5.0 ALTERNATIVES

5.1 INTRODUCTION

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

Key provisions in the CEQA Guidelines regarding alternatives (Section 15126.6) are summarized below to explain the foundation of the alternatives analysis herein.

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

In identifying alternatives for this EIR, alternatives were selected by the City of Long Beach (City) that comply with CEQA requirements, would be reasonable and feasible for the project site, are in consideration of the existing uses of the project area, and are based upon public comments received to the Notice of Preparation (NOP) and were received at the public scoping meeting for this EIR, which was held on November 14, 2007.

In addition to the alternatives selected for evaluation, several possible alternatives are considered but rejected because they failed to meet the project objectives and/or had questionable feasibility. These considered but rejected alternatives are described in Section 5.5.

5.2 SELECTION OF ALTERNATIVES

Section 21100 of the Public Resources Code and Section 15126 of the CEQA Guidelines require an EIR to identify and discuss a No Project/No Development Alternative as well as a reasonable range of alternatives to the proposed project that would feasibly attain most of the basic objectives of the project and would avoid or substantially lessen any of the significant environmental impacts. Alternatives to the proposed Colorado Lagoon Restoration project considered for analysis in this EIR are:

- **Alternative 1: No Project/No Development.** Consistent with Section 15126.6(e) of the CEQA Guidelines, the No Project/No Development Alternative is the existing condition of the project site at the time the NOP was published, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved. This alternative will evaluate circumstances under which the project does not proceed. This alternative includes cleaning the existing culvert and removing the tide gates, sills, and other impedances as these are considered reasonably foreseeable maintenance activities to existing infrastructure.
- **Alternative 2: Reduced Project Alternative.** This alternative does not include an open channel between Colorado Lagoon (Lagoon) and Marine Stadium. This alternative involves cleaning the existing culvert and removing the tide gates, sills, and other impedances, and the project improvements to the Lagoon (as described fully in Section 3.0, Project Description) with no changes to Marina Vista Park. Specifically, the improvements at the Lagoon include the following: removal of the contaminated sediments within the western arm of the Lagoon; removal of sediments within the central Lagoon; recontouring of the Lagoon side slopes; installation of storm drain upgrades and bioswales; removal of the north shore restroom building, parking lot and access road; implementing Bird Island; habitat and recreational improvements; and operational components at the Lagoon. This alternative would not require the reconfiguration of uses and facilities within Marina Vista Park.
- **Alternative 3: Recreation Alternative (No Open Channel/Develop a Parallel Culvert).** This alternative does not include an open channel between the Lagoon and Marine Stadium. The existing culvert would be cleaned and the tidal gates, sills, and other impedances would be removed in the short term. A second culvert will be developed parallel to the existing culvert in the long term. The parallel culvert would be the same size as the existing culvert. These improvements would result in an increase in the tidal range and tidal flushing over existing conditions, resulting in increased water circulation and an improvement in water quality. This alternative would not require the long-term reconfiguration of uses and facilities within Marina Vista Park. In addition, this alternative includes dredging the Lagoon, development of the walking trail around the Lagoon, and retention of the existing north parking lot, access road, and restroom on the north shore of the Lagoon. Also, Bird Island would not be developed under this alternative. It should be noted that continued existence of the north parking lot and access road would limit habitat restoration area along the north shore of the Lagoon.

- **Alternative 4: Alternative Channel Alignment.** Similar to the proposed project, this alternative includes cleaning the existing culvert and removing the tide gates, sills, and other impedances in the short term, and dredging the Lagoon and developing an open channel in the long term. However, the channel under this alternative would be a curved alignment that would run from the Lagoon through Marina Vista Park to Marine Stadium, curving eastward toward the center of the park as shown on Figure 5.1. This alternative would not require the reconfiguration of the baseball diamond and would still provide for adult and youth overlay soccer fields within Marina Vista Park. This alternative would require the replacement of the restroom structures at Marina Vista Park and Marine Stadium. This open channel alignment would also improve tidal flushing by reducing tide level muting, resulting in a corresponding improvement in water and habitat quality, and would provide improved flood flow conveyance.

A complete discussion of each alternative is provided below. For each alternative, the analysis provides the following:

- A description of the alternative
- An overview of the potential impacts of the alternative and the significance of those impacts (per CEQA Guidelines, the significant effects of an alternative shall be discussed but in less detail than those of the proposed project)
- A summary comparison of the alternative relative to the proposed project, specifically addressing whether the alternative would meet the project objectives and reduce impacts in comparison with the proposed project

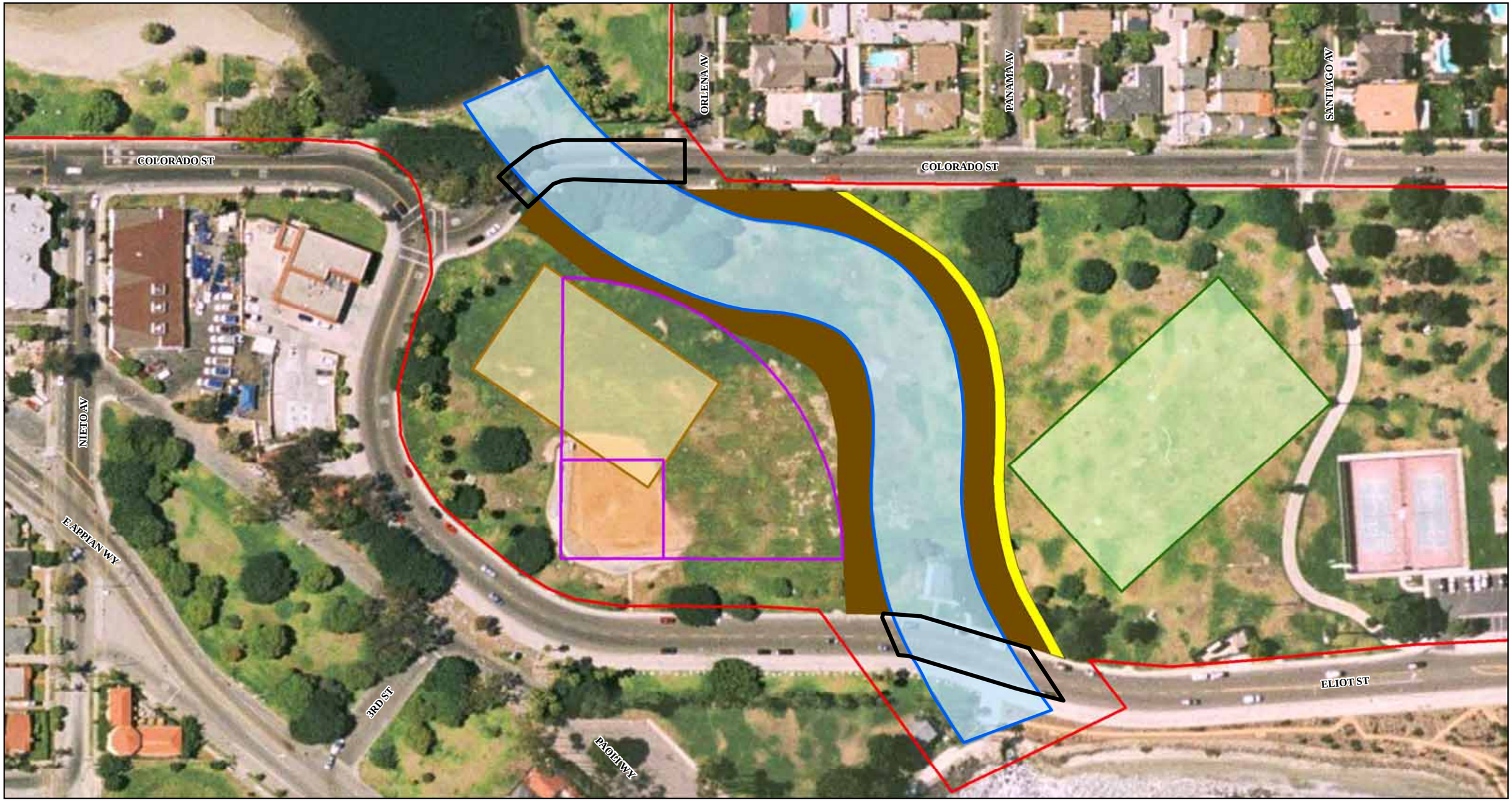
5.3 PROPOSED PROJECT

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

The Lagoon is an approximately 11.7-acre (ac) tidal water body 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 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. The proposed project consists of components that would improve the water and sediment quality within the Lagoon and provide habitat and recreational improvements, as follows:

- **Improvements Benefiting Water and Sediment Quality**
  - Clean culvert and remove tidal gates, sill, and other structural impedances.
  - Build open channel between the Lagoon and Marine Stadium.
  - Remove contaminated sediment in the western arm of the Lagoon.



LSA

Project Boundary
Alternative Open Channel Alignment
Adult Soccer Field
Youth Soccer Field
Baseball Field
Trail (Decomposed Granite)
Vegetated Buffer/Berm
Proposed Bridge

- Channel is 100 feet wide and 14 feet deep
- Channel has a 3:1 slope ratio
- Walking trail on east side of channel
- Vegetation buffers on both sides of channel

- Baseball field has a 90 foot baseline and measures 275 feet from home plate to the outfield fence
- Adult soccer field is 360 feet long by 225 feet wide
- Youth soccer field is 225 feet long by 135 feet wide

0 50 100 Feet

SOURCE: Air Photo USA (2006).

I:\CLB0702\GIS\Alt_channel_alignment_Fig5.1.mxd (5/2/2008)

FIGURE 5.1

Colorado Lagoon Restoration Project

Alternative 4: Alternative Channel Alignment

  - Remove sediment in the central Lagoon area.
  - Upgrade the storm drains with trash separation devices, a diversion system, and bioswales.

- **Habitat Improvements**
  - Remove the north parking lot and access road to East 6th Street.
  - Recontour the side slopes of the Lagoon.
  - Revegetate Lagoon areas with various native plant species.
  - Import and plant eelgrass in the Lagoon and open channel.
  - Develop Bird Island.

- **Recreation Improvements**
  - Construct a walking trail along the Lagoon and open channel.
  - Reconfigure the baseball and youth overlay fields in Marina Vista Park.

- **Operational Components**
  - Implement trash management protocols.
  - Implement bird management protocols.
  - Modify sand nourishment practices.

- **Planning Components**
  - Local Coastal Program (LCP) Amendment
  - Zoning Code Amendment

Implementation of the proposed Colorado Lagoon Restoration project would occur in two phases. It is anticipated that Phase 1 would involve the improvements at the Lagoon and to the existing culvert connecting the Lagoon to Marine Stadium, and Phase 2 would involve improvements within Marina Vista Park. Specifically, the improvements within Marina Vista Park would occur at least 1 year after the commencement of Lagoon improvements, depending on the availability of funding. The project components of each phase are listed below.

- **Phase 1: Lagoon Improvements**
  - Clean culvert and remove tidal gates, sill, and other structural impedances at culvert.
  - Dredge western arm and central Lagoon areas.
  - Implement storm drain upgrades, including the development of a storm water diversion system and bioswales.
  - Remove the north parking lot, access road, and restroom on the north shore of the Lagoon.
  - Recontour the Lagoon side slopes, develop Bird Island, revegetate land areas, and plant eelgrass.
  - Develop the walking trail and viewing platform at the Lagoon.

- **Phase 2: Marina Vista Park Improvements**
  - Construct two roadway bridges spanning the open channel at East Colorado Street and East Eliot Street. Demolish and replace two public restrooms. Build the open channel between the Lagoon and Marine Stadium.
  - Develop the walking trail on the eastern side of the open channel and vegetation buffers on both sides of the channel.

The proposed project includes an open channel alignment through Marina Vista Park in the area where the existing culvert is located. Construction of the open channel would necessitate demolition of the existing culvert. A tidal connection between Marine Stadium and the Lagoon would be maintained periodically during construction. The periodic tidal flow is intended to maintain Lagoon water quality during the channel construction period. The Lagoon may be closed for swimming during all or part of the channel construction. Operationally, the open channel will necessitate reconfiguration of existing baseball and youth overlay soccer fields at Marina Vista Park. However, there will be no change in the number and type of sports fields after channel construction. The improved tidal exchange achieved with implementation of the proposed project results in the greatest water quality improvements of the alternatives considered (expressed as improved water residence time).

Please see Section 3.0 of this EIR for more information regarding the proposed project. Specifically, Figures 3.1 through 3.6 show the existing conditions and the various components of the proposed project.

5.3.1 Significant Unavoidable Environmental Impacts of the Proposed Project

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

Air Quality Construction Impacts. After compliance with South Coast Air Quality Management District (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 nitrogen oxides [NO_X, a precursor to ozone (O_3)]). The primary source of the emissions is the operation of construction equipment and the decomposition of organic material dredged from the Lagoon.

While the adherence to SCAQMD rules and regulations would reduce impacts from construction activity, construction equipment/vehicle emissions would exceed the SCAQMD-established daily emissions threshold for NO_X. Therefore, impacts would remain significant and adverse. No feasible mitigation measures beyond compliance with SCAQMD rules and regulations are available to offset this significant impact. However, the emissions from the proposed project's construction activities

would not exceed SCAQMD's localized significance thresholds (LSTs), and significant adverse air quality impacts related to LSTs would not occur.

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. Implementation of the mitigation measures listed in Section 4.2 would 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 and materials from the culvert cleaning activities will contain organic materials and that the decomposition of the organic matter when exposed to air may generate unpleasant odors. Therefore, the dredged and culvert material may result in odor impacts at the adjacent and nearby sensitive land uses. 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.

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.

Noise Construction Impacts. Construction of the proposed project improvements would result in a temporary periodic increase in existing ambient noise levels in the project area. Pile driving will be the noisiest activity on site, generating up to 93 dBA L_{max} (maximum sound level measured in A-weighted decibels) at a distance of 50 feet (ft). Other construction equipment used on site, such as loaders and backhoes, would generate up to 86 dBA L_{max} at a distance of 50 ft. Both pile driving and standard construction activities would generate noise levels in excess of the City daytime exterior noise standards within 315 ft of standard construction activities and within 706 ft of pile driving. Therefore, due to the proximity between construction activities and the existing sensitive receptors (on-site preschool and adjacent residential land uses), project-related construction activities would result in a short-term significant noise impact that would be intermittent and temporary. The City of Long Beach Municipal Code allows elevated construction-related noise levels as long as the construction activities are limited to the hours specified. Hence, adherence to the City's noise regulations and implementation of the mitigation measures provided in Section 4.9 of the EIR would reduce construction noise impacts to sensitive receptors; however, the construction activities would still generate noise levels in excess of the City's daytime exterior noise standard of 70 dBA L_{max}. Therefore, the project-related construction noise impacts, although short-term in duration, would remain significant and unavoidable.

5.4 PROJECT OBJECTIVES

Pursuant to Section 15124 of the CEQA Guidelines, the description of the proposed project contains a statement of the objectives sought for development of the proposed project.

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

Specifically, the objectives of the proposed project are to:

- Reduce and treat storm and dry weather runoff to minimize contamination of water and sediment in the Lagoon.
- Improve water quality by increasing the Lagoon's circulation and enhancing its tidal connection with Marine Stadium.
- Improve water quality by removing contaminated sediments.
- Restore and maintain the estuarine habitats.
- Balance flood control, water quality, and the recreation demands of the Lagoon.
- Enhance public enjoyment of the Lagoon.

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

- Develop well-managed, viable ecosystems that support the preservation and enhancement of natural and wildlife habitats (Open Space and Recreation Element, Goals/Objectives 1.1).
- Preserve, keep clean, and upgrade beaches, bluffs, water bodies and natural habitats (Open Space and Recreation Element, Goals/Objectives 1.2).
- Design and manage natural habitats to achieve environmental sustainability (Open Space and Recreation Element, Goals/Objectives 1.4).
- Promote the creation of new and reestablished natural habitats and ecological preserves, including wetlands, woodlands, native plant communities, and artificial reefs (Open Space and Recreation Element, Policy 1.1).
- Protect and improve the community's natural resources, amenities, and scenic values, including nature centers, beaches, bluffs, wetlands, and water bodies (Open Space and Recreation Element, Policy 1.2).
- Promote and assist with the remediation of contaminated sites (Open Space and Recreation Element, Policy 1.4).

- Restore the Lagoon to serve as both a productive wetland habitat and recreational resource by reducing pollutant discharges into the water, increasing water circulation with Alamitos Bay, and/or restocking or planting appropriate biological species (Open Space and Recreation Element, Program 1.6).
- Maintain a sufficient quantity and quality of open space in the City to produce and manage natural resources (Open Space and Recreation Element, Goals/Objectives 2.1).
- Preserve, enhance, and manage open areas to sustain and support marine life habitats (Open Space and Recreation Element, Policy 2.4).
- Make all recreation resources environmentally friendly and socially and economically sustainable (Open Space and Recreation Element, Goals/Objectives 4.5).
- Establish lifetime use opportunities. Recreation programs and facilities will be designed to develop and serve a lifetime user through active, passive, and educational experiences (Department of Parks, Recreation, and Marine Strategic Plan, Strategy 9, page 62).
- The Department of Parks, Recreation, and Marine should be a steward for preserving the environmental, cultural, and historical resources in the City (Department of Parks, Recreation, and Marine Strategic Plan, Strategy 11, page 63).
- Support efforts to improve the water quality and cleanliness of City beach areas (Department of Parks, Recreation, and Marine Strategic Plan, Strategy 13, page 66).

5.5 ALTERNATIVES CONSIDERED BUT REJECTED

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

5.5.1 Alternative Locations

CEQA Guidelines Section 15126.6(f)(2)(A) states, "The key question [with regard to alternative locations] and first step in analysis is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location. Only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR." The proposed project is location-specific as the project is to upgrade an existing water body and its associated lands and habitat. Because the project is specific to the Lagoon, there are no alternative locations; therefore, the EIR will not include analysis regarding alternative locations.

5.5.2 East Eliot Street Open Channel Alignment

This alternative would develop a curved open channel through Marina Visa Park that would be located adjacent to and along East Eliot Street. Because the East Eliot Street open channel alignment would be adjacent to the street, it would require a fence between the street and the open channel for pedestrian and vehicular safety. This alternative was rejected because the East Eliot Street alignment would have greater potential adverse impacts than both the proposed channel alignment and the selected alternative channel alignment (which curves to the east), including:

- The fence required along East Eliot Street would adversely impact views of the existing streetscape, parkland, and water bodies.
- It is possible that, even with the inclusion of a fence, this open channel alignment may create a potential hazard to vehicles traveling around the curve of East Eliot Street.

5.5.3 No Open Channel, Develop Flood Protection Dike

This alternative would not include an open channel from the Lagoon to Marine Stadium. The existing culvert would be cleaned, the tide gates, sills, and other impedances would be removed, and a dike would be constructed along the Lagoon near the intersection of East Eliot Street and East Colorado Street. This area floods during a concurrent high tide and 50-year storm event. The dike would be a low earthen berm measuring approximately 2 to 3 ft in height, with 2:1 (H:V) side slopes, a base width of up to 10 ft maximum, and length of approximately 200 ft. The dike is designed to be visually unobtrusive by remaining low with a small material volume.

This alternative was rejected because implementation of the Termino Avenue Drain Project (TADP) by the County of Los Angeles Public Works Department would significantly reduce storm flows into the Lagoon by redirecting the flows from one regional outfall storm drain and three additional local storm drains to bypass the Lagoon and discharge into Marine Stadium. In addition, the proposed project includes diversion of flows into a wet well and development of bioswales. These components would provide additional capacity for containing and/or diverting storm water flows at the Lagoon. This reduction in storm flows and inclusion of additional storm water facilities at the Lagoon would result in a reduced risk of flooding adjacent to the Lagoon, and the flood protection that would have been provided by the dike is no longer necessary.

5.5.4 Expanded Central Lagoon Dredge Area

This alternative would dredge a larger area of the central Lagoon than the area identified within the proposed project. This excavation would remove 6 ft of sediment from the entire central Lagoon area. This dredge design would remove as much sediment as possible, while tapering the excavation cut along the sides to create a smooth transition from the Lagoon floor to the shoreline. This alternative would have created a larger subtidal area within the central Lagoon than the proposed project. The Expanded Central Dredge Alternative would have removed approximately 34,700 cubic yards (cy) of sediment compared to the approximate 5,500 cy that would be removed by the proposed project. This alternative was rejected because it would create greater construction impacts than the proposed dredge design and was not required from a contaminated sediment standpoint. The larger dredge

volume would result in significantly greater air, noise, and traffic impacts than those created by the proposed dredge volume.

5.5.5 Capping Sediment in the Western Arm of the Lagoon

This alternative would involve capping the contaminated sediment in the western arm of the Lagoon instead of dredging and disposing of the sediment. An in-situ cap would be utilized whereby the contaminated sediment is left in place and covered with clean material. The cap would be thick enough to ensure that the contaminated sediment remains contained. This alternative was rejected for several reasons, including:

- The cap would result in a loss of tidal water volume, the amount of tidal flushing, and the associated water quality benefits.
- Capping would result in the loss of native Lagoon floor area that provides important habitat for some species currently living in the Lagoon, including eelgrass, invertebrates and juvenile fish species that utilize eelgrass habitat, burrowing organisms (e.g., the arrow goby), and sessile benthic organisms (e.g., clams and mussels).
- Capping is not consistent with the project objective of restoring the Lagoon habitat to its historic condition by removal of the sediments that have accumulated in the Lagoon over the past decades.
- Capping would require long-term maintenance and monitoring.
- Capping would involve potential risk of cap disturbance and leakage if the cap area needs to be dredged in the future to remove sedimentation.
- Capping would reduce the area within the Lagoon available for future sedimentation.

5.6 ALTERNATIVE 1: NO PROJECT/NO DEVELOPMENT ALTERNATIVE

5.6.1 Description

Consistent with Section 15126.6(e) of the CEQA Guidelines, the No Project/No Development Alternative is the existing condition of the project site at the time the Notice of Preparation (NOP) was published, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved. The setting of the site at the time of the NOP is described throughout Section 4.0 of this EIR with respect to individual environmental issues and the baseline of the impact assessment of the proposed project. This alternative will evaluate circumstances under which the project does not proceed. This alternative includes cleaning the existing culvert and removing the tide gates, sills, and other impedances, as these are considered to be reasonably foreseeable maintenance activities for the existing infrastructure.

5.6.2 Environmental Analysis

The No Project/No Development Alternative assumes that the existing on-site conditions would remain unchanged except for reasonably foreseeable maintenance activities, such as cleaning the existing culvert and removing the tide gates, sills, and other impedances.

In leaving the project area in its current condition, none of the physical impacts associated with construction of the proposed project components would occur (with the exception of the maintenance activities at the existing culvert). Minimal construction traffic would be generated to and from the site, road closures would not occur as the open channel and bridges would not be developed, minimal construction air emissions and construction noise generated by the culvert activities would be generated, and the loss of use of the recreational facilities on the project site during construction would not occur (with exception of the short-term culvert activities in Marina Vista Park). Therefore, by this alternative eliminating the large majority of construction activities, implementation of this alternative would result in reduced environmental impacts than the proposed project. Specifically, the No Project/No Development Alternative would avoid the significant unavoidable short-term air quality and noise impacts associated with the proposed project. As with the proposed project, this alternative would not result in any significant long-term operational impacts.

However, under the No Project/No Development Alternative, the environmental benefits to the project area would not be achieved. The water and sediment quality of the Lagoon and habitat areas in and around the Lagoon would not be improved, and because storm drain improvements proposed by the project would not occur, sediment and water quality within the Lagoon water body may continue to degrade. The culvert component of the No Project/No Development Alternative would result in a slight improvement for biological resources compared with existing conditions. However, the improvement would be largely reduced in comparison to the benefits for biological resources that would be achieved from the proposed project. In addition, the recreational enhancements, including the Lagoon viewing platform and walking trails at the Lagoon and Marina Vista Park, would not occur.

5.6.3 Attainment of Project Objectives

The No Project/No Development Alternative would not achieve the project objectives. Sediment quality would not be improved because the sediment would remain in place. Water quality would not be improved because the Lagoon's circulation and tidal connection to Marine Stadium would be minimally improved with cleaning of the culvert but not substantially increased. Existing estuarine habitats would not be enhanced because there would be no creation of new upland and intertidal habitat at the Lagoon, and the overall environmental and recreational improvements associated with the project would not be realized. Moreover, the objectives contained in the City's Open Space and Recreation Element in the Department of Parks, Recreation, and Marine's Departmental Strategic Plan would not be furthered. For example, new and reestablished natural habitats would not be created, water quality within the Lagoon would not be substantially improved, and enhanced opportunities for educational experiences through the creation and availability of an enhanced marine life habitat would not be realized.

5.6.4 Conclusion

This alternative would not result in any substantial physical environmental effects and would avoid significant project-related impacts to short-term air quality and to construction noise in the project vicinity. However, the project objectives would not be achieved, and none of the project benefits would be realized.

5.7 ALTERNATIVE 2: REDUCED PROJECT ALTERNATIVE

5.7.1 Description

The Reduced Project Alternative does not include an open channel between the Lagoon and the Marine Stadium or any other improvements within Marina Vista Park. This alternative would only implement improvements (which are the same as the proposed project) at the Lagoon and to the existing culvert connection to Marine Stadium. The culvert improvement component would clean the existing culvert and remove the tide gates, sills, and other impedances. The improvements at the Lagoon include the following: removal of contaminated sediments within the western arm of the Lagoon, removal of sediments within the central Lagoon, recontouring of Lagoon slopes, the installation of storm drain upgrades and bioswales, removal of the north shore parking lot and access road, implementing habitat and recreational improvements, and operational components as described fully in Section 3.0, Project Description. This alternative would not reconfigure the baseball and overlay soccer fields, demolish and replace two restroom facilities, or develop a walking trail and vegetation buffers within Marina Vista Park. This alternative would include the proposed LCP and zoning amendments as described in Section 3.0.

5.7.2 Environmental Analysis

Aesthetics. The Reduced Project Alternative would eliminate Phase 2 of the proposed project. The Reduced Project Alternative does not include an open channel between the Lagoon and Marine Stadium or any other improvements within Marina Vista Park. The Reduced Project Alternative would only implement improvements (which are the same as the proposed project) at the Lagoon and to the existing culvert connection to Marine Stadium. As a result, on- and off-site views of the Lagoon area would be enhanced, similar to the proposed project. Under this alternative, potential aesthetic impacts related to construction would be reduced compared to impacts under the proposed project because no construction activities would occur within Marina Vista Park or Marine Stadium. Therefore, the Reduced Project Alternative would result in the same amount of aesthetics-related construction impacts to the Lagoon, but would result in no impacts to Marina Vista Park or Marine Stadium. The Reduced Project Alternative, however, would still result in less than significant impacts related to aesthetic resources, as does the proposed project.

Air Quality. The Reduced Project Alternative would eliminate Phase 2 of the construction operations planned for the proposed project. The Reduced Project Alternative would reduce the duration of the project construction emissions. However, the peak construction emissions are generated during Phase 1 of the proposed project's construction operations. Therefore, implementation of this alternative is expected to result in significant construction emission impacts, as would the proposed project. However, overall emissions and the duration of emissions being generated by construction would be reduced compared to the proposed project because Phase 2 would not be implemented. As with the proposed project, this alternative would not result in any significant long-term operational impacts; however, construction-related impacts would remain significant and unavoidable.

Biological Resources. The Reduced Project Alternative does not include construction of an open channel between the Lagoon and Marine Stadium or any other improvements within Marina Vista Park. The Reduced Project Alternative improvements at the Lagoon and to its existing culvert connection with Marine Stadium remain the same as the proposed project, resulting in the same level of impacts to biological resources. However, the effectiveness of the proposed marine and intertidal improvements within the Lagoon would be reduced due to the limited tidal exchange provided by the cleaned culvert and the resultant reduction in flushing of the Lagoon water compared to the proposed project.

Immediate or near-term impacts to eelgrass, fish, benthic communities, and other marine organisms would be the same with implementation of either the Reduced Project Alternative or the proposed project, which is less than significant with incorporated mitigation measures. Impacts to the vegetation community within Marina Vista Park would be reduced with this alternative; however, the vegetation community type within Marina Vista Park is characterized as Parks and Ornamental, which is poor quality habitat and does not support special-interest biological resources. The reduction in impacts to Parks and Ornamental habitat is not an indicator of an environmentally superior alternative for biological resources. Additionally, the Reduced Project Alternative does not provide an enhanced wildlife movement corridor between the Lagoon and Marine Stadium because the open channel with native vegetation buffers will not be constructed. The open channel component of the proposed project would substantially improve the wildlife movement function, while the Reduced Project Alternative would not. Implementation of mitigation measures to address impacts to biological resources within the Lagoon and near the culvert connection to Marine Stadium would reduce impacts to a less than significant level for both the proposed project and this alternative; however, the Reduced Project Alternative would not provide the same level of long-term beneficial improvements for biological resources as the proposed project would.

Cultural and Paleontological Resources. The Reduced Project Alternative does not include an open channel between the Lagoon and Marine Stadium or any other improvements within Marina Vista Park. The Reduced Project Alternative would only implement improvements (which are the same as the proposed project) at the Lagoon and to the existing culvert connection to Marine Stadium. Under this alternative, potential cultural resource impacts would be less than those under the proposed project because no construction activities would occur within Marina Vista Park. Therefore, the potential impact area for cultural resources would be reduced as a result of this alternative. However, cultural resources are not expected to be encountered at either the Lagoon or Marina Vista Park, and this alternative would still result in less than significant impacts related to cultural resources, as does the proposed project.

Geology and Soils. The Reduced Project Alternative does not include an open channel between the Lagoon and Marine Stadium or any other improvements within Marina Vista Park. Without the open channel component, the proposed project would include fewer structural components (such as the open channel and bridges spanning the channel at East Colorado Street and East Eliot Street) that could be risk-related to potential seismic ground-shaking impacts (including liquefaction, lateral spreading, and subsidence) and landslides. However, this alternative would not provide any seismic upgrades that would occur from redevelopment of the existing restrooms. The existing restroom at Marine Stadium was constructed in 1951, and the Marina Vista Park restroom was constructed in

1991. Redevelopment of the restrooms that would occur under the proposed project would be in accordance with the most current Uniform Building Code and the recommended seismic design parameters of the Structural Engineers Association of California, which would provide additional seismic protection in comparison to existing conditions. The Reduced Project Alternative would result in less than significant impacts related to geology and soils, as does the proposed project.

Hazards and Hazardous Materials. The Reduced Project Alternative does not include an open channel between the Lagoon and Marine Stadium or any other improvements within Marina Vista Park. The Reduced Project Alternative would only implement improvements (which are the same as the proposed project) at the Lagoon and to the existing culvert connection to Marine Stadium. Due to the age of the structures, the demolition of the restroom located on the north shore of the Lagoon may result in an exposure to potential lead-based paints (LBPs) and polychlorinated biphenyls (PCBs) in existing building materials. Therefore, hazards and hazardous waste effects under the Reduced Project Alternative would be slightly less than the proposed project because the Reduced Project Alternative would require the demolition of only one restroom instead of three. The Reduced Project Alternative would result in less than significant impacts with mitigation incorporated related to hazards and hazardous wastes, as does the proposed project.

Hydrology and Water Quality. The Reduced Project Alternative does not include an open channel between the Lagoon and Marine Stadium or any other improvements within Marina Vista Park. The Reduced Project Alternative would only implement improvements (which are the same as the proposed project) at the Lagoon and to the existing culvert connection to Marine Stadium. Under this alternative, potential hydrology and water impacts would be less than those under the proposed project because no construction activities would occur within Marina Vista Park. However, the Reduced Project Alternative would result in fewer improvements to water quality at the Lagoon than the proposed project.

Cleaning the culvert of sediment, biofouling debris, and structural impedances will increase the opening into the culvert and improve tidal exchange through the culvert. Cleaning the culvert would result in an increase in the tide range and tidal prism, which in turn would enable more rapid tidal flushing and more frequent turnover of Lagoon water than under existing conditions. The tide range would increase by 27 percent to 5.6 ft from 4.4 ft for existing conditions compared to nearly 8.2 ft at Marine Stadium. In addition, the tidal prism for the culvert cleaning increases to 73 acre-feet (af) from 64 af, for an increase of nearly 15 percent. As a result of the culvert cleaning, the seawater residence time in the Lagoon would be shortened to 8.0 days compared to 8.5 days for existing conditions; however, the residence time would still be more than the Marine Stadium residence time of 6.9 days for open ocean conditions. Tidal range information for existing conditions compared to the cleaned culvert is summarized in Table 5.A and shown on Figure 5.2.

An open channel connection between the Lagoon and Marine Stadium, such as under the proposed project, is more effective at transferring water between the Lagoon and Marine Stadium than either the existing culvert or a cleaned, unimpeded culvert would be. Creating an open channel would significantly increase the tide range and the tidal prism at the Lagoon. Increasing the tide range together with an increase in tidal prism would cause more rapid tidal flushing and more frequent turnover of Lagoon water. The average tidal spring range would increase by 86 percent to 8.2 ft

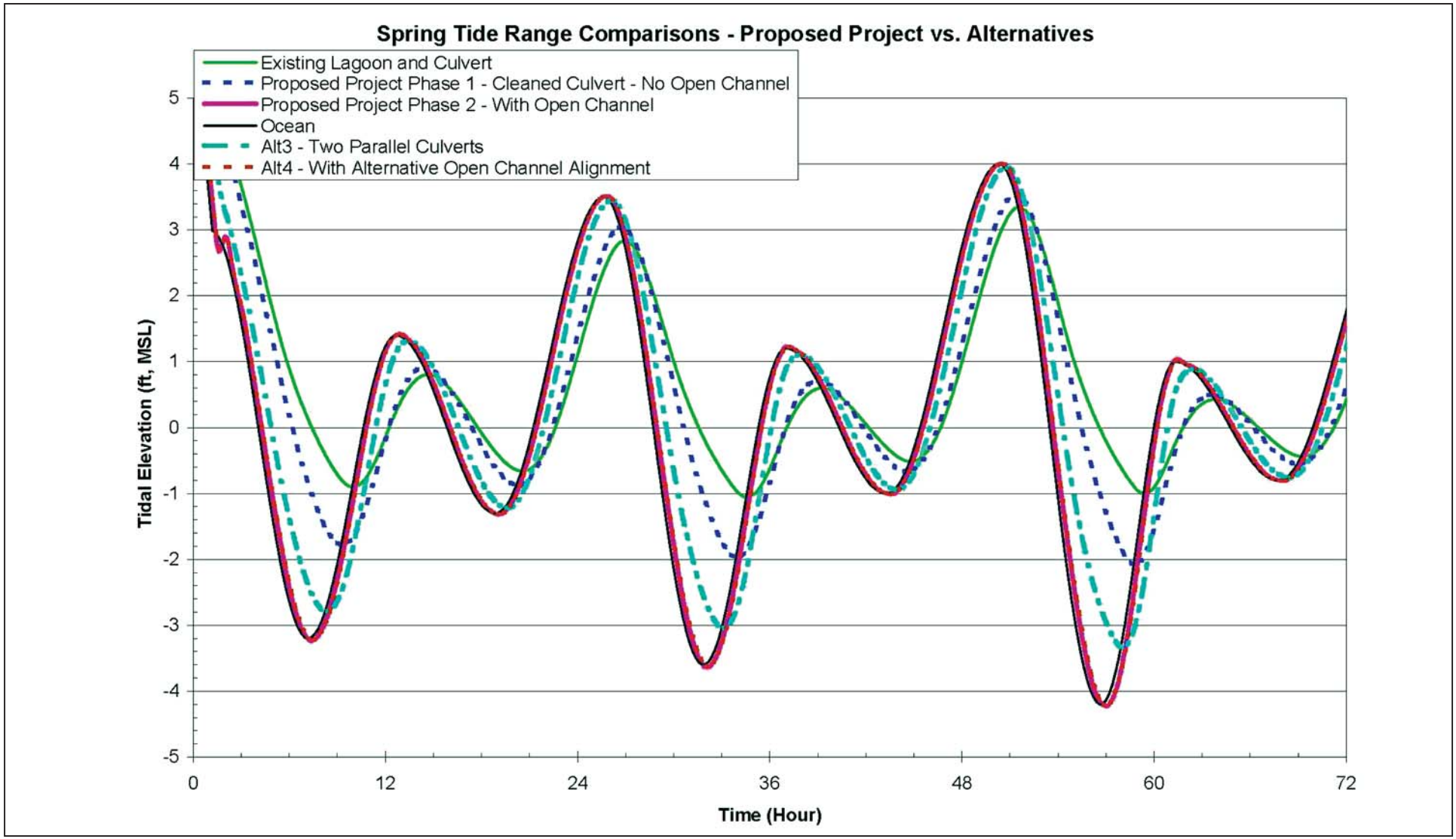


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FIGURE 5.2

Colorado Lagoon Restoration Project

Spring Tidal Range for Existing Conditions and the Proposed Project and Alternatives

SOURCE: Moffatt & Nichol, 2007

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Table 5.A: Comparison Hydrologic/Hydraulic Conditions for Alternative 2

	Existing Conditions	Cleaned Culvert Alternative 2	Open Channel (with no culvert) Proposed Project
Spring Tidal Range (feet)	4.4	5.6	8.2
Spring Tidal Prism (acre-feet)	64	73	114
Residence Time from Ocean (days)	8.5	8.0	7.3

Source: Tidal Hydraulics Study for Colorado Lagoon Restoration Project EIR, Moffatt & Nichol, April 14, 2008.

from 4.4 ft for existing conditions, which is the same as Marine Stadium and for open ocean conditions. In addition, the tidal prism for the proposed channel increases to 114 af from 64 af, for an increase of nearly 78 percent. Tidal range information for existing conditions compared to the cleaned culvert and proposed open channel is shown on Figure 5.2.

Table 5.A details the difference between existing conditions and those expected after implementation of the cleaned culvert and proposed open channel. Cleaning the culvert would increase the tidal range and tidal prism, but only 30 percent and 17 percent, respectively, of what the proposed open channel would create. As a result of the channel construction, the seawater residence time in the Lagoon would be shortened to 7.3 days compared to 8.0 days for culvert cleaning. However, the residence time would still be less than the Marine Stadium residence time of 6.9 days for open ocean conditions. Therefore, the open channel would be significantly more effective at transferring water between the Lagoon and Marine Stadium than the cleaned culvert. Therefore, impacts to water quality under the Reduced Project Alternative would result in fewer improvements to water quality than the proposed project. Nonetheless, the Reduced Project Alternative would result in less than significant impacts related to hydrology and water quality, as does the proposed project.

The Reduced Project Alternative would result in fewer construction impacts to water quality at the Lagoon and Marine Stadium. While the impacts of the proposed project can be reduced to less than significant levels with implementation of several mitigation measures, the Reduced Project Alternative would not result in construction impacts to Marina Vista Park, particularly for the open channel and bridge components. The Reduced Project Alternative therefore would not result in soil excavation at Marina Vista Park for channel construction, which could lead to sediment and erosion control impacts to Marine Stadium and the Lagoon water, particularly during tidal flushing. In addition, the Reduced Project Alternative would not require closing the culvert for an extended period of time, which has the potential to significantly impair water quality. Therefore, the Reduced Project Alternative would result in fewer construction impacts to water quality compared to the proposed project. Nonetheless, the Reduced Project Alternative would result in less than significant impacts related to hydrology and water quality, as does the proposed project.

Land Use. The Reduced Project Alternative does not include an open channel between the Lagoon and Marine Stadium or any other improvements within Marina Vista Park. The Reduced Project Alternative would only implement improvements (which are the same as the proposed project) at the Lagoon and to the existing culvert connection to Marine Stadium. The Reduced Project Alternative

would include the proposed LCP and zoning amendments as described in Section 3.0, Project Description to address changes to conditions at the Lagoon. Land use effects under the Reduced Project Alternative would be slightly less than those under the proposed project (which are less than significant) because a smaller area would be included in the project. The planning effects (plan consistency) would be the same as under the proposed project because this alternative would include the same LCP and zoning amendments as the proposed project. Therefore, land use impacts compared to the proposed project are neutral, having no greater or lesser impacts than the proposed project.

Noise. The Reduced Project Alternative would eliminate Phase 2 of the construction operations planned for the proposed project. The Reduced Project Alternative would reduce the duration of the construction operations and would eliminate the pile driving required for the construction of the open channel and bridges. However, significant noise impacts would occur during Phase 1 of the proposed project construction, including pile driving for the viewing platform, and general construction activities in proximity to sensitive receptors. Therefore, implementation of this alternative is expected to result in significant construction noise impacts. However, the length of the short-term impacts is reduced compared to those of the proposed project. As with the proposed project, this alternative would not result in any significant long-term operational impacts.

Public Services and Utilities. The Reduced Project Alternative does not include an open channel between the Lagoon and Marine Stadium or any other improvements within Marina Vista Park. The Reduced Project Alternative would only implement improvements (which are the same as the proposed project) at the Lagoon and to the existing culvert connection to Marine Stadium.

Under the Reduced Project Alternative, emergency calls for police and fire services and demands for school and library services are not anticipated to increase, which is the same as the proposed project. However, the potential for a slight increase in lifeguard staff related to safety at the open channel is eliminated under this alternative.

Under the Reduced Project Alternative, project components and impacts to water and wastewater services and facilities would be less than significant, which is the same as the proposed project. Irrigation demands to newly irrigated areas at the Lagoon would be managed through a mitigation measure to schedule irrigation times with the Long Beach Water Department (LBWD), and adequate capacity exists within the sewer system to accommodate the additional wastewater flows from the diversion system. Similarly, storm drain upgrades and effects to solid waste facilities under the Reduced Project Alternative would be the same as the proposed project.

Therefore, impacts related to public services and utilities under the Reduced Project Alternative would be the same as under the proposed project, which is less than significant after implementation of the same mitigation measures. However, because the two existing restrooms in Marina Vista Park and Marine Stadium would not be remodeled to utilize low-flow facilities, corresponding benefits in the reduction of potable water demand would not occur.

Recreation. The Reduced Project Alternative does not include an open channel between the Lagoon and Marine Stadium or any other improvements within Marina Vista Park. The Reduced Project

Alternative would only implement improvements (which are the same as the proposed project) at the Lagoon and to the existing culvert connection to Marine Stadium. In sum, the Reduced Project Alternative consists of Phase 1 of the proposed project. This alternative would include the proposed LCP and zoning amendments as described in Section 3.0, Project Description, to address the proposed changes at the Lagoon.

The Reduced Project Alternative would not result in a conversion of 2.02 ac of parkland from an active recreation use to a passive recreation use (open channel). In addition, other enhancements to the existing recreation uses within Marina Vista Park, such as development of the walking trail and new redesigned restrooms, would not occur. Under the Reduced Project Alternative, the short-term adverse effects to recreation within Marina Vista Park as a result of construction activity would be avoided in comparison to the proposed project that includes mitigation measures related to construction activities so as to result in less than significant impacts.

Because all proposed project components to the Lagoon area would occur under the Reduced Project Alternative, short-term recreation impacts to the Lagoon area would be the same as those under the proposed project, which is less than significant with mitigation related to construction effects.

Traffic and Circulation. The Reduced Project Alternative does not include an open channel between the Lagoon and Marine Stadium or any other improvements within Marina Vista Park. The Reduced Project Alternative would only implement improvements at the Lagoon and to the existing culvert connection to Marine Stadium. Under this alternative, potential short-term circulation impacts would be less than those under the proposed project because no construction activities would occur within Marina Vista Park, including no construction of bridges on East Colorado and East Eliot Streets. Without construction of the bridges to span the open channel, the duration of project construction is significantly reduced and the rerouting of traffic to allow for bridge construction is avoided. This would reduce the number of daily trips for workers and sediment removal trucks by 34 daily trips, by 4 trips in the a.m. peak-hour, and by 14 trips in the p.m. peak-hour. Therefore, the potential to impact area circulation would be reduced as a result of the Reduced Project Alternative.

5.7.3 Attainment of Project Objectives

The Reduced Project Alternative meets the project objectives, but not to the same extent as the proposed project. The Reduced Project Alternative would treat storm water drainage to minimize contamination of water and sediment in the Lagoon and remove contaminated sediments in the western arm of the Lagoon. However, under the Reduced Project Alternative, the Lagoon's circulation and tidal connection to Marine Stadium would not be substantially increased, which would inhibit the maximum tidal flows and therefore restrict the improvement of estuarine habitats at the Lagoon. Similarly, under the Reduced Project Alternative, the goals, objectives, and policies contained in the City's Open Space and Recreation Element, the Department of Parks, Recreation, and Marine's Departmental Strategic Plan, and the Long Beach Strategic Plan 2010 would be furthered, but not to the same degree that would occur under the proposed project. For example, many of the goals, objectives, and policies are to preserve and enhance the natural habitat. The Reduced Project Alternative would help to preserve and enhance the natural habitat, but not to the same extent as the proposed project.

5.7.4 Conclusion

The Reduced Project Alternative meets the project objectives, but not to the same extent as the proposed project. The recreation goals, objectives, and policies contained in the City's Open Space and Recreation Element, the Department of Parks, Recreation, and Marine's Departmental Strategic Plan, and the Long Beach Strategic Plan 2010 would be furthered, but not to the degree that would occur under the proposed project.

The Reduced Project Alternative does not include an open channel connection between Marine Stadium and the Lagoon. Therefore, this alternative would not realize the water quality benefits associated with improved tidal exchange and flushing, and the short-term impacts of an open channel also would not occur (including the air quality and noise effects associated with construction of a channel and bridges). There would be no long-term impacts to recreation uses at Marina Vista Park with this alternative. Short-term impacts and long-term effects at the Lagoon, including biological resource benefits, would be comparable to those with the proposed project.

The Reduced Project Alternative would result in significant and unavoidable impacts related to construction-related air quality and noise impacts. However, these significant unavoidable effects would be reduced compared to those of the proposed project because there would be no Phase 2 construction activity. A reduction in effects related to cultural resources, geology and soils, hazards, public services, recreation, and traffic would occur because improvements in Marina Vista Park would not be implemented. Conversely, without the Marina Vista Park improvements, the water quality and biological benefits of the project are reduced in comparison to the proposed project.

5.8 ALTERNATIVE 3: RECREATION ALTERNATIVE (NO OPEN CHANNEL/DEVELOP A PARALLEL CULVERT)

5.8.1 Description

The Recreation Alternative does not include an open channel between the Lagoon and Marine Stadium. The existing culvert connecting the Lagoon and Marine Stadium would be cleaned, and the tidal gates, sills, and other impedances would be removed. A second culvert would be developed parallel to the existing culvert in the long term. The parallel culvert would be the same size as the existing culvert. These improvements would result in an increase in the tidal range and tidal flushing over existing conditions, thereby providing increased water circulation and an improvement in water quality. Because an open channel would not be developed, the Recreation Alternative would not reconfigure the baseball and overlay soccer fields or develop a walking trail and vegetation buffers within Marina Vista Park. In addition, this alternative would only require replacement of one restroom near Marine Stadium.

The Recreation Alternative includes all components at the Lagoon area, except that this alternative would retain the existing north shore restroom building, parking lot, and access road. The Recreation Alternative would not include development of Bird Island. The Recreation Alternative would also include the proposed LCP and zoning amendments as described in Section 3.0, Project Description.

5.8.2 Environmental Analysis

Aesthetics. The Recreation Alternative (No Open Channel/Develop a Parallel Culvert) would develop a new culvert that would be parallel to the existing culvert through Marina Vista Park. The Recreation Alternative would not develop an open channel between the Lagoon and Marine Stadium, and the north parking lot, access road, and restroom on the north shore of the Lagoon would remain. Under the Recreation Alternative, potential impacts related to aesthetic resources would be similar to those under the proposed project. However, the north shore would not be returned to a fully natural environment as the hardscape (access road, parking lot, and restroom building) would remain on site. In addition, Bird Island would not be developed. Therefore, under the Recreation Alternative, the north shore of the Lagoon would be similar to existing conditions. However, the other components of this alternative at the Lagoon, including removal of some of the existing drain outlet structures, would result in a positive change to the aesthetic environment. Within Marina Vista Park, implementation of the parallel culvert would not result in a long-term change to existing visual conditions, with the exception of the addition of a second culvert opening at both the Lagoon and Marine Stadium. However, given the existing structure, the implementation of the second structure would not result in a significant change from existing conditions and is consistent with the surrounding environment. The Recreation Alternative would result in less than significant impacts to aesthetic resources, as does the proposed project.

Air Quality. The Recreation Alternative (No Open Channel/Develop a Parallel Culvert) would result in construction operations similar to the proposed project alternative. The Recreation Alternative would reduce the duration of the project construction emissions because the bridge structures would not need to be built. However, the peak construction emissions are generated during Phase 1 of the proposed project's construction operations. Therefore, implementation of this alternative is expected to result in significant construction emission impacts, which is the same as the proposed project. However, overall emissions and the duration of emissions being generated by construction would be reduced compared to the proposed project because bridge building associated with Phase 2 of the proposed project would not be implemented. As with the proposed project, this alternative would not result in any significant long-term operational impacts.

Biological Resources. The Recreation Alternative (No Open Channel/Develop a Parallel Culvert) includes the construction of a new culvert parallel to the existing culvert through Marina Vista Park, which would increase the tidal range and flushing of Lagoon water and would contribute to the overall improvement of habitat for biological resources in the Lagoon. The parallel culvert design would increase water exchange with Marine Stadium, but not as effectively as the open channel design (discussed below in Water Quality). The Recreation Alternative would result in the same level of impacts to biological resources within the Lagoon and Marina Vista Park as the proposed project. Impacts to the park and ornamental vegetation community within Marina Vista Park would occur from the installation of the parallel culvert, which would be similar to impacts expected from construction of the open channel. The Recreation Alternative would result in a reduction of the removal of ornamental trees and vegetation in comparison to the open channel component of the proposed project due to the smaller width of the parallel culvert. However, the Recreation Alternative would not create the wildlife movement corridor and vegetated connection with contiguous native habitat that the open channel design would provide. Bird Island would not be developed as part of the Recreation Alternative, which would reduce impacts to the existing mudflat and coastal salt marsh as

proposed in the project design. Bird Island would provide useful roosting habitat for aquatic and shore birds that utilize the Lagoon, including the federally endangered brown pelican (*Pelecanus occidentalis*), but the roosting area would not be provided under the Recreation Alternative. Additionally, continued existence of the north parking lot and access road would limit options for water quality best management practices (BMP) and habitat restoration along the north shore of the Lagoon. Therefore, impacts to biological resources will remain essentially the same with the Recreation Alternative as they would with the proposed project, which is less than significant with the incorporation of mitigation measures. The Recreation Alternative limits the beneficial improvements to biological resources; therefore, this alternative is not environmentally superior for biological resources.

Cultural and Paleontological Resources. The Recreation Alternative (No Open Channel/Develop a Parallel Culvert) would develop a new culvert that would be parallel to the existing culvert through Marina Vista Park. The Recreation Alternative would not develop an open channel between the Lagoon and Marine Stadium. Under the Recreation Alternative, potential cultural resource impacts would be slightly less than those under the proposed project because construction activities within Marina Vista Park would be more limited than those under the proposed project. Therefore, the potential impact area for cultural resources would be reduced as a result of this alternative. However, cultural resources are not expected to be encountered at either the Lagoon or Marina Vista Park, and the Recreation Alternative would still result in less than significant impacts related to cultural resources, as does the proposed project.

Geology and Soils. The Recreation Alternative (No Open Channel/Develop a Parallel Culvert) would develop a new culvert that would be parallel to the existing culvert through Marina Vista Park. The Recreation Alternative would not develop an open channel between the Lagoon and Marine Stadium. Under the Recreation Alternative, potential impacts related to geology and soils would be similar to those under the proposed project. The proposed parallel culvert would have the same level and types of risks related to potential seismic ground-shaking impacts, liquefaction, lateral spreading, subsidence, and landslides as the proposed open channel. However, the Recreation Alternative would not provide any seismic upgrades that would occur from redevelopment of one of the existing restrooms. Redevelopment of the restrooms that would occur under the proposed project would be in accordance with the most current Uniform Building Code and the recommended seismic design parameters of the Structural Engineers Association of California, which would provide additional seismic protection in comparison to existing conditions. The Recreation Alternative would result in less than significant impacts related to geology and soils, as does the proposed project.

Hazards and Hazardous Materials. The Recreation Alternative (No Open Channel/Develop a Parallel Culvert) would develop a new culvert that would be parallel to the existing culvert through Marina Vista Park. The Recreation Alternative would not develop an open channel between the Lagoon and Marine Stadium and would not demolish the restrooms located within Marina Vista Park and the north shore of the Lagoon. Due to the age of the structures, demolition of the restroom located in Marine Stadium may result in an exposure to potential LBPs and PCBs in existing building materials. Therefore, potential hazards and hazardous waste effects under the Recreation Alternative would be slightly less than the proposed project because the reduced project would require the

demolition of only one restroom instead of three. The Recreation Alternative would result in less than significant impacts with mitigation incorporated related to hazards and hazardous wastes, as does the proposed project.

Hydrology and Water Quality. The Recreation Alternative (No Open Channel/Develop a Parallel Culvert) would develop a new culvert that would be parallel to the existing culvert through Marina Vista Park. The Recreation Alternative would not develop an open channel between the Lagoon and Marine Stadium. Under this alternative, potential impacts related to hydrology and water quality would be similar to those under the proposed project. However, the Recreation Alternative may result in slightly less improvements to water quality at the Lagoon than the proposed project.

Creating a second parallel culvert would increase the tide range and tidal prism of the Lagoon, which in turn would enable more rapid tidal flushing and more frequent turnover of Lagoon water than under existing conditions. The average tidal spring would increase by 66 percent, to 7.3 ft from 4.4 ft for existing conditions, compared to nearly 8.2 ft at Marine Stadium. In addition, the tidal prism for the parallel culvert increases to 105 af from 64 af, for an increase of nearly 65 percent. As a result of the parallel culvert, the seawater residence time in the Lagoon would be shortened to 7.8 days, compared to 8.5 days for existing conditions. However, the residence time would still be more than the Marine Stadium residence time of 6.9 days for open ocean conditions. Tidal range information for existing conditions compared to the parallel culvert is summarized in Table 5.B and shown on Figure 5.2.

Table 5.B: Comparison of Hydrologic/Hydraulic Conditions for Alternative 3

	Existing Conditions	Open Channel (with no culvert) Proposed Project	Parallel Culvert Alternative 3
Spring Tidal Range (feet)	4.4	8.2	7.3
Spring Tidal Prism (acre-feet)	64	114	105
Residence Time from Ocean (days)	8.5	7.3	7.8

Source: Tidal Hydraulics Study for Colorado Lagoon Restoration Project EIR, Moffatt & Nichol, April 14, 2008.

Creating an open channel would increase the tide range and the tidal prism within the Lagoon. An increase in the tide range together with an increase in tidal prism would cause more rapid tidal flushing and more frequent turnover of Lagoon water. The average tidal spring range would increase by 86 percent, to 8.2 ft from 4.4 ft for existing conditions, which is the same as Marine Stadium and for the open ocean conditions. In addition, the tidal prism for the proposed channel increases to 114 af from 64 af, for an increase of nearly 78 percent. Tidal range information for existing conditions compared to the cleaned culvert and proposed open channel is shown on Figure 5.2.

Table 5.B details the difference between existing conditions and those expected after implementation of the parallel culvert and proposed open channel. Creating a parallel culvert would increase the tidal range and tidal prism, but only 75 percent and 83 percent, respectively, of what the proposed open channel would create. Therefore, the open channel would be more effective at transferring water between the Lagoon and Marine Stadium than the parallel culvert. Therefore, impacts to water quality

under the Recreation Alternative would result in slightly fewer improvements to water quality than the proposed project.

The Recreation Alternative includes all components at the Lagoon area, except that this alternative would retain the existing north shore restroom building, parking lot, and access road, and would not create Bird Island. Retaining the existing north shore restroom building, parking lot, and access road would preserve 2.26 ac of impervious surface. Under the proposed project, the 2.26 ac would have been removed creating a 100 percent pervious site. As a result of this Recreation Alternative component, cars would continue to access the north shore, contributing potential pollutants from automobiles to the parking lot, which drains directly to the Lagoon. In addition, continued existence of the north parking lot and access road would limit options for water quality treatment control BMPs and habitat restoration along the north shore of the Lagoon. Retaining the parking lot and access road would effectively prohibit the use of vegetated bioswales because there would not be enough space to implement these features without impacting the adjacent golf course. As a result, the four minor storm drains on the north shore would continue to discharge untreated flows directly to the Lagoon. This would result in fewer improvements to water quality. Alternative treatment control BMPs can be considered in lieu of the vegetated bioswales. Other treatment BMPs that would then be practicable under the Recreation Alternative includes the installation of a wet vault under the parking lot. In addition, source control BMPs, such as the replacement of the parking lot and access road with pervious pavement, could be considered. Installation of a wet vault and pervious parking lot would result in similar construction impacts to the proposed project because the use of these alternative BMPs would result in similar amounts of debris as the proposed project would.

The Recreation Alternative (No Open Channel/Develop a Parallel Culvert) would not include the development of Bird Island. Bird Island is anticipated to provide a safe refuge for roosting birds. It is speculative on whether Bird Island would have a negative impact on the bacterial levels in the Lagoon waters. Implementing the Recreation Alternative, which does not include Bird Island, may have more positive impacts on water quality than the proposed project in that bacterial concentrations from implementation of Bird Island would not result in an increase in bacterial levels and beach closings. However, due to the overall habitat improvements throughout the Lagoon, bird species may be more attracted to the Lagoon area than previously. As a result of increased foraging and roosting activities of birds, bacterial levels in the Lagoon waters could potentially increase even without implementation of Bird Island. Therefore, Bird Island may or may not negatively impact the water quality of the Lagoon. As such it is speculation as to whether the Recreation Alternative, in terms of the Bird Island component, would result in more positive impacts to water quality than the proposed project.

The Recreation Alternative would result in fewer construction impacts to water quality at the Lagoon. While the impacts of the proposed project can be reduced to less than significant levels with implementation of several mitigation measures, the Recreation Alternative would not result in the same amount of construction impacts to the Lagoon because construction of the parallel culvert would not require periodic closure of the existing culvert. Construction of the parallel culvert would allow the existing culvert to remain open during construction and would not temporarily degrade water quality in the Lagoon. Therefore, the Recreation Alternative would result in fewer construction impacts to water quality compared to the proposed project.

Overall, impacts to water quality under the Recreation Alternative would result in fewer improvements to water quality at the Lagoon than the proposed project. However, even with consideration of other treatment control BMPs, this alternative would result in less than significant impacts related to hydrology and water quality, as does the proposed project.

Land Use. The Recreation Alternative (No Open Channel/Develop a Parallel Culvert) would develop a new culvert that would be parallel to the existing culvert through Marina Vista Park. The Recreation Alternative would not develop an open channel between the Lagoon and Marine Stadium, nor would it remove the existing north shore restroom, parking lot, and access road. In addition, Bird Island would not be developed. The Recreation Alternative would include the proposed LCP and zoning amendments as described in Section 3.0, Project Description to address changes to conditions at the Lagoon. Land use effects under the Recreation Alternative would be the same as the proposed project, which is less than significant. The planning effects (plan consistency) would be the same as under the proposed project because this alternative would include the same LCP and zoning amendments as the proposed project. Therefore, land use impacts compared to the proposed project are neutral, having no greater or lesser impacts than the proposed project.

Noise. The Recreation Alternative (No Open Channel/Develop a Parallel Culvert) would result in construction operations similar in location, type, and extent to those of the proposed project; however, these impacts are reduced compared to the proposed project because the bridge structures would not be built. Nonetheless, implementation of the Recreation Alternative is expected to result in significant construction noise impacts to existing sensitive receptors due to their distance from construction activities. As with the proposed project, the Recreation Alternative would not result in any significant long-term operational impacts.

Public Services and Utilities. The Recreation Alternative (No Open Channel/Develop a Parallel Culvert) would develop a new culvert that would be parallel to the existing culvert through Marina Vista Park. The Recreation Alternative would not develop an open channel between the Lagoon and Marine Stadium. The Recreation Alternative includes all the project components at the Lagoon area, including the storm water diversion system. However, the Recreation Alternative would retain the existing north parking lot and access road and would not include development of Bird Island.

Impacts related to police, fire, school, library, water, sewer, storm drain, solid waste services, and facilities under the Recreation Alternative would be the same as the proposed project. Calls for police and fire services are not anticipated to substantially increase, and demands for school and library services are not anticipated to increase. In addition, the potential for a slight increase in lifeguard staff related to safety at the open channel is eliminated under this alternative.

Also, under the Recreation Alternative, project components and impacts to water and wastewater services and facilities would be the same as the proposed project (less than significant) because the one remodeled restroom would utilize low-flow facilities, irrigation demands would be managed through a mitigation measure to schedule irrigation times with the LBWD, and adequate capacity exists within the sewer system to accommodate the additional wastewater flows from the diversion system. However, because the one existing restroom in Marina Vista Park would not be remodeled to

utilize low-flow facilities, corresponding benefits in the reduction of potable water demand would not occur. Similarly, storm drain upgrades and effects to solid waste facilities under the Recreation Alternative would be the same as the proposed project. Therefore, impacts related to public services and utilities under the Recreation Alternative would be the same as under the proposed project, which is less than significant after implementation of mitigation measures.

Recreation. The Recreation Alternative (No Open Channel/Develop a Parallel Culvert) would develop a new culvert that would be parallel to the existing culvert through Marina Vista Park. The Recreation Alternative would not develop an open channel between the Lagoon and Marine Stadium. The Recreation Alternative includes all the project components at the Lagoon area, except it would retain the existing north parking lot and access road and would not include Bird Island. This alternative would include the proposed LCP and zoning amendments as described in Section 3.0, Project Description, to address proposed changes to the Lagoon.

The Recreation Alternative would not result in a conversion of 2.02 ac of parkland from an active recreation use to a passive recreation use (open channel). In addition, development of the walking trail within Marina Vista Park and one redesigned restroom would not occur. Under the Recreation Alternative, the short-term adverse effects to recreation within Marina Vista Park as a result of construction activity would be similar to those of the proposed project and would be similarly reduced to a less than significant level with implementation of the same mitigation measures. Because all proposed project components to the Lagoon area would occur under the Recreation Alternative, except that this alternative would retain the existing north shore parking lot and access road and Bird Island would not be created, short-term recreation impacts to the Lagoon area would be similar to those under the proposed project, which is less than significant with mitigation related to construction effects.

The long-term recreation implications of the Recreation Alternative include retention of the north shore restroom, parking lot, and access road, which provide for active uses in comparison to the proposed project's passive recreation uses, plus a walking trail along the north shore of the Lagoon. Similarly, the parallel culvert would provide additional undivided land area for active recreation uses while the proposed project's open channel component would divide the park, provide additional passive park acreage including water and habitat features, and provide a walking trail. Therefore, long-term recreation impacts under the Recreation Alternative compared to the proposed project are neutral, having no greater or lesser impacts than the proposed project.

Traffic and Circulation. The Recreation Alternative (No Open Channel/Develop a Parallel Culvert) would develop a new culvert that would be parallel to the existing culvert through Marina Vista Park. The Recreation Alternative would not develop an open channel between the Lagoon and Marine Stadium and would not require construction of the bridges. In addition, the north shore parking lot, access road, and restroom would be maintained. Under the Recreation Alternative, there would be fewer haul trips than under the proposed project because there is less demolition. However, there would be import truck trips required under the Recreation Alternative to import concrete to develop the parallel culvert. As a result, the Recreation Alternative would result in approximately the same number of daily trips for workers and trucks in comparison to the proposed project. Under the Recreation Alternative, potential short-term circulation impacts would be less than those under the

proposed project because no construction of bridges on East Colorado and East Eliot Streets would occur. However, road closures would occur during culvert construction. Without construction of the bridges to span the open channel, the duration of project construction is reduced. Therefore, short-term impacts related to traffic and circulation under this alternative would be the same as under the proposed project.

5.8.3 Attainment of Project Objectives

The Recreation Alternative (No Open Channel/Develop a Parallel Culvert) meets the project objectives, but not to the same degree as the proposed project. This alternative would treat storm water drainage to minimize contamination of water and sediment in the Lagoon and remove contaminated sediments in the western arm of the Lagoon. However, under the Recreation Alternative, the Lagoon's circulation and tidal connection to Marine Stadium would be increased but to a lesser degree than what would occur under the proposed project, which would provide reduced beneficial improvements to water quality and biological resources at the Lagoon. Likewise, this alternative would retain the existing north shore restroom, parking lot, and access road to East 6th Street, which would reduce the area available for development of native habitats and biological resources. Under this alternative, the goals, objectives, and policies contained in the City's Open Space and Recreation Element, the Department of Parks, Recreation, and Marine's Departmental Strategic Plan, and the Long Beach Strategic Plan 2010 would be furthered, but not to the degree that would occur under the proposed project. For example, many of the goals, objectives, and policies are to preserve and enhance the natural habitat and improve water quality. The Recreation Alternative would help to preserve and enhance the natural habitat and improve water quality, but not to the same extent that the proposed project would enhance the natural habitat and improve water quality.

5.8.4 Conclusion

The Recreation Alternative (No Open Channel/Develop a Parallel Culvert) meets the project objectives, but not to the same degree that would occur under the proposed project. The recreation goals, objectives, and policies contained in the City's Open Space and Recreation Element, the Department of Parks, Recreation, and Marine's Departmental Strategic Plan, and the Long Beach Strategic Plan 2010 would be furthered, but not to the same degree that would occur under the proposed project.

The Recreation Alternative includes a parallel culvert to improve tidal exchange between Marine Stadium and the Lagoon. The parallel culvert would result in water quality improvements compared to existing conditions, but would not realize the same level of benefits as an open channel in either the proposed project configuration or the alternative channel alignment configuration. There would be no long-term impacts to recreation uses at Marina Vista Park with this alternative. Short-term impacts and long-term effects at the Lagoon, including biological resource benefits, would be comparable to those with the proposed project.

The Recreation Alternative would result in similar significant and unavoidable impacts associated with the proposed project with regard to construction-related air quality and noise impacts. Although, the significant unavoidable effects would be reduced somewhat compared to the proposed project because there would be less construction activity due to the reduction of Phase 2 construction

activities (i.e., bridge structures and restroom structure). However, the Recreation Alternative would not result in the same water quality and biological resource improvements in comparison to the proposed project.

5.9 ALTERNATIVE 4: ALTERNATIVE CHANNEL ALIGNMENT

5.9.1 Description

The Alternative Channel Alignment Alternative proposes an alternative open channel alignment from the Lagoon to Marine Stadium through Marina Vista Park. The open channel alignment under this alternative would run through Marina Vista Park, curving eastward toward the center of the park as shown in Figure 5.1. Figure 5.3 depicts both the proposed project open channel alignment and the Alternative Channel Alignment. This open channel alignment would improve tidal flushing and reduce tide level muting, which would provide an improvement in water and habitat quality over existing conditions. The Alternative Channel Alignment Alternative would include development of a walking trail with vegetation buffers along the sides of the channel and replacement of the two restroom facilities located in Marina Vista Park and Marine Stadium. The Alternative Channel Alignment Alternative would continue to provide the same number and type of sports fields within Marina Vista Park.

The Alternative Channel Alignment Alternative would implement all of the components of the proposed project to the Lagoon area and existing culvert. The only change from the proposed project is the proposed alignment of the open channel. The culvert improvement component would clean the existing culvert and remove the tide gates, sills, and other impedances. The improvements at the Lagoon include the following: removal of contaminated sediments within the western arm of the Lagoon; removal of sediments within the central Lagoon; recontouring of the Lagoon side slopes; installation of storm drain upgrades and bioswales; removal of the north shore restroom, parking lot, and access road; implementation of habitat and recreational improvements; and operational components as described in the project description. Removal of the entire existing culvert would not be required under this Alternative. This Alternative would require reconstruction at each end of the culvert where the new channel would be constructed. Tidal exchange via the existing culvert could occur during most of the channel construction under this Alternative. With the improved tidal connection during construction compared to the proposed project, it is expected that the short-term effect to water quality in the Lagoon would be minimized and that the Lagoon would not need to be closed for swimming during the channel construction. Operationally, the Alternative Channel Alignment Alternative would not affect the existing baseball and youth overlay soccer fields at Marian Vista Park. The improved tidal exchange achieved with implementation of the Alternative Channel Alignment results in long-term water quality improvements (expressed as improved water residence time); however, the benefit would not be as great as that achieved with the proposed project. This Alternative would also include the proposed LCP and zoning amendments as described in Section 3.0, Project Description.

5.9.2 Environmental Analysis

Aesthetics. The Alternative Channel Alignment Alternative would implement all the components of the proposed project, except that the open channel alignment through Marina Vista Park would curve toward the center of the park, as shown in Figure 5.1. Under the Alternative Channel Alignment

LSA

Project Boundary
100' wide Channel - Proposed Project
100' wide Channel - Alternative

0 50 100 Feet

100 foot wide channels
3:1 slope ratio
16.5 foot deep channels
Trail on one side

FIGURE 5.3

Colorado Lagoon Restoration Project
Proposed and Alternative Channel Alignments

SOURCE: Air Photo USA (2006).

I:\CLB0702\GIS\channel_alignments_Fig5.3.mxd (5/21/2008)

Alternative, potential aesthetic resource impacts would be the same as those under the proposed project because the same level and type of construction/excavation activities would occur within the project area. The Alternative Channel Alignment Alternative would not reduce or increase the potential impacts to aesthetic resources. Therefore, the Alternative Channel Alignment Alternative would result in impacts related to aesthetic resources that are the same as the proposed project, which is less than significant after incorporation of the same mitigation measures.

Air Quality. The Alternative Channel Alignment Alternative would result in construction operations similar to the proposed project alternative. Therefore, implementation of the Alternative Channel Alignment Alternative is expected to result in similar unavoidable significant construction emission impacts. As with the proposed project alternative, this alternative would not result in any significant long-term operational impacts.

Biological Resources. The Alternative Channel Alignment Alternative would implement all the components of the proposed project, except that the open channel alignment through Marina Vista Park would curve toward the center of the park. Impacts to biological resources under this alternative will remain the same as the impacts under the proposed project because the same type of construction activities would be conducted. Also, the design of the open channel would provide the same level of benefits to biological resources as the proposed project. The difference in alignment would not affect the way wildlife uses of the area for movement or change the amount of impacts to vegetation communities. The number and types of trees removed by the Alternative Channel Alignment Alternative are equivalent to the number and types of trees removed by the proposed open channel alignment. This alignment alternative would still impact the same amount of parks and ornamental vegetation. Impacts to biological resources would be less than significant with incorporated mitigation measures, which is the same as the proposed project. Therefore, the Alternative Channel Alignment Alternative is essentially equivalent to the proposed project with respect to biological resources benefits and impacts.

Cultural and Paleontological Resources. The Alternative Channel Alignment Alternative would implement all the components of the proposed project, except that the open channel alignment through Marina Vista Park would curve toward the center of the park. Under the Alternative Channel Alignment Alternative, potential cultural resource impacts would be the same as those under the proposed project because the same level and type of construction/excavation activities would occur within the project area. The alternative alignment would not reduce or increase the potential existence of undiscovered resources. Therefore, the Alternative Channel Alignment Alternative would result in impacts related to cultural resources that are the same as the proposed project, which is less than significant after incorporation of the same mitigation measures.

Geology and Soils. The Alternative Channel Alignment Alternative would implement all the components of the proposed project, except that the open channel alignment through Marina Vista Park would curve toward the center of the park. Under the Alternative Channel Alignment Alternative, potential impacts related to geology and soils would be the same as those under the proposed project because the same level and type of construction activities would occur within the

project area. The Alternative Channel Alignment Alternative would not reduce or increase the potential risks related to potential seismic ground-shaking impacts, liquefaction, lateral spreading, subsidence, and landslides than the proposed open channel. Therefore, the Alternative Channel Alignment Alternative would result in impacts related to geology and soils that are the same as the proposed project, which is less than significant after incorporation of the same mitigation measures.

Hazards and Hazardous Materials. The Alternative Channel Alignment Alternative would implement all the components of the proposed project, except that the open channel alignment through Marina Vista Park would curve toward the center of the park. Hazards and hazardous waste effects under the Alternative Channel Alignment Alternative would be the same as the proposed project, which is less than significant with mitigation incorporated. Therefore, hazards and hazardous waste impacts compared to the proposed project are neutral, having no greater or lesser impacts than the proposed project.

Hydrology and Water Quality. The Alternative Channel Alignment Alternative would implement all the components of the proposed project, except that the open channel alignment through Marina Vista Park would curve toward the center of the park. Under the Alternative Channel Alignment Alternative, potential hydrology and water impacts would be the same as those under the proposed project because construction activities would generally be the same. The Alternative Channel Alignment Alternative would result in the same improvements to water quality at the Lagoon as the proposed project.

An open channel connection between the Lagoon and Marine Stadium is more effective at transferring water between the Lagoon and Marine Stadium than the existing culvert and a cleaned culvert. Creating an open channel will increase the tide range and the tidal prism at the Lagoon. Increasing the tide range together with an increase in tidal prism will cause more rapid tidal flushing and more frequent turnover of Lagoon water. The average tidal spring range will increase by 86 percent, to 8.2 ft from 4.4 ft for existing conditions, which is the same as Marine Stadium and open ocean conditions. In addition, the tidal prism for the proposed channel increases to 114 af from 64 af, for an increase of nearly 78 percent. Tidal range information for existing conditions compared to the cleaned culvert and proposed open channel is shown on Figure 5.2.

A curved open channel connection between the Lagoon and Marine Stadium would be almost as effective at transferring water between the Lagoon and Marine Stadium as the proposed project. The average tidal spring range would increase by 86 percent, to 8.2 ft from 4.4 ft for existing conditions, which is the same as the proposed project. The tidal prism for the curved channel increases to 114 af from 64 af, which is the same as the proposed project. Tidal range information for existing conditions compared to the cleaned culvert and proposed open channel is shown on Figure 5.2.

Table 5.C details the difference between the proposed open channel and the curved open channel. The curved open channel would result in the same increase to tidal range and tidal prism as the proposed project would create. Therefore, the curved open channel and proposed project would be equally effective at transferring water between the Lagoon and Marine Stadium. However, the difference for the curved channel versus the proposed channel is the residence time of the Lagoon water. The

Table 5.C: Comparison of Hydrologic/Hydraulic Conditions for Alternative 4

	Existing Conditions	Open Channel Proposed Project	Curved Open Channel Alternative 4
Spring Tidal Range (feet)	4.4	8.2	8.2
Spring Tidal Prism (acre-feet)	64	114	114
Residence Time from Ocean (days)	8.5	7.3	7.6

Source: Moffatt & Nichol, 2008.

proposed open channel residence time from the open ocean is 7.3 days, while the curved open channel is 7.6 days. They are nearly the same, but the curved open channel takes 0.3 day longer to transfer water from the Lagoon to Marine Stadium.

The Alternative Channel Alignment Alternative would result in slightly fewer construction impacts to water quality at the Lagoon. While the impacts of the proposed project can be reduced to less than significant levels with implementation of several mitigation measures, the Alternative Channel Alignment Alternative would not require the existing culvert to be closed as often as construction of the proposed open channel alignment would require. Because the majority of the alternative channel alignment is outside the existing culvert, the culvert could remain open for much of the construction time of the alternative channel alignment. Therefore, the construction of the alternative channel alignment would allow the existing culvert to remain open during most of construction and would not temporarily degrade water quality in the Lagoon to the same degree as the proposed project. As a result, the Alternative Channel Alignment Alternative would result in fewer construction impacts to water quality compared to the proposed project.

Impacts to water quality under the Alternative Channel Alignment Alternative would result in nearly the same improvements to water quality as the proposed project, but slightly fewer construction impacts. As a result, this alternative would result in less than significant impacts related to hydrology and water quality, as does the proposed project.

Land Use. The Alternative Channel Alignment Alternative would implement all the components of the proposed project, except that the open channel alignment through Marina Vista Park would curve toward the center of the park. The Alternative Channel Alignment Alternative would include the proposed LCP and zoning amendments as described in Section 3.0, Project Description to address changes to conditions at the Lagoon. Land use effects under the Alternative Channel Alignment Alternative would be the same as the proposed project, which is less than significant. The planning effects (plan consistency) would be the same as under the proposed project because this alternative would include the same LCP and zoning amendments as the proposed project. Therefore, land use impacts under the Alternative Channel Alignment Alternative compared to the proposed project are neutral, having no greater or lesser impacts than the proposed project.

Noise. The Alternative Channel Alignment Alternative would result in construction operations similar in location, type, and extent to the proposed project alternative. Therefore, implementation of the Alternative Channel Alignment Alternative is expected to result in similar unavoidable significant

construction noise impacts due to the existing location of sensitive receptors. As with the proposed project, the Alternative Channel Alignment Alternative would not result in any significant long-term operational impacts.

Public Services and Utilities. The Alternative Channel Alignment Alternative would implement all the components of the proposed project, except that the open channel alignment through Marina Vista Park would curve toward the center of the park. The Alternative Channel Alignment Alternative would include the proposed LCP and zoning amendments as described in Section 3.0, Project Description. Impacts related to public services and utilities under the Alternative Channel Alignment Alternative would be the same as the proposed project, which is less than significant.

Recreation. The Alternative Channel Alignment Alternative would implement all the components of the proposed project, except that the open channel alignment through Marina Vista Park would curve toward the center of the park. The Alternative Channel Alignment Alternative would include the proposed LCP and zoning amendments as described in Section 3.0, Project Description, to address the proposed changes to the Lagoon. The Alternative Channel Alignment Alternative would not result in the long-term displacement of uses within Marina Vista Park and would have the same construction effects as the proposed project. Recreation effects related to construction under the Alternative Channel Alignment Alternative would be the same as the proposed project, which is less than significant with mitigation incorporated.

Under the Alternative Channel Alignment Alternative, none of the existing sports fields in Marina Vista Park would need to be reconfigured. Like the proposed project's open channel alignment, the alternative channel alignment would divide the park, provide additional passive park acreage that includes water and habitat features, and provide a walking trail adjacent to the open channel. Therefore, long-term recreation impacts under the Recreation Alternative compared to the proposed project are neutral, having no greater or lesser impacts than the proposed project.

Traffic and Circulation. The Alternative Channel Alignment Alternative would implement all the components of the proposed project, except that the open channel alignment through Marina Vista Park would curve toward the center of the park. Under the Alternative Channel Alignment Alternative, potential circulation impacts would be the same as those under the proposed project because the same level and type of construction/excavation activities would occur within the project area, requiring the same number of daily trips produced by workers and sediment removal trucks. Therefore, the effect of construction traffic with this alternative would be the same as the proposed project.

5.9.3 Attainment of Project Objectives

The Alternative Channel Alignment Alternative meets all of the project objectives to the same extent as the proposed project. The objectives contained in the City's Open Space and Recreation Element, the Department of Parks, Recreation, and Marine's Departmental Strategic Plan, and the Long Beach Strategic Plan 2010 would be furthered in the same manner as the proposed project.

5.9.4 Conclusion

The Alternative Channel Alignment Alternative will meet all of the project objectives. This alternative would implement the same components of the proposed project, except that the open channel alignment within Marina Vista Park would be different. This alternative channel alignment would not have an effect on the attainment of objectives. The recreation objectives contained in the City's Open Space and Recreation Element, the Department of Parks, Recreation, and Marine's Departmental Strategic Plan, and the Long Beach Strategic Plan 2010 would be furthered in the same manner as the proposed project.

The Alternative Channel Alignment Alternative would result in the same significant and unavoidable impacts associated with the proposed project with regard to construction-related air quality and noise impacts. Similarly, this alternative would result in the same type and level of impacts to all other topic areas, including aesthetics, biological resources, cultural resources, geology and soils, hazardous materials, land use, public services, and traffic. However, construction impacts to hydrology and water quality would be less than the proposed project because the Alternative Channel Alignment Alternative would allow the culvert to be open during most of the construction period for the alternative alignment open channel. With the improved tidal connection during construction compared to the proposed project, it is expected that the short-term effect to water quality in the Lagoon would be minimized and that the Lagoon would not need to be closed for swimming during the channel construction. Operationally, the Alternative Channel Alignment Alternative would not affect the existing baseball and youth overlay soccer fields at Marian Vista Park. The improved tidal exchange achieved with implementation of the Alternative Channel Alignment results in long-term water quality improvements (expressed as improved water residence time); however, the benefit would not be as great as that achieved with the proposed project. In addition, under the Alternative Channel Alignment Alternative, none of the existing sports fields in Marina Vista Park would need to be reconfigured, which would result in fewer impacts to recreation resources compared to the proposed project. This alternative would also result in water quality and biological resource improvements that are similar in comparison to those of the proposed project.

5.10 IDENTIFICATION OF ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The No Project/No Development Alternative would be environmentally superior to the proposed project on the basis of the physical impacts that would occur with the No Project/No Development Alternative. If there were no changes to the existing conditions on the site, with the exception of reasonably foreseeable culvert maintenance activities, there would be minimal increases in construction traffic, noise, or air emissions.

The CEQA Guidelines require that if the environmentally superior alternative is the No Project Alternative, "the EIR also identify an environmentally superior alternative among the other alternatives" (CEQA Guidelines Section 15126.6(e)(2)). The Environmentally Superior Alternative, in terms of avoiding, reducing or minimizing direct physical effects on the environment, is the Reduced Project Alternative.

The Reduced Project Alternative does not include an open channel between the Lagoon and Marine Stadium or any other improvements within Marina Vista Park. This alternative would only implement improvements (which are the same as the proposed project) at the Lagoon and to the existing culvert connection to Marine Stadium. The Reduced Project Alternative would eliminate Phase 2 of the construction operations planned for the proposed project, thereby reducing the duration of the construction operations and eliminating the pile driving required for the construction of the open channel and bridges.

The Reduced Project Alternative meets the project objectives, but not to the same extent as the proposed project. The Reduced Project Alternative does not include an open channel connection between Marine Stadium and the Lagoon. Therefore, this alternative would not realize the water quality benefits associated with improved tidal exchange and water circulation, and the associated benefits for recreation activities and biological resources. These benefits would not be realized with the Reduced Project Alternative.

Although the Reduced Project Alternative would reduce the duration of the project construction emissions, it would still result in significant construction-related air quality emission impacts. Also, due to the existing locations of sensitive receptors and type of construction, the Reduced Project Alternative would still result in significant and unavoidable construction noise impacts. Therefore, the Reduced Project Alternative results in reduced significant, unavoidable adverse effects compared to the proposed project. The Reduced Project Alternative would also result in reduced overall construction impacts for traffic, water quality, hazardous materials, and recreation compared with the proposed project because improvements within Marina Vista Park would not occur with this alternative. However, impacts related to these topics would still result in less than significant impacts, as would the proposed project.

Table 5.D provides a comparison of key impacts of the alternatives and Table 5.E provides a comparison of the project alternatives and the significant adverse impacts of the proposed project.

Table 5.D: Comparison of the Environmental Impacts of Project Alternatives to the Proposed Project

Issue Topic	Proposed Project	No Project/ No Development Alternative	Reduced Project Alternative	Recreation Alternative (No Open Channel/Develop a Parallel Culvert)	Alternative Channel Alignment Alternative
Meets Project Objectives	• Meets all project objectives, including: o Reduce and treat storm and dry weather runoff to minimize contamination of water and sediment in the Lagoon. o Improve water quality by increasing the Lagoon's circulation and enhancing its tidal connection with Marine Stadium. o Improve water quality by removing contaminated sediments. o Restore and maintain the estuarine habitats. o Balance flood control, water quality, and the recreation demands of the Lagoon. o Enhance public enjoyment of the Lagoon.	• Would not satisfy any project objectives. • No biological resource or recreation benefits would be realized. • Fewer long-term water quality benefits would be realized.	• Would meet the project objectives, but not to the same extent as the proposed project. • Without the open channel component of the project, water quality and biological/estuarine benefits would be reduced.	• Would meet the project objectives, but not to the same extent as the proposed project. • Benefits to water quality would be better than the Reduced Project Alternative but would not be as beneficial as the proposed project. • Habitat benefits to the Lagoon north shore would not be realized.	• Meets all project objectives, including: o Reduce and treat storm and dry weather runoff to minimize contamination of water and sediment in the Lagoon. o Improve water quality by increasing the Lagoon's circulation and enhancing its tidal connection with Marine Stadium. o Improve water quality by removing contaminated sediments. o Restore and maintain the estuarine habitats. o Balance flood control, water quality, and the recreation demands of the Lagoon. o Enhance public enjoyment of the Lagoon.
Aesthetics	• Less than significant impacts to scenic vistas and the existing visual character or quality of the site and its surroundings. On- and off-site views of the project area would be enhanced.	• No change in aesthetic condition of site or views of the site from off-site vantage points. • No impact would occur.	• On- and off-site views of the Colorado Lagoon (Lagoon) area would be enhanced. However, no change in aesthetic condition of Marina Vista Park or views of the Park from off-site vantage points would occur.	• On- and off-site views of the Lagoon area would be enhanced by native habitat; however, the existing hardscape of the north shore would remain. • No changes to the aesthetic condition of Marina Vista Park or	• Aesthetic effects and benefits would be the same as the proposed project. • Less than significant impact.

Table 5.D: Comparison of the Environmental Impacts of Project Alternatives to the Proposed Project

Issue Topic	Proposed Project	No Project/ No Development Alternative	Reduced Project Alternative	Recreation Alternative (No Open Channel/Develop a Parallel Culvert)	Alternative Channel Alignment Alternative
			• Less than significant impact.	views of the Park from off-site vantage points would occur. • Less than significant impact.	
Air Quality	• Significant unavoidable adverse short-term construction impacts for odors from diesel machinery and decomposing organic dredge materials, and NO_X (a precursor to O_3) from construction equipment emissions. • The project would contribute to adverse cumulative air quality impacts. The South Coast Air Basin is in nonattainment for O_3, and the project, in conjunction with other planned projects, would contribute to the existing nonattainment status. • Operational impacts would be less than significant.	• Minimal air quality emissions generated from culvert activities in comparison to the proposed project. • Construction and operational impacts would be less than significant.	• Construction-related, project-level, and cumulative air quality impacts would be significant and unavoidable. However, the duration of these impacts would be less than the proposed project since there would be no Phase 2 improvements. • Operational impacts would be less than significant.	• Construction-related, project-level, and cumulative air quality impacts would be significant and unavoidable. However, the duration of these impacts would be less than the proposed project since Phase 2 improvements would be shorter in duration than the proposed project Phase 2 improvements. • Operational impacts would be less than significant.	• Construction-related, project-level, and cumulative air quality impacts would be significant and unavoidable, the same as the proposed project. • Operational impacts would be less than significant.
Biological Resources	• Less than significant impact with mitigation to special-interest species and habitats, nesting birds, and trees that may be protected by local	• Biological improvement over existing conditions would occur due to culvert activities. • Improvements to biological resources would	• Less than significant impact to biological resources with incorporated mitigation measures for special-interest species and habitats, nesting	• Less than significant impact to biological resources with incorporated mitigation measures for special-interest species and habitats, nesting	• Less than significant impact to biological resources with incorporated mitigation measures for special-interest species and habitats, nesting

Table 5.D: Comparison of the Environmental Impacts of Project Alternatives to the Proposed Project

Issue Topic	Proposed Project	No Project/ No Development Alternative	Reduced Project Alternative	Recreation Alternative (No Open Channel/Develop a Parallel Culvert)	Alternative Channel Alignment Alternative
	ordinances. • No significant impacts on biological resources after mitigation. • No significant unavoidable adverse impacts.	be much less than those under the proposed project. • No impacts would occur.	birds, and protected trees. • Improvements to biological resources would be less than those under the proposed project.	birds, and protected trees. • Improvements to biological resources would be less than those under the proposed project.	birds, and protected trees. • Improvements to biological resources would be the same as the proposed project.
Cultural Resources	• Less than significant impact with mitigation to unknown archaeological and paleontological resources.	• No effects on existing conditions. • No impact would occur.	• Less than significant impact with mitigation to unknown archaeological and paleontological resources.	• Less than significant impact with mitigation to unknown archaeological and paleontological resources.	• Less than significant impact with mitigation to unknown archaeological and paleontological resources.
Geology and Soils	• Less than significant impact with mitigation related to potential risks of seismic ground-shaking impacts, liquefaction, lateral spreading, subsidence, and landslides.	• No effects on existing conditions.	• Less than significant impact with mitigation related to potential risks of seismic ground-shaking impacts, liquefaction, lateral spreading, subsidence, and landslides.	• Less than significant impact with mitigation related to potential risks of seismic ground-shaking impacts, liquefaction, lateral spreading, subsidence, and landslides.	• Less than significant impact with mitigation related to potential risks of seismic ground-shaking impacts, liquefaction, lateral spreading, subsidence, and landslides.
Hazards and Hazardous Materials	• Less than significant impact with mitigation related to potential release of hazardous materials.	• No change to existing health and safety conditions.	• Less than significant impact with mitigation related to potential release of hazardous materials.	• Less than significant impact with mitigation related to potential release of hazardous materials.	• Less than significant impact with mitigation related to potential release of hazardous materials.
Hydrology and Water Quality	• Less than significant impact with mitigation to water quality (construction).	• Improvement to water quality over existing conditions would occur due to culvert activities. • Construction-related impacts would be less than significant with mitigation incorporated. • Long-term improvements to water quality would be	• Construction-related impacts would be less than significant with mitigation incorporated. • Long-term improvements to water quality would be much less than those under the proposed project.	• Construction-related impacts would be less than significant with mitigation incorporated. • Long-term improvements to water quality would be less than those under the proposed project.	• Construction-related impacts would be less than significant with mitigation incorporated. • Long-term improvements to water quality would be very similar to the proposed project.

Table 5.D: Comparison of the Environmental Impacts of Project Alternatives to the Proposed Project

Issue Topic	Proposed Project	No Project/ No Development Alternative	Reduced Project Alternative	Recreation Alternative (No Open Channel/Develop a Parallel Culvert)	Alternative Channel Alignment Alternative
		much less than those under the proposed project.			
Land Use	• Less than significant impacts to both planning and land use effects.	• No change to existing condition of site. • LCP and zoning amendments would not occur.	• Less than significant impacts to both planning and land use effects.	• Less than significant impacts to both planning and land use effects.	• Less than significant impacts to both planning and land use effects.
Noise	• Construction-related noise impacts would be significant and unavoidable during Phase 1 and Phase 2 due to the proximity of existing sensitive receptors. • Operational impacts would be less than significant.	• Minimal noise generated from culvert activities in comparison to the proposed project. • Less than significant impact.	• Construction-related noise impacts would be significant and unavoidable for Phase I improvement only since no Phase 2 would occur. • Operational impacts would be less than significant.	• Construction-related noise impacts would be significant and unavoidable; however, impacts would be slightly less than the proposed project since Phase 2 construction activities would be reduced compared to the proposed project. • Operational impacts would be less than significant.	• Construction-related noise impacts would be significant and unavoidable. • Operational impacts would be less than significant.
Public Services and Utilities	• Less than significant impact after mitigation to irrigation water and solid waste. • Less than significant impact to police and fire protection services. • Less than significant impact to sanitary sewer and storm water drainage. • No significant impacts to schools and libraries.	• No change to public services or utilities.	• Less than significant impact after mitigation to irrigation water and solid waste. • Less than significant impact to police and fire protection services. • Less than significant impact to sanitary sewer and storm water drainage. • No significant impacts to schools and libraries.	• Less than significant impact after mitigation to irrigation water and solid waste. • Less than significant impact to police and fire protection services. • Less than significant impact to sanitary sewer and storm water drainage. • No significant impacts to schools and libraries.	• Less than significant impact after mitigation to irrigation water and solid waste. • Less than significant impact to police and fire protection services. • Less than significant impact to sanitary sewer and storm water drainage. • No significant impacts to schools and libraries.

Table 5.D: Comparison of the Environmental Impacts of Project Alternatives to the Proposed Project

Issue Topic	Proposed Project	No Project/ No Development Alternative	Reduced Project Alternative	Recreation Alternative (No Open Channel/Develop a Parallel Culvert)	Alternative Channel Alignment Alternative
Recreation	• Recreation-related impacts would be less than significant with incorporation of construction-related mitigation measures.	• No change to existing condition of site. • Construction effects would be limited to the short-term culvert cleaning activities and would be less than significant.	• Recreation-related impacts at the Lagoon would be less than significant with incorporation of construction-related mitigation measures. • Improvements within Marina Vista Park would not occur. Hence, recreation-related construction impacts in Marina Vista Park would not occur.	• Recreation-related impacts would be less than significant with incorporation of construction-related mitigation measures. • This alternative does not include an open channel and would not require reconfiguration of any sports fields within Marina Vista Park. • This alternative would retain the existing restroom building in Marina Vista Park.	• Recreation-related impacts would be less than significant with incorporation of construction-related mitigation measures. • This alternative would not require reconfiguration of any sports fields within Marina Vista Park.
Traffic and Circulation	• A "typical" construction day is expected to generate 90 passenger car equivalent (PCE) daily trips in Phase 1 and 104 PCE in Phase 2, with a maximum of 32 PCE in the a.m. peak hour and 28 in the p.m. peak hour during Phase 2. • Construction of the open channel and two bridges would require consecutive closures of East Eliot and East Colorado Streets in the project vicinity for approximately 6 months. During closure, one road	• Minimal construction traffic would be generated from culvert cleaning activities in comparison to the proposed project. • Less than significant construction impact. • No change to existing parking facilities. • Road closures for bridge development would not occur. • Operational impacts would be less than significant.	• A reduced number of daily trips would be generated in comparison to the proposed project. The reduction of trips by workers would total 34 daily trips, including 4 trips in the a.m. peak hour and 14 trips in the p.m. peak hour. • Road closures for bridge development would not occur. • Operational impacts would be less than significant. • Construction impacts would be less than	• This alternative would result in approximately the same number of daily construction trips for workers and trucks in comparison to the proposed project. • Construction impacts would be less than significant with mitigation. • This alternative would retain the existing north shore parking lot (and restroom building in Marina Vista Park). • Road closures for culvert development would	• This alternative would result in the same number of daily construction trips for workers and trucks as the proposed project. • Construction impacts would be less than significant with mitigation. • Road closures for bridge development would occur. • Operational impacts would be less than significant. •

Table 5.D: Comparison of the Environmental Impacts of Project Alternatives to the Proposed Project

Issue Topic	Proposed Project	No Project/ No Development Alternative	Reduced Project Alternative	Recreation Alternative (No Open Channel/Develop a Parallel Culvert)	Alternative Channel Alignment Alternative
	would serve as a detour route for the other. • Construction impacts would be less than significant with mitigation. • Operational impacts would be less than significant.		significant with mitigation.	occur. • Operational impacts would be less than significant.	

NO_X = nitrogen oxides
O_3 = ozone

Table 5.E: Summary of Alternatives/Significant Impacts

Topic	Significant Effect/Project	No Project/No Development Alternative	Reduced Project Alternative	Recreation Alternative (No Open Channel/ Develop a Parallel Culvert)	Alternative Channel Alignment Alternative
Air Quality: Project-level and cumulative construction-related impacts	• Significant unavoidable adverse short-term construction impacts for NO_X (a precursor to O_3) because NO_X emissions would exceed the SCAQMD daily emissions threshold. • Construction activities would not exceed SCAQMD's localized significance thresholds (LSTs), and significant adverse air quality impacts related to LSTs would not occur. • Diesel construction equipment would emit odors. These odors would be limited to the time construction equipment is operating during the construction period for the project. • Operation of diesel-powered construction equipment would emit odors that, given the duration of construction activity and the proximity of the sensitive receptors, would be considered significant after mitigation. • Materials from culvert cleaning activities and dredged sediment will contain organic materials. The decomposition of organic matter when exposed to air may generate unpleasant odors at the adjacent and nearby sensitive land uses. 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 after mitigation.	• Minimal air quality emissions generated from culvert cleaning in comparison to the proposed project. • Construction impacts would be less than significant.	• Construction air quality emissions would be less then the proposed project because improvements in Marina Vista Park would not occur (Phase 2). However, impact levels related to air quality would be comparable to Phase 1 of the proposed project. • Construction-related, project-level, and cumulative air quality impacts would be significant and unavoidable.	• Construction air quality effects would be similar to the proposed project because the peak construction emissions are generated in Phase 1 of the proposed project construction. However, the duration of impacts would be less than the proposed project since bridge construction would not occur. • Construction-related, project-level, and cumulative air quality impacts would be significant and unavoidable.	• Construction air quality effects would be comparable to proposed project. • Construction-related, project-level, and cumulative air quality impacts would be significant and unavoidable.

Table 5.E: Summary of Alternatives/Significant Impacts

Topic	Significant Effect/Project	No Project/No Development Alternative	Reduced Project Alternative	Recreation Alternative (No Open Channel/ Develop a Parallel Culvert)	Alternative Channel Alignment Alternative
	• The project would contribute to adverse cumulative air quality impacts. The South Coast Air Basin is in nonattainment for O_3, and the project, in conjunction with other planned projects, would contribute to the existing nonattainment status.	•	•	•	•
Noise: Construction-related effects	• Significant and unavoidable short-term construction noise impacts due to the extent and type of construction activities and the location of existing sensitive receptors. • Construction activities would still generate noise levels in excess of the City of Long Beach daytime exterior noise standard of 70 dBA L_{max}.	• Minimal construction noise would be generated from culvert activities in comparison to the proposed project. • Construction noise impacts would be less than significant.	• The extent and duration of construction noise would be less then the proposed project because improvements in Marina Vista Park would not occur (Phase 2). However, impact levels related to noise would be comparable to Phase 1 of the proposed project. • There would be significant and unavoidable short-term construction noise impacts due to the extent and type of construction activities and the location of existing sensitive receptors.	• Construction noise effects would be similar to the proposed project. However, the duration of impacts would be less than the proposed project since bridge construction would not occur. • Significant and unavoidable short-term construction noise impacts due to the extent and type of construction activities and the location of existing sensitive receptors.	• Construction noise effects would be comparable to proposed project. • Significant and unavoidable short-term construction noise impacts due to the extent and type of construction activities and the location of existing sensitive receptors.

dBA = A-weighted decibels L_{max} = maximum noise level NO_X = nitrogen oxides O_3 = ozone SCAQMD = South Coast Air Quality Management District

6.0 LONG-TERM IMPLICATIONS OF THE PROJECT

6.1 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

The Guidelines for the California Environmental Quality Act (CEQA), Section 15126.2 (c), require that an Environmental Impact Report (EIR) consider and discuss significant irreversible changes that would be caused by implementation of the proposed project to ensure that such changes are justified. The CEQA Guidelines specify that the use of nonrenewable resources during the initial and continued phases of the project should be discussed because a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary and secondary impacts (such as a highway improvement that provides access to a previously inaccessible area) should also be discussed because such changes generally commit future generations to similar uses. Irreversible damage can also result from environmental accidents associated with the project and should be discussed.

The Colorado Lagoon (Lagoon) is an approximately 11.7-acre (ac) tidal water body 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 deteriorated ecological health of the Lagoon has been established for the past several decades. 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.

The first phase of the proposed project includes improvements to the Lagoon though cleaning of the culvert and removal of structural impedances at the culvert (a near-term project component); dredging areas of the Lagoon; implementing storm drain upgrades; removal of the north parking lot, access road, and restroom on the north shore of the Lagoon; recontouring side slopes; developing a bird island; revegetating land areas; planting eelgrass in the Lagoon water body; and developing the walking trail and viewing platform at the Lagoon.

The second phase of the proposed project includes improvements to Marina Vista Park, including the long-term project component of building an open channel between the Lagoon and Marine Stadium, constructing two roadway bridges spanning the open channel at East Colorado Street and East Eliot Street, demolishing and replacing two public restrooms in Marina Vista Park, reconfiguring the baseball and youth overlay soccer fields, and developing a walking trail on the eastern side of the open channel and vegetation buffers on both sides of the channel.

Once restored, the Lagoon will have improved water and sediment quality, which would enhance recreational opportunities at the Lagoon, potentially lead to a more diverse invertebrate and fish community, and increase the potential for the Lagoon to support a variety of plant and animal species. Additionally, the Lagoon Restoration Project would provide a walking trail that extends through areas that currently provide no public access.

Construction of the project will result in a commitment of limited, slowly renewable, and nonrenewable resources for restoration purposes. Such resources may include certain types of lumber

and other forest products; raw materials such as steel; aggregate materials used in concrete and asphalt such as sand and stone; water; petrochemical construction materials such as plastic; and petroleum-based construction materials. In addition, fossil fuels used by construction equipment will also be consumed. Although project construction will result in a commitment of public maintenance services such as wastewater services and solid waste disposal, these resources associated with maintenance are already committed to the existing public recreational facilitates at the project site.

Similarly, operation of the proposed project will result in the commitment of limited, nonrenewable resources and slowly renewable resources such as electricity, petroleum-based fuels, fossil fuels, and water. Electricity will be used for lighting associated with restroom buildings. However, the restroom facilities are not being expanded; rather, they are being replaced with updated facilities that do not increase the capacity. In addition, because any change in park attendance and patterns of use is expected to be negligible as a result of project implementation, no increase in demand for resources is anticipated when compared to existing conditions. The project will not result in a significant impact related to the provision of electricity. In addition, Title 24 of the California Code of Regulations requires conservation practices that will limit the amount of energy consumed by the proposed project. Compliance with Title 24 is mandated by the State. Although electrical use will not increase, the use of the resource will continue to represent the existing long-term commitment of this essentially nonrenewable resource.

Operation of the proposed project also requires potable water for the restroom facilities. However, due to the use of low-flow facilities and the reduction from three restrooms to two, the restroom component of the project would result in a small reduction of potable water use compared to existing conditions. The potable water use will not increase, but will continue to represent the existing long-term commitment of this essentially nonrenewable resource.

The on-site drainage pattern in the developed condition would not change from existing conditions, but the rate or amount of dry weather surface runoff discharging into the Lagoon would be less than existing conditions due to the dry weather runoff diversion to the sanitary sewer. Mitigation measures are required to ensure that pollutants of concern will be controlled through implementation of structural and nonstructural best management practices (BMPs), that temporary water quality impacts associated with the culvert cleaning are addressed, and that the dispersion of sediments during construction activities is controlled.

The visual change from the existing condition to the project condition will convert portions of the project area from landscaped areas characterized by turf and other nonnative species, palms, and ornamental trees to native habitat characterized by low-growing plants. In addition, implementation of the project would result in the removal of approximately 100 nonnative trees. However, while the existing trees provide an aesthetically appealing environment, the overall health of the project area is degraded, and removal of the trees would result in an improved healthy habitat and a native environment that is much richer biologically. In addition, mitigation measures have been included to reduce impacts related to the loss of trees to a less than significant level.

Implementation of the project includes construction of two bridges at street grade across the open channel. 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 bridges are integral to the implementation of the open channel, and while they are new physical and visual features, they will be

at grade and would not notably obstruct existing views or degrade the existing visual character of the project area.

The change from removing the underground box culvert that currently connects the Lagoon to Marine Stadium and replacing it with an open channel is a substantial change compared to existing conditions. While it will be a new physical and visual feature, it will not notably obstruct existing views or degrade the existing visual character of the project area.

As discussed in Section 4.2, Air Quality, the proposed project would not result in any long-term on-site stationary sources and would cause little to no change in the off-site vehicle trips. Therefore, the proposed project would not generate any additional long-term greenhouse gas (GHG) emissions.

The commitment of limited, slowly renewable, and nonrenewable resources required for the construction of the proposed project will limit the availability of these resources for future generations or for other uses during the life of the project. However, the uses associated with operation of the project represent a continued, not increased, use of these resources. No other significant irreversible changes are expected to occur as a result of project implementation.

6.2 GROWTH-INDUCING IMPACTS

Section 15126 (d) of the State CEQA Guidelines requires that an EIR analyze growth-inducing impacts. Further, the CEQA Guidelines state that an EIR should discuss the ways in which the project could foster economic or population growth or construction of additional housing, either directly or indirectly, in the surrounding environment. Impacts associated with the removal of obstacles to growth, as well as the development of facilities that encourage and facilitate growth, are considered to be growth inducing. However, the CEQA Guidelines also state that it should not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

The existing uses on the project site are a combination of passive and active recreation uses; the proposed project would implement improvements to these existing uses on the project site. In addition, the proposed project includes water quality and habitat restoration to the project area. The proposed project site is currently served by all utilities and public services required for the existing and proposed uses, and no expansion or increase in these services is required for the operation of the project. The project will not remove obstacles to growth in a previously undeveloped area because the recreational and open space land uses will not change.

The potential for the project to generate additional growth in the City is unlikely because the proposed project is the restoration of the existing Lagoon facilities and is intended to continue to serve existing residents of the City. The project does not result in the creation of new jobs and would therefore not create a need for any additional housing. Based on these considerations, the proposed project would not induce population growth in the community or result in economic growth.