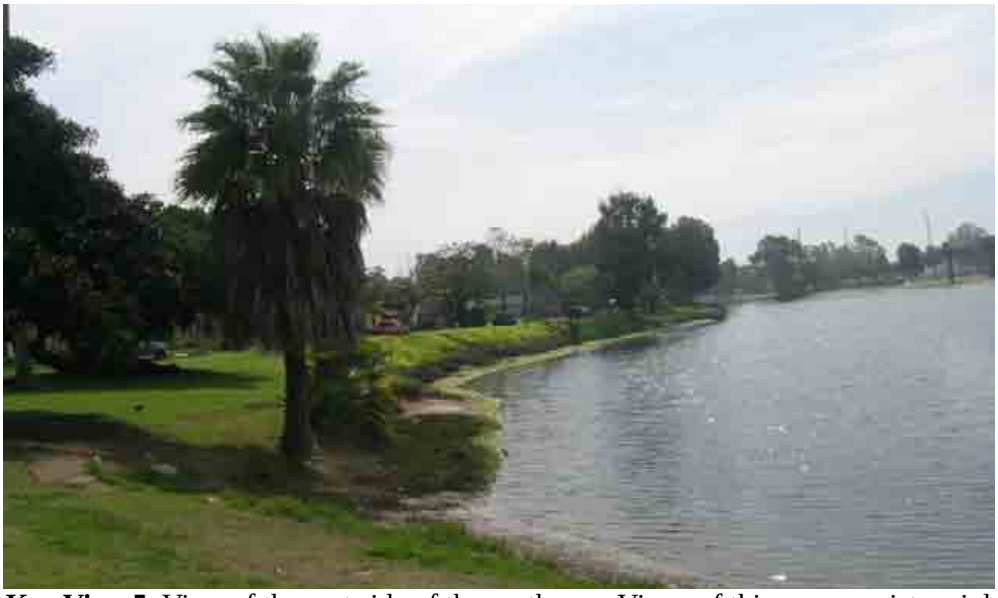
FIGURE 4.1.4

Colorado Lagoon Restoration Project

Key Views

SOURCE: LSA Associates, Inc.

I:\CLB0702\G\Key Views.cdr (4/10/08)2of5



Key View 5. View of the east side of the north arm. Views of this area consist mainly of the existing landscaping and exotic vegetation (grass, iceplant, and Mexican fan palm). Improvements to this area include removal of the iceplant and revegetating with a native vegetation buffer consisting of selected coastal sage scrub. The steep slopes shown in this picture are similar to several areas of the Lagoon shoreline. The slopes would be recontoured (flattened by installing a bench-type feature between elevations of -1.75 feet (ft) and +1.5 ft above mean sea level) to create areas for the establishment of salt marsh habitat.

Key View 6. View of the culvert looking toward Marina Vista Park and Marine Stadium. Improvements to this area include construction of the open channel. The open channel construction will result in unimpeded views of Marine Stadium due to tree and restroom (distant blue building) removal.

LSA

FIGURE 4.1.5

Colorado Lagoon Restoration Project

Key Views

SOURCE: LSA Associates, Inc.

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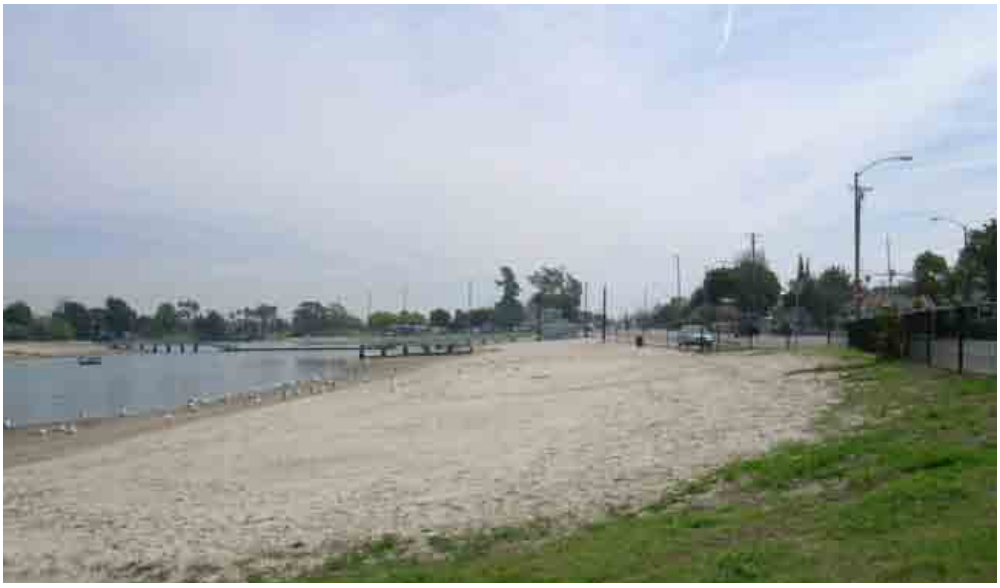
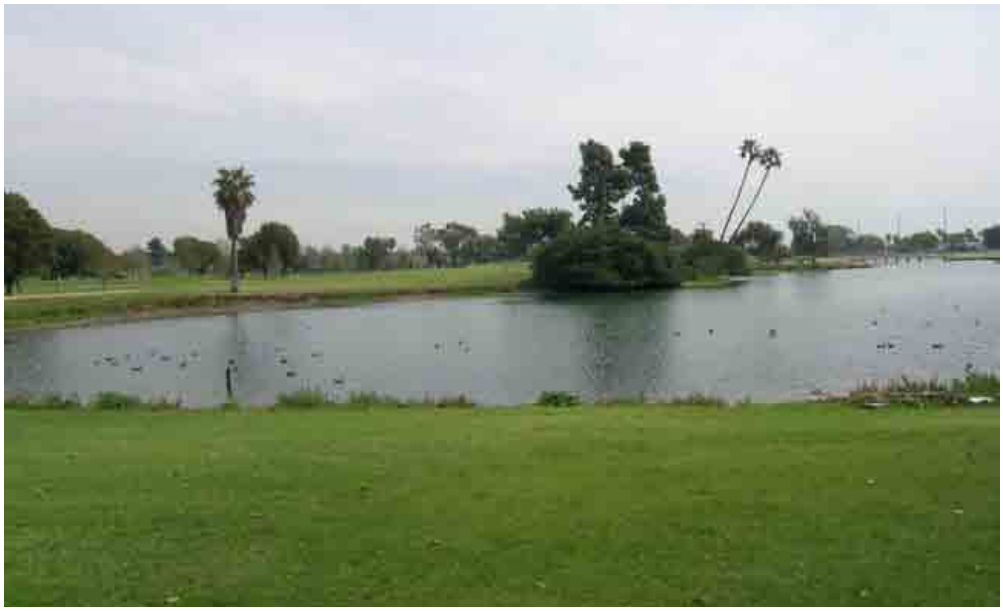


Key View 7. View of the south shore area facing south toward the footbridge. Views of this area are mainly of sandy beach. Improvements in this area include removing the sandy beach up to the proposed viewing platform area and revegetating with low, mid, high marsh/upland, and native upland coastal sage scrub vegetation and constructing an 8-foot-wide walking trail constructed from decomposed granite.



Key View 8. View of the Colorado Lagoon from the golf course. Views are mainly of the marine open water, parks, and ornamental landscaping, southern coastal salt marsh, and mudflats. Improvements to this area include removal of ornamental landscaping, development of Bird Island, and implementation of low and high marsh/upland.

LSA

FIGURE 4.1.6

Colorado Lagoon Restoration Project

Key Views

SOURCE: LSA Associates, Inc.

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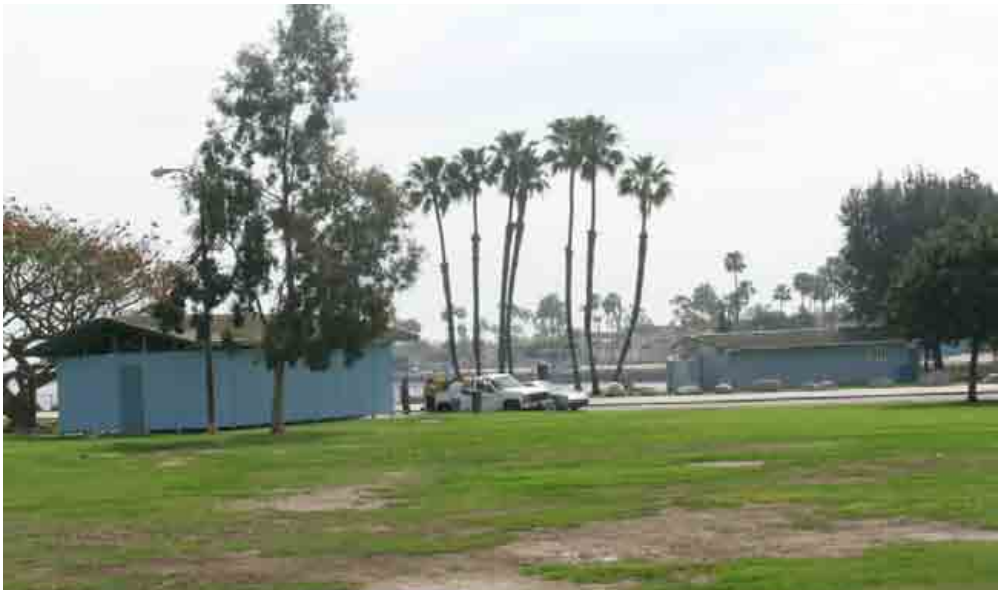
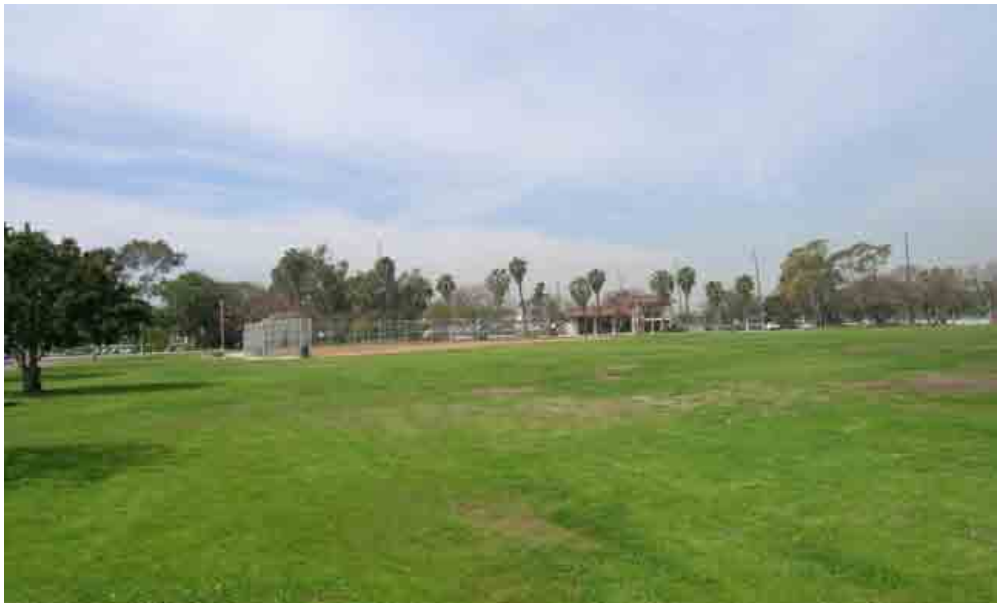


Key View 9. View of the two restrooms on Marina Vista Park that will be removed due to the channel construction. Removal of these restroom buildings and some trees will result in more open views of Marine Stadium from Marina Vista Park and Colorado Lagoon.



Key View 10. View of the baseball diamond at Marina Vista Park. Improvements will include reconfiguring the diamond to the northwest. Views of this area would appear nearly the same with implementation of the proposed project.

LSA

FIGURE 4.1.7

Colorado Lagoon Restoration Project

Key Views

SOURCE: LSA Associates, Inc.

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Post-project habitat photographs were taken from a site with similar characteristics and native vegetation. With all components in place, the photographs showing what the vegetation at the Lagoon may look like after project implementation provide a reasonably accurate indication of the vegetation changes that will occur after project implementation.

4.1.4 THRESHOLDS OF SIGNIFICANCE

According to Appendix G of the State CEQA Guidelines, visual resource impacts may be considered significant if a project has a substantial, demonstrable negative aesthetic impact. Based on professional standards and practices, the project may be considered to have a significant effect related to aesthetics if any of the following may occur:

- Substantial adverse effect on a viewshed from a public viewing area (such as a park, scenic highway, scenic roadway, or other scenic vista);
- Substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- Substantial degradation of the existing visual character or quality of the site and its surroundings; or
- Creation of a new source of substantial light or glare, which would adversely affect day or nighttime views in the area.

Visual impacts may be considered potentially significant where they would contribute to a substantial, demonstrable degradation of the existing visual character or quality of a site. This determination is based on several criteria, including observer position, views, and changes in the characteristics of the views. The key factor is the extent to which the project is compatible with the character, scale, bulk, and form of surrounding development.

Light impacts are generally considered an annoyance, while impacts from glare can sometimes present safety hazards. For the purposes of this EIR, light and glare may be considered to have a significant impact if the project would create substantial glare directed toward surrounding streets or if project lighting would substantially exceed lighting levels typical in the area.

4.1.5 PROPOSED PROJECT

The purpose of the proposed project is to restore the site's ecosystem, improve the estuarine habitat, provide enhanced recreation facilities, improve water and sediment quality, and manage storm water. Implementation of the proposed Colorado Lagoon Restoration project would occur in two phases. Phase 1 would involve the improvements at the Lagoon as well as cleaning the existing culvert through Marina Vista Park, and Phase 2 would involve improvements within Marina Vista Park, specifically the open channel and bridge construction on East Colorado and East Eliot Streets. The components of each phase are detailed below.

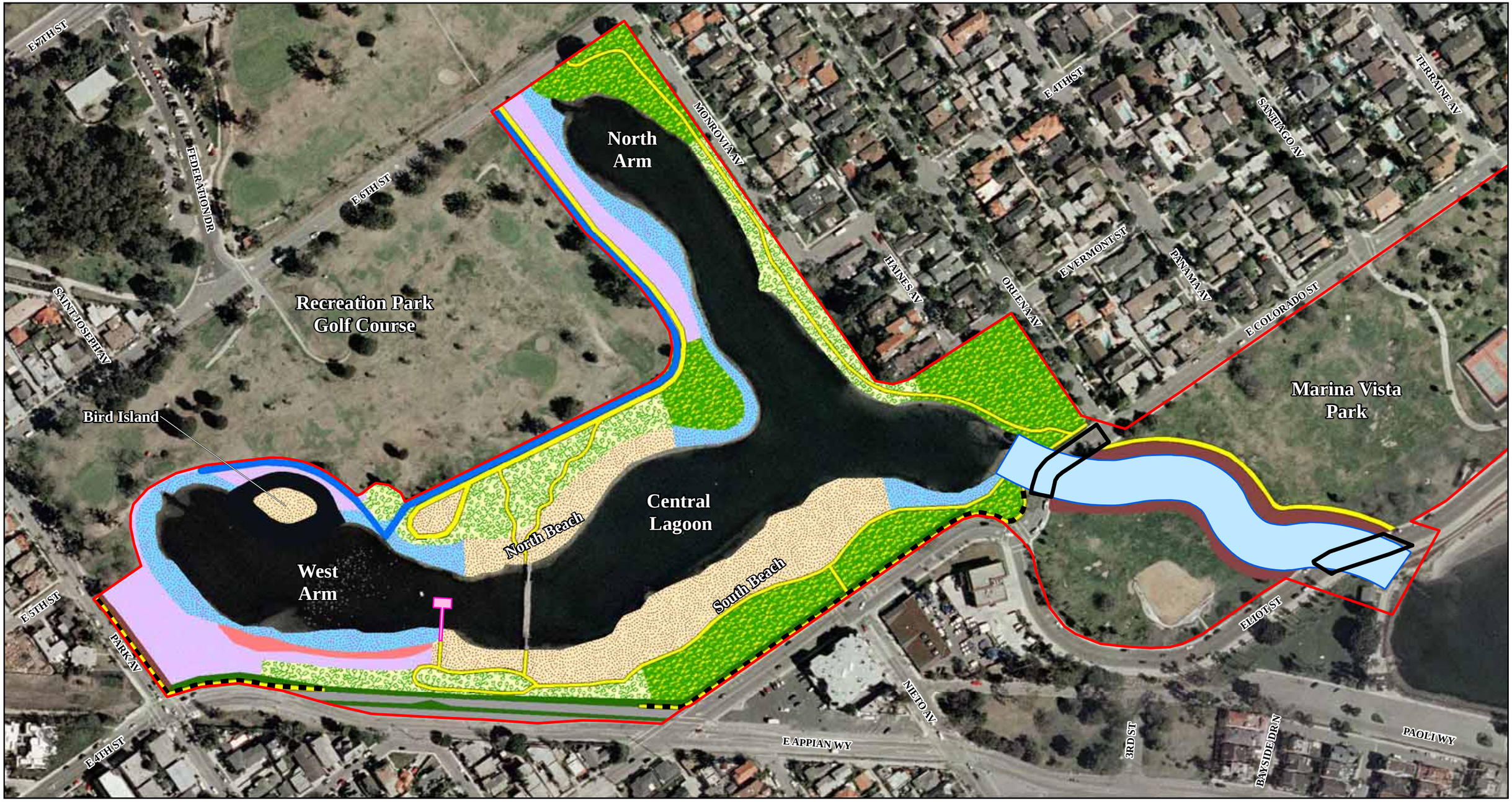
- **Phase 1: Lagoon Improvements**
  - Clean the culvert and remove tidal gates, sill, and other structural impedances at the culvert. Implement trash and bird management protocols and modified sand nourishment practices.
  - Dredge the western arm and central Lagoon areas.
  - Implement storm drain 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 the Lagoon side slopes, develop Bird Island, revegetate land areas, and plant eelgrass.
  - Remove nonnative vegetation and install native vegetation, including 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, one in Marina Vista Park and the other in Marine Stadium. Build an open channel between the Lagoon and Marine Stadium.
  - Reconfigure the sports fields. Develop a walking trail along the eastern side of the open channel and vegetation buffers on both sides of the channel.

4.1.6 IMPACTS AND MITIGATION MEASURES

As the following discussion describes, the proposed project will convert portions of both the Lagoon and Marina Vista Park from landscaped areas characterized by turf and other nonnative species, palms, and ornamental trees to native habitat characterized by low-growing plants. Figure 4.1.8, Proposed Habitat Improvements, shows the location of the various habitat types included in the proposed project. Generally, the native plants will have more muted colors than the bright green of turf grass, and will not grow as tall as the existing mature trees on site. The changes to visual character from a more traditionally landscaped open space to open space characterized by native plantings may be viewed as positive by some and negative by others, which would be a reflection of personal preferences. The transformation of portions of each site to native habitat is consistent with the objectives of the project to restore, create, and maintain native and estuarine habitats.

Less Than Significant Impacts

The following aesthetic impacts that could result from implementation of the project were evaluated and are considered to be less than significant.



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

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

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FIGURE 4.1.8

Colorado Lagoon Restoration Project

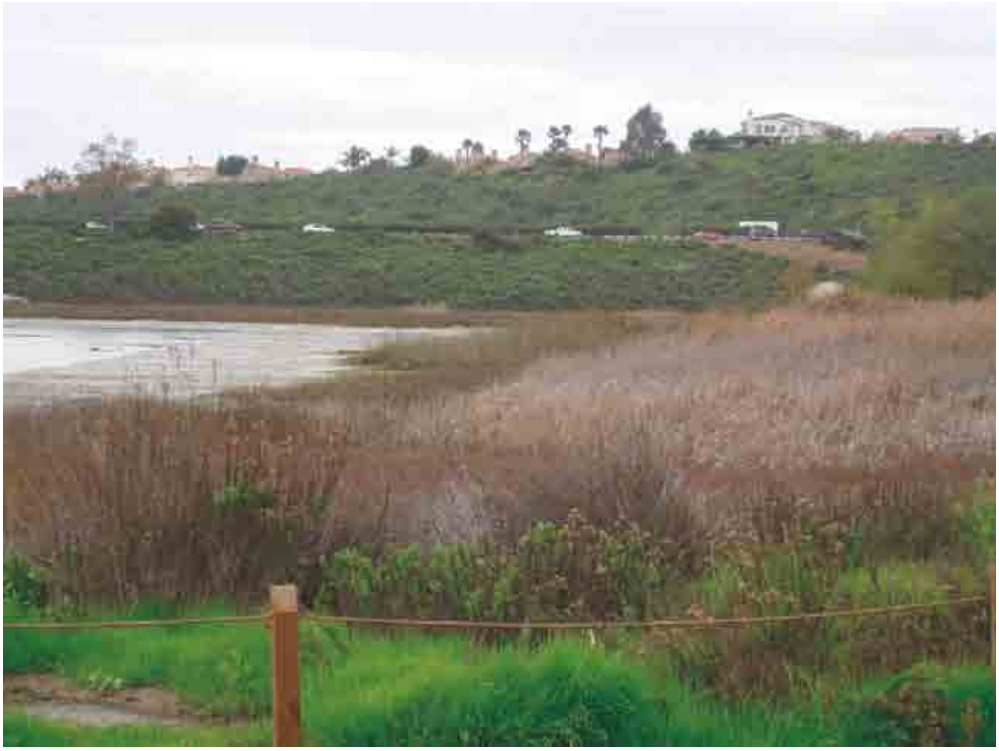
Proposed Habitat Improvements

Effects on Viewshed from Scenic Vistas. There are no designated scenic highways or scenic roadways adjacent or in close proximity to the project area. The project improvements at the Lagoon and Marina Vista Park can be viewed from public areas including adjacent streets, on-site areas within the Lagoon and Marina Vista Park, the Recreation Park golf course (a 9-hole course), and Marine Stadium.

Scenic vistas are defined as greater than 1 mile from a receptor and consist of horizon line views. As described above, the area surrounding the project site on the east and west are fully developed with urban residential uses. The closest residential use on the east is approximately 40 ft and the closest residential use on the west is approximately 150 ft. The areas north and south of the project site are developed with open space/recreational uses; however, there are no designated scenic vistas on site or in the surrounding area. Views from the Lagoon, south towards Marine Stadium, currently do not provide sweeping scenic vista views because there are numerous large mature trees and small building structures that obstruct views greater than 1 mile. Implementation of the proposed project would provide some long range views from the north arm of the Lagoon south towards Marine Stadium due to implementation of the proposed open channel, which would require the removal of several mature trees and the restroom structures. The existing trees, which would be removed by the proposed channel implementation, are located at Marine Stadium next to the restroom building (which also would be removed) and within Marina Vista Park on both ends of the existing culvert. Removal of several mature trees and the restroom structure would provide unobstructed long-range views of Marine Stadium from the north arm of the Lagoon. The proposed bridges at East Colorado Street and East Eliot Street will be new features; however, they will be essentially at-grade with the existing street and will be developed with open railings. Therefore, the proposed bridges will not have a substantial adverse effect on views. The proposed meandering open channel with native plantings will create a more aesthetic, naturalized connection between the two water bodies. See Figure 3.3 for a cross-section of the proposed open channel. The effect of the proposed project on public viewing areas of the Lagoon toward Marine Stadium is considered positive due to the increased long-range view and introduction of a naturalized channel with native plants, which would be a result of Phase 2 project implementation.

In conclusion, implementation of Phases 1 and 2 of the proposed project will not disrupt existing scenic vistas or viewsheds visible on or from the project site, and will result in the creation of a new scenic vista from the north arm of the Lagoon facing south. There are no scenic vistas located on site or in the surrounding vicinity that have been designated by the City or other agency in an adopted policy or plan. Therefore, the effect of the proposed project on a scenic vista is not considered adverse, and no mitigation is necessary.

Visual Character and Quality – Long Term Impacts. This subsection addresses public views of the project site and how implementation of the project would impact the visual character and quality of the site. A view location key map (Figure 4.1.2) shows the location of the representative views analyzed herein. Existing views of the project site and the coverage area of 10 vantage points are provided in Figures 4.1.3 through 4.1.7. Examples of other post-project habitat photographs (Figures 4.1.9 through 4.1.11) were taken from a site with similar characteristics and native vegetation. The photographs show what the vegetation at the Lagoon would be expected to look like after project implementation, and provide an indication of the vegetation changes that will occur on the Lagoon project site.



Overview Showing Mudflats, Low Marsh, Mid Marsh, and High Marsh

Transition from Mudflats to Low Marsh

LSA

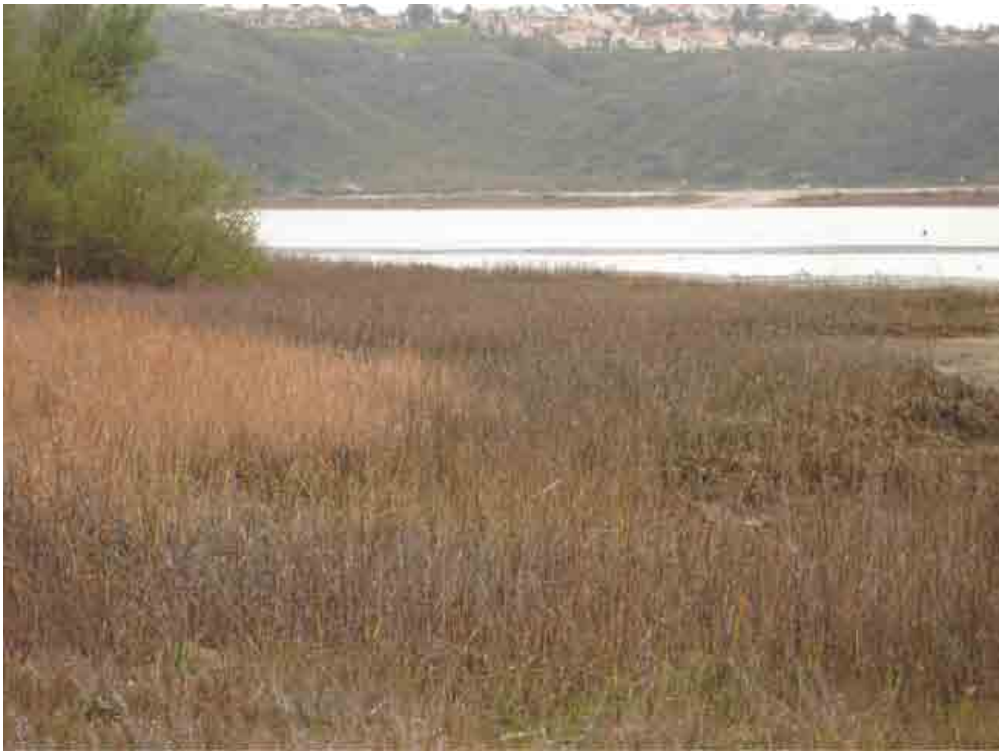
FIGURE 4.1.9

Colorado Lagoon Restoration Project

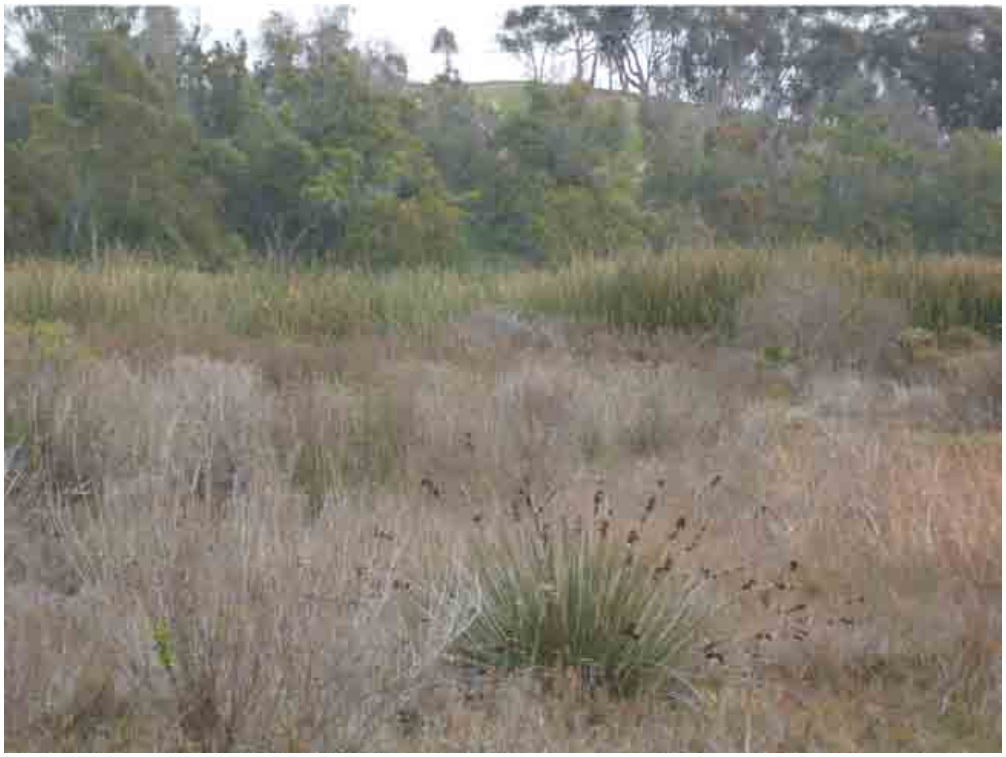
Example Native Habitat - Post Revegetation

SOURCE: LSA Associates, Inc.

I:\CLB0702\G\X HabPost1.cdr (4/10/08)



Transition from Low Marsh to Mid Marsh



High Marsh and Upland Transitional Area

LSA

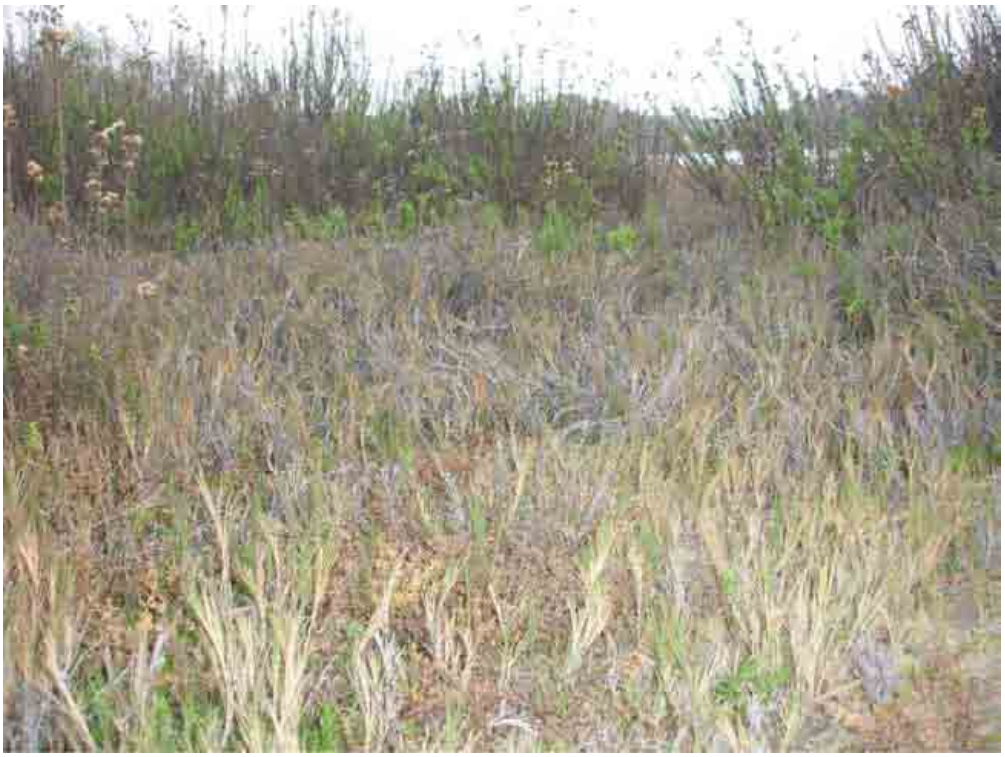
FIGURE 4.1.10

Colorado Lagoon Restoration Project

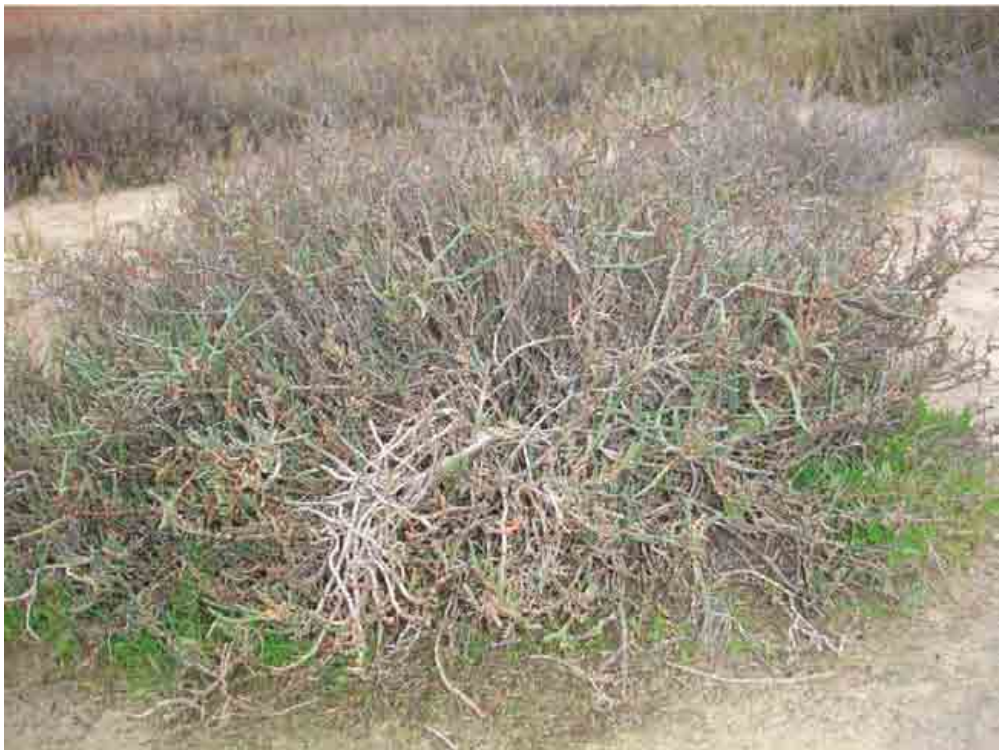
Example Native Habitat - Post Revegetation

SOURCE: LSA Associates, Inc.

I:\CLB0702\G\X HabPost2.cdr (4/10/08)



Salt Grass in High Marsh/Upland Transitional Area



Pickleweed (occurs in areas that are inundated by only the highest tides.)

LSA

FIGURE 4.1.11

Colorado Lagoon Restoration Project

Example Native Habitat - Post Revegetation

SOURCE: LSA Associates, Inc.

I:\CLB0702\G\X HabPost3.cdr (4/10/08)

The following analysis addresses whether or not there is a significant impact on the aesthetic environment based on the impact criteria. Each view is not analyzed individually because similar changes will occur throughout the project area. Rather, geographical areas of the Lagoon and Marina Vista Park that will undergo significant changes as a result of project implementation are discussed separately. Therefore, aesthetic character and quality changes are discussed by the following geographic locations: Lagoon north beach, south shore-central Lagoon, Lagoon north arm, Lagoon west arm, Marina Vista Park, bridges, Lagoon waters, and Marine Stadium. Impacts as a result of construction activities in all parts of the project area are discussed at the end of this section.

Lagoon North Beach. The proposed project would remove the north beach parking lot and restroom and would reduce the size of the north beach sand area to accommodate the proposed improvements. In addition, the local drain outlet by the north shore restroom would be removed. The hardscape (parking lot, sidewalks, and restroom) and landscaped (manicured grass and ornamental trees) areas would be removed and revegetated with low marsh, coastal sage scrub and sand dune-suitable vegetation, as shown on Figure 4.1.8. The north beach sand area would be reduced and over time would eventually disappear because sand nourishment would continue only on the south beach shore. The proposed grassy bioswale along the fence boundary would provide a transition from the newly implemented native habitat to the adjacent manicured golf course. The existing restroom structure between north beach and west arm would be removed. In addition, the proposed recreational trail constructed from decomposed granite would provide a walking trail for viewing the new habitat improvements. Interpretive kiosks, seating benches, picnic tables, and shade structures would be installed along the trail. These improvements would result in the removal of several nonnative tree species.

Improvements to the north beach of the Lagoon would result in significant changes to the aesthetic character and quality of the site. The existing views of the north beach are dominated by asphalt and sandy beach, with smaller areas of turf, palms, and ornamental trees. The post-project views from the surrounding areas and from on site would be dominated by low-growing native plants. The proposed improvements would result in a transformation to mostly natural habitat, because the beach and playground uses would remain. Therefore, impacts to the aesthetic character and quality of the site are less than significant.

South Shore-Central Lagoon. Post-project construction, the south shore of the Lagoon (south of the central Lagoon) will generally appear as it does today because the beach and playground uses would remain. There are several improvements proposed for this area: the eastern shore towards the culvert/proposed channel would be graded and revegetated with low marsh habitat; a walking trail would be established along the edge of the sand beach and the manicured lawn; the local storm drain end located on the south beach would be removed; the parking lot median would be demolished and revegetated with shrubs; and shrubs would also be installed between the parking lot and the south Lagoon area, as shown on Figure 4.1.8. The shrubs are included to trap blowing trash and debris from entering the Lagoon area. In addition to these improvements, trash management protocols would be implemented that would largely affect the south shore of the Lagoon because it is the existing and proposed highest activity level area at the Lagoon. The reduction of litter on site as a result of the shrubs and trash management protocol would positively affect the visual quality of the south shore. Overall, the post-project character of the

south shore of the central Lagoon would remain nearly the same; however, the visual quality of the area would be enhanced by the drain removal, marsh and shrub installation, and reduction of litter. Therefore, impacts to the aesthetic character and quality of the site are less than significant.

Lagoon North Arm. Both shores of the north arm of the Lagoon will undergo significant changes to the character and quality of the area due to removal of nonnative vegetation, side slope recontouring, and implementation of cohesive native revegetation.

The access road to East 6th Street, along the west side of the north arm, is lined with Mexican fan palm trees on both sides of the street along with various types and sizes of nonnative shrubs and other ornamental trees. With implementation of the proposed project, approximately 48 of the Mexican fan palm trees would be removed, along with the access road, in order to regrade and revegetate the area with low and high marsh habitat on the west side of the north arm. In addition, the local drain outlet located on the west side of the north shore would be removed, and a grassy bioswale would be developed along the fence line separating the Lagoon from the Recreation Park golf course. This would improve the natural aesthetic value of the west side of the north arm of the Lagoon by providing additional open space habitat that supports native vegetation and foraging species and replacing a hard drain outlet with a vegetated bioswale. The character of this area would change from a hardscape-landscaped makeup to an all natural native environment. Therefore, the impacts to aesthetic character and quality of the west side of the north arm may be considered positive and are less than significant.

The east side of the north arm is currently vegetated largely with ice plant and scattered nonnative trees of various size and shapes. In addition, the east side of the north arm is very steep and not accessible to the public. Implementation of the proposed project would remove the exotic nonnative vegetation and regrade the area to provide a more gradual slope transition to the water. The east side of the north arm would be revegetated with coastal sage scrub and other native upland species, and would include a decomposed granite walking trail to allow for pedestrian access along this portion of the Lagoon. As a result of the removal of the nonnative species and introduction of native species on gentler slopes, the impacts to the aesthetic character and quality of the east side of the north arm may be considered positive and are less than significant.

The manicured lawn and existing mature trees near the corner of East 6th Street and Monrovia Avenue and near East Colorado Street and Orlena Avenue would remain the same as it does today. The trees in that area would remain in place, and the lawn would continue to be maintained as it is today. Therefore, there would be no aesthetic impacts to this area as a result of project implementation.

Lagoon West Arm. Implementation of the proposed project would result in significant changes to the character and quality of the west arm. The area adjacent to the entire west arm would be regraded, the nonnative vegetation would be removed, and the south shore beach area would be reduced to allow for increased habitat area. In addition, the storm water drain ends that currently exist on the southern shore of the west arm would be removed. Pedestrian access to this area would not exist in order to protect the habitat and to minimize disturbance to foraging species. The nonnative vegetation in this area would be replaced by low, mid, and high marsh habitat. In

addition, Bird Island would be created. Bird Island would allow for birds to have a foraging area free from human disturbance and predation by domestic pets. A viewing platform is proposed to be located on the south shore of the west arm to allow pedestrians to have better views of the natural environment. The proposed bioswale along a portion of the west arm would provide for a transition from the Lagoon to the Recreation Park golf course. The creation of native habitat and Bird Island around the west arm may be considered a visual enhancement to the Lagoon and will result in aesthetic impacts that are less than significant.

Marina Vista Park. Phase 1 improvements at Marina Vista Park would be limited to cleaning the existing culvert. This activity will have minimal short-term aesthetic effects during construction and will not result in any long-term changes to the park.

Implementation of Phase 2 of the proposed project would result in significant changes to Marina Vista Park. Marina Vista Park is currently a traditionally landscaped park. Phase 2 of the proposed project would develop an open channel with vegetated buffers and a trail through the park and two bridges to allow for continued access along East Colorado Street and East Eliot Street. In addition, the existing baseball and overlay soccer field would be reconfigured.

The proposed open channel would run a meandering course from the Lagoon to Marine Stadium in approximately the same alignment as the existing underground culvert. The channel would have curvilinear edges to create a natural looking feature. As shown in Figure 4.11.4, the open channel will be characterized by a soft bottom and gently sloping banks and will be 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 side slopes, and would be approximately 100 ft across at the top. The objective of the design is to provide an aesthetically pleasing, natural looking water feature. The excavated soils from development of the open channel would be hauled off site because they are too saline to support grass and other plants.

A landscaped buffer would be installed along the sides of the channel that would contain a mixture of armor rock and native plantings that also would serve as a safety barrier by discouraging pedestrian access to the channel. A meandering 8 ft wide walking trail constructed of decomposed granite would be installed on the eastern side of the channel, as shown in Figure 4.11.3. This walking trail would connect to the proposed walking trail at the Lagoon. Two vehicular bridges with pedestrian and bicycle facilities would be built over the open channel to maintain circulation. One bridge would be for East Colorado Street and one for East Eliot Street. The bridges are proposed to be built essentially at-grade with the existing road. Therefore, the proposed bridge structures would maintain the existing appearance of the road.

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) would be demolished and replaced with the new design that is recommended by the Long Beach Police Department (LBPD). The new structures will be comparable to the existing buildings in size, scale, and appearance. Washbasins would be outside at each end of the building. This would eliminate hallways or other central areas in which criminal activity can take place. In addition,

restroom entrances and washbasin areas would be well lighted. Impacts from light and glare of the new restroom facilities are described in more detail in the light and glare section below.

As described, the proposed open channel would add a naturally designed passive recreation feature to the park. The proposed open channel will also create a physical and visual separation between the east and west portions of the park, effectively splitting the continuity of the existing park in two. However, the natural park-like design of the proposed channel, vegetated buffers, walking trail, and open channel component is visually compatible with the park use of the site. At 100 feet across from bank-to-bank, the proposed channel will become the most dominant visual feature in Marina Vista Park and will substantially change its visual character. The native plantings in the buffers at the top of the banks and in the channel itself will result in new habitat areas. The open channel would contribute a more naturalized quality to the site through its meandering design and native landscaping, and by reestablishing the natural connection between the two water bodies. Overall, the changes to the western portion of Marina Vista Park as a result of creating an open channel will be substantive and may be considered a visual enhancement to the existing park. These changes result in aesthetic impacts that are less than significant.

Bridges. Each of the two proposed bridges will be approximately 160 ft long and approximately 45 ft wide in order to provide two travel lanes, sidewalks on either side, and an 8 ft wide bike path. Support columns will be required in the open channel. The bridges will be essentially at street grade. The spacing between bents (rows of piles) will be approximately 35 ft. The view of the bridges from both the Lagoon and Marina Vista Park will be changed from existing conditions, where the roadways extend over existing culverts. The proposed bridges will have railings approximately 4 ft in height that will be visible from both the Lagoon and Marina Vista Park. The railings will likely be constructed of a combination of concrete and metal and will be open (as opposed to a solid mass) so that viewers can look through and past the railings. The bridges are integral to the implementation of the open channel, and while they will be new physical and visual features, they will not notably obstruct existing views or degrade the existing visual character of the project area.

Lagoon Waters. Cleaning the culvert, removing culvert impedances, and especially developing the open channel would result in significantly improved water quality. The improved water quality would be very similar to the ocean and Marine Stadium in appearance, which will result in clearer water with less algae blooms. In addition, the visible drain outlets on the south shore would be removed as part of this project. As a result, the shoreline of the Lagoon would be more aesthetically appealing as the storm drain structures would no longer protrude out of the water.

Marine Stadium. The culvert currently outlets at the northern end of Marine Stadium in a slope with large riprap boulders. Handrails in place on both sides of the culvert function as a safety barrier. The proposed channel, which would be 14 ft deep with 3:1 side slopes and measure approximately 100 ft across at the top, would be substantially larger than the existing Lagoon outfall structure. The change to the connection to Marine Stadium from a culvert outfall to a wide open channel is a substantial change compared to existing conditions. The channel connection to Marine Stadium is an integral part of the implementation of the open channel, and while it will be

a new physical and visual feature, it will not obstruct existing views or degrade the existing visual character of the project area. Therefore, the impacts of the open channel connection to the visual quality of the project area and to Marine Stadium are less than significant.

The restroom building located south of East Eliot Street and some palms would be removed to provide enough room for the channel. However, the replacement restroom would be placed in roughly the same area as the existing restroom. Therefore, replacement of the restroom will have little to no visual impact compared to existing conditions. The palms will be replaced by the native vegetation at the top of the channel breaks; therefore, the overall impact of the loss of palms at this location is less than significant.

Neighborhood Aesthetics. The proposed project will not obstruct views of the sky or block sunlight from residential areas. With removal of several large mature trees, more sweeping views of the Lagoon would be provided to the adjacent residences. In addition, the implementation of native landscaping will ensure that the proposed project does not degrade the existing visual character or quality of the site as it relates to the surrounding residential areas. Therefore, the proposed project is considered to have a less than significant visual impact on neighborhood and project area aesthetics.

Golf Course Views of the Project Site. Views of the project site from the adjacent golf course will change as a result of implementation of the proposed project. Several mature trees (varying species, largely palms) will be removed around the northern perimeter of the Lagoon that is directly adjacent to the golf course. As a result, recreational users of the adjacent golf course will have more expansive views of the Lagoon. In addition, the hardscape that golf course visitors are accustomed to seeing adjacent to the property line would be removed and replaced by native vegetation. As a result, golf course viewers will view a more unified natural habitat. Along the north arm/golf course boundary, the recreational users of the golf course will view implementation of a bioswale. The vegetated bioswale will not appear significantly different than the existing ornamental grass. Therefore, views of the transition area from the golf course to the north arm will not change significantly. However, the distant views of the improvements to the west arm of the Lagoon will stand out as improved habitat. As a result, distant views of the Lagoon from the golf course would be of more natural habitat. This change may be considered positive or negative, depending on the viewer. In either case, because no views will be obstructed and no structures are proposed, impacts would be considered less than significant, and no mitigation is required.

The proposed project will affect views of the existing golf course from the publicly accessible areas of the Lagoon, specifically the proposed pedestrian path on the north shore, the pedestrian bridge, and the south shore. The proposed native landscaping and habitat improvements will visually distinguish the Lagoon as a naturalized feature from the traditional golf course. The native landscape at the Lagoon will partially obscure some views of the golf course from the Lagoon as the native plantings mature.

Potentially Significant Impacts

The following aesthetic impacts that could result from implementation of the project were evaluated and are considered to be potentially significant.

Effects on Scenic Resources. The roadways surrounding the project site are not designated State scenic highways or roadways and there is no scenic rock outcroppings located within the project limits. There are several improvement structures located on the project site, including restroom structures proposed to be demolished and replaced. The restroom structures at Marine Stadium and the north shore of the Lagoon were built in 1951 and are over 50 years old. They are not distinctive in their design, are not associated with events of significance, and do not yield important historic information. The third restroom located within Marina Vista Park was built in 1991 and therefore is not considered a historic resource. For the reasons listed above, the restroom structures that would be demolished by the proposed project are not eligible for listing on the California Register of Historical Resources (California Register) and are not considered historic scenic resources. Therefore, there are no designated scenic resources on the project site pertaining to rock outcroppings, scenic highways, or historic buildings.

There are many mature nonnative trees located throughout the project area. Implementation of the various project components would result in the removal of approximately 100 mature nonnative trees of various species, several of which are unhealthy and dying. Impacts related to the visual quality and character of the site as a result of tree removal are discussed further in the visual character and quality section below.

As described below, although implementation of the various project components would result in the removal of approximately 100 nonnative trees of various species (including palms and other species from both the Lagoon and Marina Vista Park), implementation of the proposed project would result in an improved healthy native habitat area. While the existing trees provide an aesthetically appealing environment, the removal of trees and the replanting of native habitat will provide an aesthetically appealing environment that is native to Southern California.

In compliance with Ordinance C-7642, Mitigation Measure BIO-13 is proposed to ensure compliance with the City of Long Beach tree protection ordinance. The City's Ordinance and Mitigation Measure BIO-13 requires that a permit be obtained from the Director of Public Works prior to removal of trees from City-owned property and that the trees be identified, mapped, and measured prior to removal. Ornamental nonnative trees removed as a result of open channel construction and reconfiguring of the sports fields within Marina Vista Park will be replaced with western sycamores (*Platanus racemosa*), a native tree, at a ratio of 1:1, and invasive and exotic species will be removed. The California (or western) sycamore (*Platanus racemosa*) is a large, deciduous, native tree that occurs in southern California near water. The trees grow to heights of at least 75 ft and branches are very large. The tree is attractive and provides good shade with broad canopies. Additionally, a long-term maintenance plan will be prepared immediately following completion of tree mapping to further enhance restored areas of the Lagoon and Marina Vista Park. Therefore, project impacts to scenic resources as a result of tree removal in the project area are considered less than significant with implementation of Mitigation Measure BIO-13 found in Section 4.3 of this EIR.

Visual Character and Quality – Construction Impacts. As mentioned above, residential areas are located east, west, and south of the project site, the Recreation Park 9-hole golf course is adjacent to the north of the project site, and Marine Stadium is adjacent to the south of the project site. The sensitive land uses within the vicinity of the proposed project include the existing residences to the west, south, and northeast, Marina Vista Park to the east, the north and south Lagoon beaches, an on-site preschool, and the Recreation Park golf course. These land uses are located within 50 to 100 ft of the on-site construction areas. The nearest residence is approximately 50 ft from the project site. Most of the residential areas are separated from the project site by roadways, the Lagoon water body, and landscaping (most of which will be removed as part of the project). Therefore, views of the project site from the residences and parks and adjacent open areas are generally unobstructed. As a result, views of the project site from the residential areas and adjacent park and open space areas would be temporarily impacted by construction activities. The Lagoon's appearance during the Phase 1 dredging and slope recontouring would be of a partially dewatered lagoon water body and barren lagoon slopes while the banks are recontoured and then revegetated. There will be heavy equipment on site throughout the 10-month Phase 1 construction period.

The appearance of Marina Vista Park during Phase 2 construction of the open channel and two street bridges will be similarly adverse. The bridges will be constructed so that they span the existing culvert during construction. Final excavation of the open channel would then be completed under the bridges. The staging area for Phase 2 would be in the area west of the tennis courts in Marina Vista Park for the entire duration of the construction period. Construction activity will involve the presence and operation of large construction equipment on site during the 15-month Phase 2 construction process, and access to some areas of the park will be restricted during construction and the following 6 month revegetating period for the turf grass. The damaged turf area will be restored after construction. Overall, both construction phases will result in adverse visual impacts to nearby residents and park users. To reduce impacts to residents and recreational users of the Recreation Park, Mitigation Measure AES-1 is proposed to shield views of the project site from sensitive viewers during construction activities. With implementation of Mitigation Measure AES-1, impacts to the visual character and quality of the site resulting from construction impacts would be reduced to less than significant levels.

Light and Glare. The restroom structure located on the north shore of the Lagoon would be removed as part of Phase I of the proposed project. This existing restroom structure has two mercury vapor lights on the outside of the building. As a result of project implementation, some nighttime light on the north shore from the existing restroom building would be removed. However, because the adjacent golf course and streets are well lit, removal of these lights will have a negligible impact in light reduction. Nonetheless, because there is no lighting proposed for Phase 1 of the project, impacts are less than significant.

Phase 2 of the proposed project would replace the two restroom structures on either side of East Eliot Street. The existing restroom in Marina Vista Park has two light poles on the outside of the building, while the Marine Stadium structure has two light fixtures on the exterior of the building. Both of these structures are located adjacent to East Eliot Street, which is a lighted roadway. In accordance with the recommendation of the LBPD, the proposed restroom buildings would be designed so that the exterior of the building is lined with doors to individual stalls that can be locked from inside. Washbasins would be outside at each end of the building. The restroom entrances and washbasin

areas would be well lighted for security purposes. Replacing the restroom structures would result in lighting conditions similar to the existing setting in Marina Vista Park, two light poles on each side of the building. However, because these restrooms are designed to include safety lighting, Phase 2 of the proposed project would result in a slight increase in lighting on the restroom structures compared to existing conditions. However, the overall increase in light intensity would be negligible compared to the lights on the surrounding street network. Nevertheless, as a precautionary measure, Mitigation Measure AES-2 is proposed to reduce impacts from light and glare. With implementation of Mitigation Measure AES-2 (which requires an exterior lighting plan for the proposed restroom structures), impacts related to light and glare would be reduced to less than significant levels.

Mitigation Measures

Construction effects of the proposed project temporarily exceed thresholds of significance. The mitigation measures for the proposed project are designed to minimize adverse views of the project site.

AES-1 Prior to issuance of a grading permit, the City of Long Beach Director of Development Services designee shall require the construction contractor to provide screened construction fencing around construction area boundaries to temporarily screen views of construction activities.

AES-2 Prior to the issuance of a building permit, an Exterior Lighting Plan for the proposed restroom structures shall be prepared. The Lighting Plan shall indicate the location, type, and wattage of all light fixtures and include catalog sheets for each fixture. The Lighting Plan shall demonstrate that all exterior lighting has been designed and located so that all direct rays are confined to the property. The Lighting Plan shall be subject to review and approval by the City of Long Beach Director of Development Services.

4.1.7 CUMULATIVE IMPACTS

Construction of the proposed project, when considered in conjunction with other existing and planned developments in proximity to the project, will lessen the impact of infill urban development within the City due to the reduction of permeable development and the beautification of the open space. The cumulative study area for aesthetic impacts is limited to the immediately adjacent area within view of the project site. Table 4.1.A provides a list of future projects in the study area.

The City of Long Beach is a heavily urbanized area with a wide variety of established land uses and few large undeveloped parcels. The land use patterns around the project site have been established, with recreational land uses (golf course) to the north, and largely residential land uses located to the south, east, and west. Marine Stadium and Alamitos Bay are located south of the project site.

Of the planned future projects listed above, only the Termino Avenue Drain Project (TADP) is also within the viewshed of the proposed project. The TADP would create an outfall structure at the northwest end of Marine Stadium. The outlet structure at Marine Stadium would consist of a double box culvert. The width of the proposed outfall opening would be approximately 25 ft at the head wall. A handrail would be placed on the top of the wing wall to provide access for maintenance of the

Table 4.1.A: Planned Future Projects

Project	Size	Description
2080 Obispo Avenue[1]	106 units (single-family homes)	Residential development project
4200 East Anaheim Street[1]	29 units (condominiums)	Residential development project
5116 Anaheim Road[1]	64 units (attached townhomes)	Residential development project
2930 East 4th Street[1]	6,200 square feet	Commercial expansion project (Ralph's Supermarket)
Alamitos Bay Marina Rehabilitation Project[1]	N/A	Marina reconstruction project
Termino Avenue Drain	N/A	Storm drain expansion project
Home Depot, 400 Studebaker Road[1]	175,000 square feet	Commercial development

[1] Outside the view of the Lagoon
N/A = not applicable

outfall. Energy dissipater blocks would be placed in the outlet opening to reduce the velocity of storm water from the box culvert during major storm events. A woven geotextile fabric would extend into Marine Stadium from the terminus of the outlet to minimize erosion. The TADP outfall would be larger than the existing Lagoon outfall structure at Marine Stadium.

Although the proposed TADP outfall structure would be larger than existing structures in the area, it would not be visibly intrusive to views currently experienced by recreationists and residents. In comparison to the proposed open channel, the TADP proposed outfall structure would be much smaller. Similar to the proposed open channel, the new outfall structure would be consistent with the Lagoon culvert structure and would not be an uncommon sight for this setting.

The proposed project together with the TADP outfall would result in a significant change to the existing appearance of the north end of Marine Stadium. The existing TADP and culvert outfall structures will be replaced with an open channel as part of the proposed project, and a new double box culvert outfall opening will be added as a result of the TADP. The changes are consistent with the surrounding urban environment and therefore are not considered adverse. In addition, because of the design of the open channel, the proposed open channel could potentially increase the aesthetic quality of the Marine Stadium side of the channel. Therefore, the proposed project, when considered in conjunction with the TADP, would not have a significant cumulative impact on the visual environment.

The proposed project will not generate significant adverse effects on adjacent land uses. The proposed improvements are compatible in character with the surrounding area. There are no known visual incompatibilities between the proposed project and planned future projects located in the surrounding area. Project lighting will be minimized with the implementation of Mitigation Measure AES-2 and, within the existing urban context, will not contribute to a significant cumulative impact to lighting.

4.1.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The proposed project will result in water quality and recreational improvements and habitat restoration to the project area. As a result of project implementation, there will be an overall positive change in the visual quality of the project site.

Incorporation of Mitigation Measures AES-1 through AES-3 and Mitigation Measure BIO-13 will reduce any potentially significant impacts during construction to less than significant levels. As described above, all long-term project impacts related to visual resources are less than significant or less than significant with mitigation. Improvements to the north beach of the Lagoon would result in significant changes to the aesthetic character and quality of the site.

4.2 AIR QUALITY

INTRODUCTION

This section discusses the potential short- and long-term air quality impacts of the construction and ongoing operation of the proposed project. Specifically, this section addresses short-term impacts during construction, including fugitive dust and equipment emissions. The analysis of the air quality impacts of the proposed project are described in detail in the Air Quality Analysis (Appendix C) and are summarized in this section.

The project site is located within the City of Long Beach, which is within the non-desert portion of Los Angeles County. Los Angeles County is part of the South Coast Air Basin (SCAB) and is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The air quality assessment for the proposed project includes estimating emissions associated with short-term construction and long-term operation of the proposed project.

A number of air quality modeling tools are available to assess air quality impacts of projects. In addition, certain air districts, such as the SCAQMD, have created guidelines and requirements to conduct air quality analyses. The SCAQMD's current guidelines, which are included in its California Environmental Quality Act (CEQA) Air Quality Handbook (April 1993), were adhered to in the assessment of air quality impacts for the proposed project.

4.2.1 EXISTING ENVIRONMENTAL SETTING

Regional Air Quality

Both the State of California (State) and the federal government have established health-based ambient air quality standards (AAQS). As shown in Table 4.2.A, these pollutants include ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter with a diameter of 10 microns or less (PM_{10}) and with a diameter of 2.5 microns or less ($PM_{2.5}$), and lead. In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

In addition to setting out primary and secondary AAQS, the State has established a set of episode criteria for O_3, CO, NO_2, SO_2, and PM_{10}. These criteria refer to episode levels representing periods of short-term exposure to air pollutants that actually threaten public health. Health effects are progressively more severe as pollutant levels increase from Stage One to Stage Three. Table 4.2.B lists the primary health effects and sources of common air pollutants. Because the concentration standards were set at a level that protects public health with an adequate margin of safety (by the United States Environmental Protection Agency [EPA]), these health effects will not occur unless the standards are exceeded by a large margin or for a prolonged period of time. The State AAQS are

Table 4.2.A: Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		Federal Standards[2]		
		Concentration[3]	Method[4]	Primary[2,5]	Secondary[2,6]	Method[7]
Ozone (O_3)	1-Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	–	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.07 ppm (137 µg/m^3)		0.075 ppm (147 µg/m^3)		
Respirable Particulate Matter (PM_{10})	24-Hour	50 µg/m^3	Gravimetic or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		–		
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	No Separate State Standard		35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetic or Beta Attenuation	15 µg/m^3		
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m^3)	Non-dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m^3)	None	Non-dispersive Infrared Photometry (NDIR)
	1-Hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
	8-Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		–		
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (56 µg/m^3)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m^3)	Same as Primary Standard	Gas Phase Chemiluminescence
	1-Hour	0.18 ppm (338 µg/m^3)		–		
Lead	30 days average	1.5 µg/m^3	Atomic Absorption	–	–	High-Volume Sampler and Atomic Absorption
	Calendar Quarter	–		1.5 µg/m^3	Same as Primary Standard	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	–	Ultraviolet Fluorescence	0.030 ppm (80 µg/m^3)	–	Spectrophotometry (Pararosaniline Method)
	24-Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (365 µg/m^3)	–	
	3-Hour	–		–	0.5 ppm (1300 µg/m^3)	
	1-Hour	0.25 ppm (655 µg/m^3)		–	–	
Visibility-Reducing Particles	8-Hour	Extinction coefficient of 0.23 per kilometer – visibility of ten miles or more (0.07 - 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		**No Federal Standards**		
Sulfates	24-Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[8]	24-Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

Source: California Air Resources Board (ARB), 4/1/08.

Footnotes:

[1] California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, and suspended particulate matter (PM_{10}, $PM_{2.5}$ and visibility-reducing particles) are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[2] National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth-highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the EPA for further clarification and current federal policies.

[3] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25ºC and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25ºC and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[4] Any equivalent procedure that can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

[5] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[6] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[7] Reference method as described by the EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the EPA.

[8] The ARB 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.

ARB = California Air Resources Board
EPA = United States Environmental Protection Agency
mg/m^3 = milligrams per cubic meter
ppm = parts per million
ºC = degrees Celsius
$\mu g/m^3$ = milligrams per cubic meter

Table 4.2.B: Health Effects Summary of Some of the Common Pollutants Found in Air

Pollutant	Health Effects	Examples of Sources
Particulate Matter (PM_{10}: less than or equal to 10 microns)	• Increased respiratory disease • Lung damage • Premature death	• Cars and trucks, especially diesels • Fireplaces, wood stoves • Windblown dust from roadways, agriculture, and construction
Ozone (O_3)	• Breathing difficulties • Lung damage	• Formed by chemical reactions of air pollutants in the presence of sunlight; common sources are motor vehicles, industries, and consumer products
Carbon Monoxide (CO)	• Chest pain in heart patients • Headaches, nausea • Reduced mental alertness • Death at very high levels	• Any source that burns fuel such as cars, trucks, construction and farming equipment, and residential heaters and stoves
Nitrogen Dioxide (NO_2)	• Lung damage	• See carbon monoxide sources
Toxic Air Contaminants	• Cancer • Chronic eye, lung, or skin irritation • Neurological and reproductive disorders	• Cars and trucks, especially diesels • Industrial sources such as chrome platers • Neighborhood businesses such as dry cleaners and service stations • Building materials and products
Suspended Particulate Matter ($PM_{2.5}$ and PM_{10})	• Stationary combustion of solid fuels. • Construction activities. • Industrial processes. • Atmospheric chemical reactions.	• Reduced lung function. • Aggravation of the effects of gaseous pollutants. • Aggravation of respiratory and cardiorespiratory diseases. • Increased cough and chest discomfort. • Soiling. • Reduced visibility.
Sulfur Dioxide (SO_2)	• Combustion of sulfur-containing fossil fuels. • Smelting of sulfur-bearing metal ores. • Industrial processes.	• Aggravation of respiratory diseases (asthma, emphysema). • Reduced lung function. • Irritation of eyes. • Reduced visibility. • Plant injury. • Deterioration of metals, textiles, leather, finishes, coatings, etc.
Lead (Pb)	• Contaminated soil (e.g., from leaded fuels and lead-based paints).	• Impairment of blood function and nerve construction. • Behavioral and hearing problems in children.

Source: Air Quality Analysis, May 2008.

more stringent than the federal AAQS. Among the pollutants, ozone (O_3) and particulate matter ($PM_{2.5}$ and PM_{10}) are considered regional pollutants, while the others have more localized effects.

The California Clean Air Act (CCAA) provides the SCAQMD with the authority to manage transportation activities at indirect sources. Indirect sources of pollution are generated when minor sources collectively emit a substantial amount of pollution. Examples of this are the motor vehicles at an intersection, a mall, and on highways. The SCAQMD also regulates stationary sources of pollution throughout its jurisdictional area. Direct emissions from motor vehicles are regulated by the California Air Resources Board (ARB).

Climate/Meteorology. Air quality in the planning area is not only affected by various emission sources (mobile, industry, etc.), but is also affected by atmospheric conditions such as wind speed, wind direction, temperature, rainfall, etc. The combination of topography, low mixing height, abundant sunshine, and emissions from the second largest urban area in the United States gives the SCAB the worst air pollution problem in the nation.

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

The annual average temperature varies little throughout the SCAB, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The climatological station closest to the site is the Long Beach Station.[1] The monthly average maximum temperature recorded at this station from April 1958 to June 2007 ranged from 66.9°F in January to 83.9°F in August, with an annual average maximum of 74.2°F. The monthly average minimum temperature recorded at this station ranged from 45.3°F in December to 64.9°F in August, with an annual average minimum of 54.8°F. January is typically the coldest month, and August is typically the warmest month in this area of the SCAB.

Most rainfall in the SCAB occurs between November and April. Summer rainfall is minimal and is generally limited to scattered thundershowers in coastal regions and slightly heavier showers in the eastern portion of the SCAB and along the coastal side of the mountains. The Long Beach Station monitored precipitation from April 1958 to June 2007. Average monthly rainfall during that period varied from 2.93 inches in February to 0.39 inch or less between May and October, with an annual total of 11.96 inches. Patterns in monthly and yearly rainfall totals are unpredictable due to fluctuations in the weather.

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

During spring and early summer, pollution produced during any one day is typically blown out of the SCAB through mountain passes or lifted by warm, vertical currents adjacent to mountain slopes. Air contaminants can be transported 60 miles or more from the SCAB by ocean air during the afternoons. From early fall to winter, the transport is less pronounced because of slower average wind speed and the appearance of drainage winds earlier in the day. During stagnant wind conditions, offshore

[1] Western Regional Climate Center, www.wrcc.dri.edu.

drainage winds may begin by late afternoon. Pollutants remaining in the SCAB are trapped and begin to accumulate during the night and the following morning. A low morning wind speed in pollutant source areas is an important indicator of air stagnation and the potential for buildup of primary air contaminants.

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

Inversions are generally lower in the nighttime when the ground is cool than during daylight hours when the sun warms the ground and, in turn, the surface air layer. As this heating process continues, the temperature of the surface air layer approaches the temperature of the inversion base, causing heating along its lower edge. If enough warming takes place, the inversion layer becomes weak and opens up to allow the surface air layers to mix upward. This can be seen in the middle to late afternoon on a hot summer day when the smog appears to clear up suddenly. Winter inversions typically break earlier in the day, preventing excessive contaminant buildup.

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

Global Warming. Global warming is the observed increase in the average temperature of the Earth's atmosphere and oceans in recent decades. The Earth's average near-surface atmospheric temperature rose 0.6 ± 0.2 degrees Celsius (°C) (1.1 ± 0.4°F) in the 20th century. The prevailing scientific opinion on climate change is that "most of the warming observed over the last 50 years is attributable to human activities."[1] The increased amounts of CO_2 and other greenhouse gases (GHGs) are the primary causes of the human-induced component of warming. They are released by the burning of fossil fuels, land clearing and agriculture, etc., and lead to an increase in the greenhouse effect.

Greenhouse gases are present in the atmosphere naturally, released by natural sources, or formed from secondary reactions taking place in the atmosphere. They include CO_2, methane (CH_4), NO_X, and ozone (O_3). In the last 200 years, mankind has been releasing substantial quantities of GHGs into the atmosphere. These extra emissions are believed to be increasing GHG concentrations in the atmosphere and enhancing the natural greenhouse effect, which is believed to be causing global

[1] Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2001: The Scientific Basis*, http://www.grida.no/climate/ipcc_tar/wg1/index.htm.

warming. While man-made GHGs include CO_2, CH_4, and NO_X, some like the chlorofluorocarbons (CFCs) are completely new to the atmosphere.

Natural sources of CO_2 include the respiration (breathing) of animals and plants, and evaporation from the oceans. Together, these natural sources release about 150 billion tons of CO_2 each year, far outweighing the 7 billion tons of man-made emissions from fossil fuel burning, waste incineration, deforestation, and cement manufacture. Nevertheless, natural removal processes, such as photosynthesis by land- and ocean-dwelling plant species, cannot keep pace with this extra input of man-made CO_2, and consequently the gas is building up in the atmosphere.

Methane (CH_4) is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources include wetlands, termites, and oceans. Man-made sources include the mining and burning of fossil fuels, digestive processes in ruminant animals such as cattle, rice paddies, and the burying of waste in landfills. Total annual emissions of CH_4 are about 500 million tons, with man-made emissions accounting for the majority. As for CO_2, the major removal process of atmospheric methane—chemical breakdown in the atmosphere—cannot keep pace with source emissions, and CH_4 concentrations in the atmosphere are increasing.

Air Pollution Constituents and Attainment Status. The following describes the criteria air pollutants and their attainment status in the SCAB based on ARB Area Designations, Activities, and Maps (ARB 2006). Table 4.2.C summarizes the attainment status in the SCAB for the major criteria pollutants.

Table 4.2.C: Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State	Federal
Ozone: 1 hour	Nonattainment	Revoked June 2005
Ozone: 8 hour	Not Established	Severe-17 Nonattainment
PM_{10}	Nonattainment	Serious Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Attainment/Maintenance
NO_2	Attainment	Attainment/Unclassified
All others	Attainment/Unclassified	Attainment/Unclassified

Source: Air Quality Analysis, May 2008.
CO = carbon monoxide PM_{10} = particulate matter less than 10 microns in size
NO_2 = nitrogen dioxide $PM_{2.5}$ = particulate matter less than 2.5 microns in size

Ozone. Ozone (smog) is formed by photochemical reactions between NO_X and reactive organic gases (ROGs) rather than being directly emitted. Ozone is a pungent, colorless gas typical of Southern California smog. Elevated ozone concentrations result in reduced lung function, particularly during vigorous physical activity. This health problem is particularly acute in sensitive receptors such as the sick, the elderly, and young children. Ozone levels peak during summer and early fall. The entire SCAB is designated as a nonattainment area for the State 1-hour ozone standard. The EPA has officially designated the status for the SCAB regarding the 8-hour ozone standard as "Severe-17," which means the SCAB has until 2021 to attain the federal 8-hour ozone standard.

Carbon Monoxide. Carbon monoxide (CO) is formed by the incomplete combustion of fossil fuels, almost entirely from automobiles. It is a colorless, odorless gas that can cause dizziness, fatigue, and impairments to central nervous system functions. The entire SCAB is designated as attainment/maintenance for the federal CO standard and attainment for the State CO standard.

Nitrogen Oxides. Nitrogen dioxide (NO_2), a reddish brown gas, and nitric oxide (NO), a colorless, odorless gas, are formed from fuel combustion under high temperature or pressure. These compounds are referred to as nitrogen oxides, or NO_X. NO_X is a primary component of the photochemical smog reaction. It also contributes to other pollution problems, including a high concentration of fine particulate matter, poor visibility, and acid deposition (i.e., acid rain). NO_2 decreases lung function and may reduce resistance to infection. The entire SCAB is in attainment with both federal and State NO_2 standards.

Sulfur Dioxide. Sulfur dioxide (SO_2) is a colorless irritating gas formed primarily from incomplete combustion of fuels containing sulfur. Industrial facilities also contribute to gaseous SO_2 levels. SO_2 irritates the respiratory tract, can injure lung tissue when combined with fine particulate matter, and reduces visibility and the level of sunlight. The entire SCAB is in attainment with both federal and State SO_2 standards.

Lead. Lead is found in old paints and coatings, plumbing, and a variety of other materials. Once in the bloodstream, lead can cause damage to the brain, nervous system, and other body systems. Children are highly susceptible to the effects of lead. The entire SCAB is in attainment for the federal and State standards for lead.

Particulate Matter. Particulate matter is the term used for a mixture of solid particles and liquid droplets found in the air. Coarse particles (all particles less than or equal to 10 microns in diameter, or PM_{10}) derive from a variety of sources, including windblown dust and grinding operations. Fuel combustion and resultant exhaust from power plants and diesel buses and trucks are primarily responsible for fine particle (less than 2.5 microns in diameter, or $PM_{2.5}$) levels. Fine particles can also be formed in the atmosphere through chemical reactions. Coarse particles (PM_{10}) can accumulate in the respiratory system and aggravate health problems such as asthma. The EPA's scientific review concluded that fine particles ($PM_{2.5}$), which penetrate deeply into the lungs, are more likely than coarse particles to contribute to the health effects listed in a number of recently published community epidemiological studies at concentrations that extend well below those allowed by the current PM_{10} standards. These health effects include premature death and increased hospital admissions and emergency room visits (primarily the elderly and individuals with cardiopulmonary disease); increased respiratory symptoms and disease (children and individuals with cardiopulmonary disease such as asthma); decreased lung functions (particularly in children and individuals with asthma); and alterations in lung tissue and structure and in respiratory tract defense mechanisms. The entire SCAB is a nonattainment area for the federal and State PM_{10} and $PM_{2.5}$ standards.

Reactive Organic Compounds. Reactive organic compounds (ROCs) are formed from combustion of fuels and evaporation of organic solvents. ROCs are not defined as criteria pollutants but are a prime component of the photochemical smog reaction. Consequently, ROCs accumulate in the atmosphere more quickly during the winter when sunlight is limited and photochemical reactions are slower. Another name for ROCs is VOCs (volatile organic compounds).

Local Air Quality

The SCAQMD, together with the ARB, maintains ambient air quality monitoring stations in the SCAB. The air quality monitoring station closest to the site is the Long Beach East Pacific Coast Highway Station, and its air quality trends are representative of the ambient air quality in the project area. The pollutants monitored at this station are PM_{10} and $PM_{2.5}$.[1] The closest station that monitors CO, O_3, NO_2, and SO_2 is the North Long Beach Station. The ambient air quality data monitored at these two stations within the past 3 years is listed in Table 4.2.D.

The ambient air quality data in Table 4.2.D show that O_3, NO_2, SO_2, and CO levels are below the relevant State and federal standards. The State 24-hour PM_{10} standard was exceeded 12 to 19 times per year in the last 3 years but has not exceeded the federal 24-hour standard. The federal 24-hour $PM_{2.5}$ standard was not exceeded within the past 3 years.

4.2.2 REGULATORY SETTING

Federal Regulations/Standards

Pursuant to the federal Clean Air Act (CAA) of 1970, the EPA established national ambient air quality standards (NAAQS). The NAAQS were established for six major pollutants, termed "criteria" pollutants. Criteria pollutants are defined as those pollutants for which the federal and State governments have established AAQS, or criteria, for outdoor concentrations in order to protect public health.

Data collected at permanent monitoring stations are used by the EPA to classify regions as "attainment" or "nonattainment," depending on whether the regions meet the requirements stated in the primary NAAQS. Nonattainment areas are imposed with additional restrictions as required by the EPA.

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

The EPA established new national air quality standards for ground-level ozone and $PM_{2.5}$ in 1997. On May 14, 1999, the Court of Appeals for the District of Columbia Circuit issued a decision ruling that the CAA, as applied in setting the new public health standards for ozone and particulate matter, was unconstitutional as an improper delegation of legislative authority to the EPA. On February 27, 2001, the United States Supreme Court upheld the way the government sets air quality standards under the CAA. The court unanimously rejected industry arguments that the EPA must consider financial cost

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

Table 4.2.D: Ambient Air Quality at the Long Beach Air Monitoring Stations

Pollutant	Standard	2004	2005	2006
Carbon Monoxide				
Max 1-hr concentration (ppm)		4.2	4.2	4.2
No. days exceeded: State	> 20 ppm/1-hr	0	0	0
Federal	> 35 ppm/1-hr	0	0	0
Max 8-hr concentration (ppm)		3.4	3.5	3.4
No. days exceeded: State	9.0 ppm/8-hr	0	0	0
Federal	9 ppm/8-hr	0	0	0
Ozone				
Max 1-hr concentration (ppm)		0.090	0.091	0.081
No. days exceeded: State	> 0.09 ppm/1-hr	0	0	0
Max 8-hr concentration (ppm)		0.074	0.069	0.058
No. days exceeded: State	> 0.07 ppm/8-hr	ND	ND	ND
Federal	> 0.08 ppm/8-hr	0	0	0
Particulates (PM_{10})				
Max 24-hr concentration ($\mu g/m^3$)		83	131	117
No. days exceeded: State	> 50 $\mu g/m^3$/24-hr	12	18	19
Federal	> 150 $\mu g/m^3$/24-hr	0	0	0
Annual Arithmetic Average ($\mu g/m^3$)		38.1	43.5	45.0
Exceeded: State	> 20 $\mu g/m^3$ ann. arth. avg.	Yes	Yes	Yes
Particulates ($PM_{2.5}$)				
Max 24-hr concentration ($\mu g/m^3$)		59.7	50.8	53.6
No. days exceeded: Federal	> 65 $\mu g/m^3$/24-hr	0	0	0
Annual Arithmetic Average ($\mu g/m^3$)		16.5	14.7	14.4
Exceeded: State	> 12 $\mu g/m^3$ ann. arth. avg.	Yes	Yes	Yes
Federal	> 15 $\mu g/m^3$ ann. arth. avg.	Yes	No	No
Nitrogen Dioxide				
Max 1-hr concentration (ppm)		0.121	0.136	0.102
No. days exceeded: State	> 0.25 ppm/1-hr	0	0	0
Annual arithmetic average concentration (ppm)		0.028	0.024	0.022
Exceeded: Federal	> 0.053 ppm ann. arth. avg.	No	No	No
Sulfur Dioxide[2]				
Max 24-hr concentration (ppm)		0.013	0.010	0.010
No. days exceeded: State	> 0.04 ppm/24-hr	0	0	0
Federal	> 0.14 ppm/24-hr	0	0	0
Annual arithmetic average concentration (ppm)		0.005	0.002	0.001
Exceeded: Federal	> 0.030 ppm ann. arth. avg.	No	No	No

Source: Air Quality Analysis, May 2008.
ND = No Data (there was insufficient or no data available to determine the value)
ppm = parts per million
$\mu g/m^3$ = micrograms of pollutant per cubic meter of air

as well as health benefits in writing standards. The justices also rejected arguments that the EPA took too much lawmaking power from Congress when it set tougher standards for ozone and soot in 1997. Nevertheless, the court threw out the EPA's policy for implementing new ozone rules, saying that the agency ignored a section of the law that restricts its authority to enforce such rules.

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

The EPA issued the final $PM_{2.5}$ implementation rule in Fall 2004 and made final designations on December 15, 2004. The EPA lowered the 24-hour $PM_{2.5}$ standard from 65 to 35 micrograms per cubic meter ($\mu g/m^3$) and revoked the annual average PM_{10} standard in December 2006.

State Regulations/Standards

The State of California began to set California ambient air quality standards (CAAQS) in 1969 under the mandate of the Mulford-Carrell Act. The CAAQS are generally more stringent than the NAAQS. In addition to the six criteria pollutants covered by the NAAQS, there are CAAQS for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are also listed in Table 4.2.A.

Originally, there were no attainment deadlines for CAAQS. However, the CCAA of 1988 provided a time frame and a planning structure to promote their attainment. The CCAA required nonattainment areas in the State to prepare attainment plans and proposed to classify each such area on the basis of the submitted plan as follows: Moderate, if CAAQS attainment could not occur before December 31, 1994; Serious, if CAAQS attainment could not occur before December 31, 1997; and Severe, if CAAQS attainment could not be conclusively demonstrated at all.

The attainment plans are required to achieve a minimum 5 percent annual reduction in the emissions of nonattainment pollutants unless all feasible measures have been implemented. The SCAB is currently classified as a nonattainment area for three criteria pollutants.

California's major initiatives for reducing GHG emissions are outlined in Assembly Bill 32 (AB 32), the "Global Warming Solutions Act," passed by the California State legislature on August 31, 2006, a 2005 Executive Order, and a 2004 ARB regulation to reduce passenger car GHG emissions. These efforts aim at reducing GHG emissions to 1990 levels by 2020, a reduction of approximately 25 percent, and then an 80 percent reduction below 1990 levels by 2050. The main strategies for making these reductions will address a range of GHG reduction actions that can include direct regulations, alternative compliance mechanisms, monetary and nonmonetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system.

Regional Air Quality Planning Framework

The 1976 Lewis Air Quality Management Act established the SCAQMD and other air districts throughout the State. The federal CAA Amendments of 1977 required that each state adopt an

implementation plan outlining pollution control measures to attain the federal standards in nonattainment areas of the state.

The ARB coordinates and oversees both State and federal air pollution control programs in California. The ARB oversees activities of local air quality management agencies and is responsible for incorporating air quality management plans for local air basins into a State Implementation Plan (SIP) for EPA approval. The ARB maintains air quality monitoring stations throughout the State in conjunction with local air districts. Data collected at these stations are used by the ARB to classify air basins as "attainment" or "nonattainment" with respect to each pollutant and to monitor progress in attaining air quality standards. The ARB has divided the State into 15 air basins. Significant authority for air quality control within them has been given to local air districts that regulate stationary source emissions and develop local nonattainment plans.

Regional Air Quality Management Plan (AQMP)

The SCAQMD and the SCAG are responsible for formulating and implementing the AQMP for the SCAB. Every 3 years the SCAQMD prepares a new AQMP that updates the previous plan and has a 20-year horizon. The SCAQMD adopted the 2003 AQMP in August 2003 and forwarded it to ARB for review and approval. The ARB approved a modified version of the 2003 AQMP and forwarded it to the EPA in October 2003 for review and approval.

The 2003 AQMP updates the attainment demonstration for the federal standards for O_3 and PM_{10}; replaces the 1997 attainment demonstration for the federal CO standard and provides a basis for a maintenance plan for CO for the future; and updates the maintenance plan for the federal NO_2 standard that the SCAB has met since 1992. The 2003 AQMP proposes policies and measures to achieve federal and State standards for healthful air quality in the SCAB.

This revision to the AQMP also addresses several State and federal planning requirements and incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools. This AQMP is consistent with and builds upon the approaches taken in the 1997 AQMP and the 1999 Amendments to the ozone SIP for the SCAB for the attainment of the federal ozone air quality standard. However, this revision points to the urgent need for additional emission reductions (beyond those incorporated in the 1997/1999 plan) to offset increased emission estimates from mobile sources and meet all federal criteria pollutant standards within the time frames allowed under the federal CAA.

The SCAQMD adopted the 2007 AQMP on June 1, 2007, which it describes as a regional and multiagency effort (i.e., the SCAQMD Governing Board, ARB, SCAG, and EPA). State and federal planning requirements will include developing control strategies, attainment demonstration, reasonable further progress, and maintenance plans. The 2007 AQMP also incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools. The ARB approved the 2007 AQMP on September 27, 2007, and adopted it as part of the 2007 SIP. The SCAQMD has forwarded the 2007 AQMP to the EPA for its review and approval.

4.2.3 METHODOLOGY

A number of modeling tools are available to assess air quality impacts of projects. In addition, certain air districts, such as the SCAQMD, have created guidelines and requirements to conduct air quality analysis. Current SCAQMD guidelines (CEQA Air Quality Handbook, April 1993) were adhered to in the assessment of air quality impacts for the proposed project.

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

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

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

The LST mass rate look-up tables are used to determine whether the daily emissions for the proposed construction and operational activities could result in significant localized air quality impacts. The emissions of concern from construction activities are NO_X and CO combustion emissions from construction equipment and fugitive PM_{10} dust from construction site preparation activities. The primary emissions from operational activities include, but are not limited to, NO_X and CO combustion emissions from stationary sources and/or on-site mobile equipment. Off-site mobile emissions from the project are not included in the emissions compared to the LSTs.

4.2.4 THRESHOLDS OF SIGNIFICANCE

According to Appendix G of the State CEQA Guidelines, a project may be considered to have a significant adverse effect on air quality if the project would:

- Conflict with or obstruct implementation of the applicable air quality plan
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation
- Result in a cumulative considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)

- Expose sensitive receptors to substantial pollutant concentrations
- Create objectionable odors affecting a substantial number of people

In addition to the federal and State AAQS, there are daily and quarterly emissions thresholds for construction and operation of a proposed project in the SCAB. The SCAB is administered by the SCAQMD, and guidelines and emissions thresholds established by the SCAQMD in its CEQA Air Quality Handbook (April 1993) are used in the Air Quality Analysis (Appendix B). The emission thresholds were established based on the attainment status of the air basin in regard to air quality standards for specific criteria pollutants. Because the concentration standards were set at a level that protects public health with an adequate margin of safety (EPA), these emission thresholds are regarded as conservative and would overstate an individual project's contribution to health risks.

SCAQMD Thresholds

Thresholds for Construction Emissions. The following CEQA significance thresholds for construction emissions have been established for the SCAB:

- 75 pounds per day (lbs/day) of ROCs
- 100 lbs/day of NO_X
- 550 lbs/day of CO
- 150 lbs/day of PM_{10}
- 55 lbs/day of $PM_{2.5}$
- 150 lbs/day of sulfur oxides (SO_X)

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

Thresholds for Operational Emissions. The daily operational emissions significance thresholds established for the SCAB by the SCAQMD are as follows.

Emission Thresholds for Pollutants With Regional Effects. Projects with operation-related emissions that exceed any of the emission thresholds listed below are considered significant under SCAQMD guidelines.

- 55 lbs/day of ROCs
- 55 lbs/day of NOX
- 550 lbs/day of CO
- 150 lbs/day of PM10

- 55 lbs/day of PM2.5
- 150 lbs/day of SO_X

Local Microscale Concentration Standards. The significance of localized project impacts under CEQA depends on whether ambient CO levels in the vicinity of the project are above or below State and federal CO standards. If ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a State or federal standard, project emissions are considered significant if they increase 1-hour CO concentrations by 1.0 part per million (ppm) or more or 8-hour CO concentrations by 0.45 ppm or more. The following are applicable local emission concentration standards for CO.

- California State 1-hour CO standard of 20.0 ppm
- California State 8-hour CO standard of 9.0 ppm

Thresholds for Localized Significance

For this project, the appropriate Source Receptor Area (SRA) for LST is the South Coastal Los Angeles County area, according to the SRA/City Table on the SCAQMD LST Web site.[1] The site is larger than 5 acres (ac); however, it is expected that construction operations will not exceed 5 ac in any one day, so the 5 ac thresholds were used. Sensitive land uses within the vicinity of the proposed project site include two beaches, single-family residences, a daycare facility, Marina Vista Park, and a recreational golf course. These sensitive receptors are located within 100 feet (ft) of the active construction areas. Based on the SCAQMD LST guidelines, the following thresholds, derived from the 25- and 50-meter LST thresholds, apply for this project.

Construction thresholds for a 5 ac site:

- 268 lbs/day of NO_X at 100 ft
- 1,269 lbs/day of CO at 100 ft
- 21 lbs/day of PM_{10} at 100 ft
- 9 lbs/day of $PM_{2.5}$ at 100 ft

Operational thresholds for a 5 ac site:

- 268 lbs/day of NO_X at 100 ft
- 1,269 lbs/day of CO at 100 ft
- 5 lbs/day of PM_{10} at 100 ft
- 2 lbs/day of $PM_{2.5}$ at 100 ft

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

Global Warming

Global warming and GHGs are an emerging environmental concern being raised on statewide, national, and global levels. Regional, State, and federal agencies are developing strategies to control pollutant emissions that contribute to global warming. However, neither CEQA nor the CEQA Guidelines mention or provide any methodology for analysis of "greenhouse gases," including CO_2, nor do they provide any significance thresholds. Also, the City of Long Beach does not currently have adopted thresholds for global warming. This air quality analysis follows all procedures and requirements of the State CEQA and the SCAQMD CEQA Handbook. A qualitative discussion of the project's potential to contribute to global warming is included in Section 4.2.7 as a potential cumulative effect. The potential for the proposed Colorado Lagoon Restoration project to contribute to global warming is based on whether or not the project would hinder achievement of the State's objective to reduce GHG emissions to 1990 levels by 2020.

4.2.5 STANDARD CONDITIONS

Construction Emissions

The project is required to comply with regional rules that assist in reducing short-term air pollutant emissions. SCAQMD Rule 403 requires that fugitive dust be controlled with best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, SCAQMD Rule 402 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off site. Applicable dust suppression techniques from Rule 403 are summarized below. Implementation of these dust suppression techniques can reduce the fugitive dust generation (and thus the PM_{10} component). Compliance with these rules would reduce impacts on nearby sensitive receptors.

Applicable Rule 403 Measures.

- Water active sites at least twice daily. (Locations where equipment operations are to occur will be thoroughly watered prior to use.)
- All trucks hauling dirt, sand, soil, or other loose materials are to be covered, or should maintain at least two feet of freeboard in accordance with the requirements of California Vehicle Code (CVC) section 23114 (freeboard means vertical space between the top of the load and top of the trailer).
- Traffic speeds on all unpaved areas shall be reduced to 15 mph or less.
- Use low-sulfur fuel for stationary construction equipment. This is required by SCAQMD Rules 431.1 and 431.2.

4.2.6 IMPACTS AND MITIGATION MEASURES

Implementation of the proposed project would result in short-term construction impacts related to air quality. Once construction of the project has been completed, the on-site activities would return to

preexisting levels. The following focuses on air quality impacts associated with the construction of the proposed project.

Less Than Significant Impacts

The following impacts that could result from implementation of the proposed project were evaluated and considered less than significant.

Long-Term Project-Related Emissions Impacts

Long-term air emission impacts are associated with any change in permanent use of the project site by on-site stationary and off-site mobile sources that substantially increase emissions. Stationary source emissions include emissions associated with electricity consumption and natural gas usage. Mobile source emissions would result from vehicle trips associated with the proposed project. The proposed project would not result in any long-term on-site stationary sources because the proposed replacement restroom structures will not be mechanically heated or cooled. Likewise, the project will not generate additional vehicular trips. Therefore, no emissions were calculated for the proposed project from long-term mobile source or long-term stationary sources. The project's long-term air quality impact would be less than significant because there would be no increase in stationary or mobile source emissions.

CO Hot-Spot Analysis. The primary mobile source pollutant of local concern is CO, which is a direct function of vehicle idling time caused by traffic conditions. CO transport is extremely limited; it disperses rapidly with distance from the source under normal meteorological conditions. Under certain extreme meteorological conditions, CO concentrations proximate to a congested roadway or intersection may reach unhealthy levels affecting local sensitive receptors (residents, schoolchildren, the elderly, hospital patients, etc.). Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service (LOS) or with extremely high traffic volumes. In areas with high ambient CO concentrations, modeling of CO concentrations is recommended in determining a project's effect on local CO levels. Because the proposed project would have little to no change in off-site vehicle trips, no significant CO contributions would occur in the project vicinity. Therefore, no CO "Hot Spots" are expected, and modeling of CO emissions is not necessary. Sensitive receptors will not be exposed to substantial pollutant concentrations as a result of the project.

On-Road Vehicle Exhaust Emissions. A construction traffic impact analysis was prepared for the proposed project construction phases by LSA Associates, Inc. (LSA, May 2008). This analysis determined that the peak daily construction trips would include up to 35 haul truck trips and 10 employee commute trips per day. When added to the existing traffic at the local intersections and roadway segments, the proposed project contribution to vehicle exhaust emissions would be minimal.

Air Quality Management Plan Consistency

An AQMP describes air pollution control strategies to be taken by a city, county, or region classified as a nonattainment area. The main purpose of an AQMP is to bring the area into compliance with federal and State air quality standards. CEQA requires that certain proposed projects be analyzed for consistency with the AQMP. For a project to be consistent with the AQMP adopted by the SCAQMD, the pollutants emitted from the project should not exceed the SCAQMD daily threshold or cause a significant impact on air quality, or the project must already have been included in the AQMP projection. However, if feasible mitigation measures are implemented and shown to reduce the impact level from significant to less than significant, a project may be deemed consistent with the AQMP. The AQMP uses the assumptions and projections of local planning agencies to determine control strategies for regional compliance status. Since the AQMP is based on local General Plans, projects that are deemed consistent with the General Plan are found to be consistent with the AQMP. The proposed project would not result in any population growth and is consistent with the City's General Plan. In addition, the proposed project is not expected to result in any increase in long-term regional air quality emissions. Therefore, the project will not conflict with the AQMP, and no significant impact will result with respect to implementation of the AQMP.

Construction Air Quality Impacts

Construction activities produce combustion emissions from various sources such as utility engines, on-site heavy-duty construction vehicles, equipment hauling materials to and from the site, and motor vehicles transporting the construction crew. Exhaust emissions from construction activities envisioned on site would vary daily as construction activity levels change. The use of construction equipment on site would result in localized exhaust emissions. Construction components involving dredging and removal of sediments from the project site are expected to take place during the summer months, which is a time when sensitive receptors such as school children are not in school.

Fugitive Dust. Fugitive dust emissions are generally associated with land clearing, exposure, and cut-and-fill operations. Construction of the proposed project improvements largely involves dredging, excavation, and reuse of soil materials. Because groundwater levels at Marine Stadium and the Lagoon are approximately 5 ft below ground, a large portion of the dredge and excavation materials will be wet. As a result, little fugitive dust is expected to be generated by these operations. However, fugitive dust could be generated from the drying of the stockpiled material. All stockpiled material will be properly contained and secured, and dust will be minimized on site during the sediment evaporation process with mitigation measures described section 4.6 Hazards and Hazardous Waste. In addition, fugitive dust could be generated as construction equipment or trucks travel on and off the construction site and during the parking lot, access road, restroom demolition, side slope recontouring, trail and viewing platform construction, and the open channel construction. These emissions will be relatively small and are included in Tables 4.2.E and 4.2.F.

Table 4.2.E: Peak-Day Construction Emissions by Sub-Phase (lbs/day)

Sub-Phase	CO	ROCs	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2
1a – Existing Culvert Improvements	30.6	6.0	60.9	8.0	3.6	3.2	4,573.4
1b – Western Arm Sediment Removal	78.6	11.4	154.5	5.6	6.4	5.6	15,928.0
1c – Central Area Sediment Removal	19.4	3.0	36.8	5.5	1.8	1.6	3,213.0
1d – Storm Drain Treatments	34.9	6.6	65.7	10.1	4.0	3.5	5,043.0
1e – Bioswales	25.9	4.9	49.1	6.9	3.0	2.7	3,709.0
1f – North Parking Lot, Access Road, and Restroom Demolition	36.7	6.3	76.8	10.2	5.0	3.6	6,239.2
1g – Side Slope Recontouring	37.5	7.2	79.0	12.6	9.4	4.9	5,729.2
1h – Trail and Viewing Platform Construction	26.5	5.0	55.7	7.5	8.1	3.7	4,084.6
2a – Bridge Construction	51.6	10.8	105.9	15.5	11.1	6.4	7,547.7
2b – Open Channel Construction	69.9	12.6	137.0	14.9	12.4	7.4	11,233.4
2c – Grading, Irrigation, Landscaping	36.7	6.9	77.0	12.4	9.3	4.8	5,667.3

Source: LSA Associates, Inc., May 2008.
[1] No threshold has been established.
CO = carbon monoxide
CO_2 = carbon dioxide
lbs/day = pounds per day
NO_X = nitrous oxides
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
ROCs = reactive organic compounds
SCAQMD = South Coast Air Quality Management District
SO_X = sulfur oxides

Table 4.2.F: Peak Daily Construction Emissions (lbs/day)

Month	Sub-Phases	CO	ROCs	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2
Phase 1								
April	1d	34.9	6.6	65.7	10.1	4.0	3.5	5,043.0
May	1d	34.9	6.6	65.7	10.1	4.0	3.5	5,043.0
June	1b, 1d	113.5	18.0	**220.2**	15.7	10.4	9.1	20,971.0
July	1a, 1b	109.2	17.4	**215.4**	13.6	10.0	8.8	20,501.4
August	1a, 1b	109.2	17.4	**215.4**	13.6	10.0	8.8	20,501.4
September	1b, 1c	98.0	14.4	**191.3**	11.1	8.2	7.2	19,141.0
October	1b, 1c, 1e, 1f, 1g	198.1	32.8	**396.2**	40.8	25.6	18.4	34,818.4
November	1c, 1e, 1f, 1g	119.5	21.4	**241.7**	35.2	19.2	12.8	18,890.4
December	1f, 1g	74.2	13.5	**155.8**	22.8	14.4	8.5	11,968.4
January	1g, 1h	64.0	12.2	**134.7**	20.1	17.5	8.6	9,813.8
February	1g	37.5	7.2	79.0	12.6	9.4	4.9	5,729.2
Phase 2								
May	2a	51.6	10.8	**105.9**	15.5	11.1	6.4	7,547.7
June	2a	51.6	10.8	**105.9**	15.5	11.1	6.4	7,547.7
July	2a	51.6	10.8	**105.9**	15.5	11.1	6.4	7,547.7
August	2a	51.6	10.8	**105.9**	15.5	11.1	6.4	7,547.7
September	2a	51.6	10.8	**105.9**	15.5	11.1	6.4	7,547.7
October	2a	51.6	10.8	**105.9**	15.5	11.1	6.4	7,547.7
November	2a, 2b	121.5	23.4	**242.9**	30.4	23.5	13.8	18,781.1
December	2a, 2b	121.5	23.4	**242.9**	30.4	23.5	13.8	18,781.1
January	2a, 2b	121.5	23.4	**242.9**	30.4	23.5	13.8	18,781.1
February	2a, 2b	121.5	23.4	**242.9**	30.4	23.5	13.8	18,781.1
March	2a, 2b	121.5	23.4	**242.9**	30.4	23.5	13.8	18,781.1
April	2a, 2b	121.5	23.4	**242.9**	30.4	23.5	13.8	18,781.1
May	2b	69.9	12.6	**137.0**	14.9	12.4	7.4	11,233.4

Table 4.2.F: Peak Daily Construction Emissions (lbs/day)

Month	Sub-Phases	CO	ROCs	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2
June	2b, 2c	106.6	19.5	**214.0**	27.3	21.7	12.2	16,900.7
July	2c	36.7	6.9	77.0	12.4	9.3	4.8	5,667.3
SCAQMD Emissions Threshold		**550**	**75**	**100**	**150**	**150**	**55**	**NA[1]**
Exceed Significance?		NO	NO	YES	NO	NO	NO	NA

Source: LSA Associates, Inc., May 2008.
[1] See Table 4.2.E for descriptions of sub-phases.
Note: Numbers in bold indicate exceedance of SCAQMD Emissions Threshold.
CO = carbon monoxide
CO_2 = carbon dioxide
lbs/day = pounds per day
NA = no threshold has been established
NO_X = nitrous oxides
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
ROCs = reactive organic compounds
SCAQMD = South Coast Air Quality Management District
SO_X = sulfur oxides

Localized Significance

The following analysis was performed per SCAQMD Final Localized Significance Threshold Methodology (June 2003). The nearest sensitive receptors (e.g., the on-site preschool facility, the north and south beaches, and the existing off-site residences) are located within 100 ft of the active construction areas. Table 4.2.G shows the construction-related emissions of NO_X, CO, PM_{10}, and $PM_{2.5}$ (see Appendix A of the Air Quality Analysis, which is located in Appendix C of this EIR) compared to the LSTs for the South Coastal Los Angeles County area.

Table 4.2.G shows that the calculated emissions rates for the proposed construction activities would not exceed the localized significance thresholds. Therefore, the proposed construction activities would not result in short-term, localized, significant air quality impacts. Nevertheless, as a precautionary measure, Mitigation Measure AQ-7 is proposed to further reduce air quality impacts to sensitive receptors during construction.

Table 4.2.G: Summary of Construction Emissions Localized Significance

Phase	CO	NO_X	PM_{10}	$PM_{2.5}$
1a – Existing Culvert Improvements	22.2	49.3	3.2	2.9
1b – Western Arm Sediment Removal	16.2	35.6	2.2	1.9
1c – Central Area Sediment Removal	11.0	25.2	1.4	1.3
1d – Storm Drain Treatments	26.4	54.1	3.6	3.2
1e – Bioswales	17.5	37.5	2.6	2.3
1f – North Parking Lot, Access Road, and Restroom Demolition	22.6	54.0	4.2	2.9
1g – Side Slope Recontouring	29.0	67.4	9.0	4.5
1h – Trail and Viewing Platform Construction	18.1	44.1	7.7	3.3
2a – Bridge Construction	41.7	94.1	10.7	6.0
2b – Open Channel Construction	43.0	96.9	10.9	6.2
2c – Grading, Irrigation, Landscaping	28.3	65.4	8.9	4.4
Localized Significance Threshold (at 100 ft)	**1,269**	**268**	**21**	**9**
Exceed Significance?	**NO**	**NO**	**NO**	**NO**

Source: LSA Associates, Inc., May 2008.
[1] See Table 4.2.E for descriptions of sub-phases.
CO = carbon monoxide
NO_X = nitrous oxides
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size

Potentially Significant Impacts

The following impacts that could result from implementation of the proposed project were evaluated and considered potentially significant.

Equipment Exhaust and Related Construction Activities. Construction of the Colorado Lagoon Restoration project has been split into two phases. These two phases have been further divided into multiple sub-phases. The maximum daily exhaust emissions generated within each of the construction sub-phases are listed in Table 4.2.E and detailed in Appendix A of the Air Quality Analysis, which is located in Appendix B of this EIR. Sub-phase 1b, the sediment removal within the western arm of the Lagoon, has two alternatives. The first alternative is to dewater the Lagoon and remove the dry sediment. The second alternative is to remove the wet sediment using land-based excavation. Dewatering the Lagoon and removing the dry sediment will require additional equipment. Therefore, the emissions from this alternative were calculated for the impact analysis and are shown in Table 4.2.E. In addition, there are two alternatives for disposing of the contaminated dredge material. The first is to haul it to an approved Port of Long Beach landfill site. However, disposing of the contaminated sediment at a Port landfill is constrained by the timing between the Lagoon dredge activities and activities at the Port. If the timing of these activities does not coincide, the contaminated sediment would be hauled to Kettleman Hills Landfill located in Kings County, which is the closest Class 1 hazardous waste disposal facility. The emissions in Table 4.2.E assume the longer haul distance required to transport the material to the hazardous waste disposal facility.

Throughout the construction schedule the various construction sub-phases will overlap. Table 4.2.F lists the emissions that would be generated within each month of the current construction schedule. Phase 2 will not commence until after Phase 1 has been completed. This table shows that construction equipment/vehicle emissions would exceed the SCAQMD-established daily emissions threshold for NO_X.

Odors. Heavy-duty equipment in the project area during construction would emit odors. These odors would be limited to the time that construction equipment is operating during the construction period for the project. Mitigation Measure AQ-2 requires that all construction equipment be maintained in accordance with the manufacturer's specifications. Mitigation Measure AQ-3 requires that all construction equipment be turned off when not in use, and Mitigation Measure AQ-6 requires that on-road construction trucks and other vehicles grater than 10,000 pounds be shut off when not in use. These measures reduce impacts associated with objectionable odors from the operation of diesel-powered construction equipment. However, given the duration of construction activity and the proximity of the sensitive receptors, these impacts may still be considered significant after mitigation.

During the dredging phases of the proposed project, the dredged materials will be spread out on site to dry before being hauled off site. It is anticipated that the dredged sediment will contain organic materials and that the decomposition of the organic matter when exposed to air may generate unpleasant odors. Therefore, the dredged material may result in odor impacts at the adjacent and nearby sensitive land uses. In addition, during the culvert cleaning and the open channel construction, areas which were previously submerged will become exposed during the new lower tide levels. The decaying marine vegetation which was not previously exposed may create unpleasant odors. Implementation of Mitigation Measure HAZ-4 in Section 4.6 requires the application of a mixture of

Simple Green and water to the excavated sediment as part of an overall Soil Management Plan. Simple Green accelerates the decomposition process and will have the overall result of shortening the duration of odor emissions. However, since it is difficult to predict the nature and duration of odor emissions from decomposition, it is concluded that the odor impacts would remain significant and unavoidable.

Mitigation Measures

The following mitigation measures are incorporated to offset potentially significant adverse construction related noise impacts of the proposed project.

AQ-1 Prior to issuance of a grading permit, the City of Long Beach Building Official (or designee) and the City of Long Beach Director of Public Works shall review and approve final grading plans and contractor agreements to ensure that the following dust suppression measures are incorporated. The following dust suppression measures in the South Coast Air Quality Management District (SCAQMD) CEQA Air Quality Handbook are included to further reduce the likelihood of air quality impacts:

- Suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour (mph).
- Sweep all streets once per day if visible soil materials are carried to adjacent streets (recommend water sweepers with reclaimed water).
- Install wheel washers or steel plate rumble strips where vehicles enter and exit unpaved roads onto paved roads, or wash trucks and any equipment leaving the site.
- Pave, water, or chemically stabilize all on-site roads as soon as feasible.
- Minimize at all time the area disturbed by clearing, grading, earthmoving, or excavation operations.
- All trucks hauling dirt, sand, soil, or other loose materials are to be tarped with a fabric cover and maintain a freeboard height of 12 inches.
- Limit on-site vehicle speeds (on unpaved roads) to 15 mph.

AQ-2 Prior to issuance of a grading permit, the Construction Contractor shall provide evidence to the City of Long Beach Building Official (or designee) that the construction equipment to be used on site is based on low-emission factors and high energy efficiency. The City of Long Beach Building Official (or designee) and the City of Long Beach Director of Public Works shall ensure that the grading plans include a statement that all construction equipment will be tuned and maintained in accordance with the manufacturer's specifications.

AQ-3 During construction and as noted on construction plans, the Construction Contractor shall ensure that construction equipment is shut off when not in use and idle for more than five minutes.

AQ-4 Prior to issuance of a grading permit, the Construction Contractor shall provide evidence to the City of Long Beach Building Official (or designee) that the Construction Contractor will

time the construction activities so as to not interfere with peak-hour traffic and minimize obstruction of through traffic lanes adjacent to the site. If necessary, a flagperson shall be retained to maintain safety adjacent to existing roadways.

AQ-5 Prior to issuance of a grading permit, the Construction Contractor shall provide evidence to the City of Long Beach Building Official (or designee) that the Construction Contractor will support and encourage ridesharing and transit incentives for the construction crew.

AQ-6 During construction and as noted on construction plans, the Construction Contractor shall ensure that on-road construction trucks and other vehicles greater than 10,000 pounds shall be shut off when not in use and shall not idle for more than 5 minutes.

AQ-7 Prior to issuance of a grading permit, the Construction Contractor shall provide evidence to the City of Long Beach Building Official (or designee) that on-site sensitive land uses, such as the on-site preschool center and the beaches, shall be closed or relocated when construction activities occur within 250 feet.

AQ-8 Prior to issuance of a grading permit, the Construction Contractor shall provide evidence to the City of Long Beach Building Official (or designee) that dredged material that shall be dried on site shall be located as far as feasible from the residential, school, and daycare land uses within the project area.

4.2.7 CUMULATIVE IMPACTS

Construction of the project would contribute cumulatively to the local and regional air pollutants, together with other projects under construction. The project would result in significant construction-related air quality impacts pertaining to NO_X emissions. Thus, it is anticipated that these additional NO_X emissions would result in significant cumulative air quality impacts.

The proposed project would also contribute to adverse cumulative air quality impacts because construction activity would result in additional emissions of pollutants, which may exacerbate ambient levels currently in excess of applicable national ambient air quality standards (NAAQS) or California ambient air quality standards (CAAQS) for O_3. Therefore, the project-level and cumulative short-term construction impacts of the proposed project would remain significant and unavoidable.

Greenhouse Gas Emissions

The project will generate emissions of GHGs, primarily in the form of vehicle exhaust, during construction. As shown in Table 4.2.F, the construction activities will generate up to 34,818 lbs/day of CO_2. There are no federal, State, or local emissions thresholds established for GHGs such as CO_2. As a comparison, the entire State generated approximately 2.2 billion (2,197,992,329) lbs/day of CO_2 in 2004.

The allowable emissions from on-road and off-road vehicle and equipment exhaust are controlled by the State and federal government agencies and are outside the control of this project. The proposed project would not result in any long-term on-site stationary sources and would have little to no change

in the off-site vehicle trips. Therefore, the proposed project would not generate any additional long-term GHG emissions.

Greenhouse gas emissions are considered for their potential to contribute to Global Climate Change. The proposed project will result in short-term emissions associated with the use of construction equipment. There will be no ongoing increase in contribution to global warming because there are no on-site stationary sources, and there is essentially no increase in the number of vehicular trips coming to and from the project site. Therefore, the proposed project's contribution to Global Climate Change in the form of GHG emissions is limited to construction equipment/vehicle emissions. The project will not result in a new, ongoing source of GHG emissions; therefore, the project's contribution to cumulative GHG emissions and Global Climate Change is less than significant.

4.2.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Even with compliance with SCAQMD rules and regulations and the implementation of all feasible mitigation measures, the proposed project would have significant unavoidable short-term construction air quality impacts (odors and NO_X [a precursor to O_3] emissions). While the adherence to SCAQMD rules and regulations would reduce this impact, it would remain significant and adverse because the SCAQMD daily threshold would be exceeded. No feasible mitigation measures beyond compliance with SCAQMD rules and regulations are available to offset this significant impact. The project would also contribute to adverse cumulative air quality impacts because the Basin is presently in nonattainment for O_3, and the project, in conjunction with other planned projects, would contribute to the existing nonattainment status. Therefore, the project-level and cumulative short-term construction impacts of the proposed project would remain significant.