4.9 NOISE

INTRODUCTION

This section evaluates the potential for short-term noise impacts and mitigation measures for the proposed project. This analysis is intended to satisfy the City's requirement for a project-specific noise impact analysis by examining the short-term construction impacts on site and by evaluating the effectiveness of proposed mitigation measures. The potential noise impacts of the proposed project are discussed in detail in the Noise Impact Analysis (Appendix H) and are summarized in this section.

4.9.1 EXISTING ENVIRONMENTAL SETTING

Fundamentals of Noise

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

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

Measurement of Sound. Sound intensity is measured through the A-weighted scale to correct for the relative frequency response of the human ear. That is, an A-weighted noise level de-emphasizes low and very high frequencies of sound similar to the human ear's de-emphasis of these frequencies. Unlike linear units, such as inches or pounds, decibels are measured on a logarithmic scale representing points on a sharply rising curve.

For example, 10 dB are 10 times more intense than 1 dB, 20 dB are 100 times more intense, and 30 dB are 1,000 times more intense. Thirty decibels (30 dB) represent 1,000 times as much acoustic energy as 1 dB. The decibel scale increases as the square of the change, representing the sound pressure energy. A sound as soft as human breathing is about 10 times greater than 0 dB. The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. A 10 dB increase in sound level is perceived by the human ear as only a doubling of the loudness of the sound. Ambient sounds generally range from 30 A-weighted decibels (dBA) (very quiet) to 100 dBA (very loud).

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

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. Equivalent continuous sound level (L_{eq}) is the total sound energy of time-varying noise over a sample period. The predominant rating scales for human communities in the State of California are the L_{eq} and community noise equivalent level (CNEL) or the day-night average level (L_{dn}) based on A-weighted decibels (dBA). CNEL is the time-varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and a 10 dBA weighting factor applied to noise occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale but without the adjustment for events occurring during the evening hours. CNEL and L_{dn} are within 1 dBA of each other and are normally exchangeable. The noise adjustments are added to the noise events occurring during the more sensitive hours.

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

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

Psychological and Physiological Effects of Noise. Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the

entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions and thereby affecting blood pressure and functions of the heart and the nervous system. In comparison, extended periods of noise exposure above 90 dBA would result in permanent cell damage. When the noise level reaches 120 dBA, a tickling sensation occurs in the human ear even with short-term exposure. This level of noise is called the threshold of feeling. As the sound reaches 140 dBA, the tickling sensation is replaced by the feeling of pain in the ear. This is called the threshold of pain. A sound level of 190 dBA will rupture the eardrum and permanently damage the inner ear. The ambient or background noise problem is widespread and generally more concentrated in urban areas than in less-developed areas.

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

Sensitive Land Uses in the Project Vicinity

Certain land uses are considered more sensitive to noise than others. Examples of these include residential uses, educational facilities, hospitals, childcare facilities, and senior housing. The sensitive land uses within the vicinity of the proposed project include the existing residences to the west, south, and northeast, Marina Vista Park to the east, the north and south Colorado Lagoon (Lagoon) beaches, an on-site preschool, and a recreational park golf course. These land uses are located within 50 to 100 ft of the on-site construction areas.

Overview of the Existing Noise Environment

The primary existing noise sources in the project area are transportation facilities. Traffic on Park Avenue and East Appian Way is the dominant source contributing to area ambient noise levels at the residences to the west. Noise from motor vehicles is generated by engine vibrations, the interaction between the tires and the road, and the exhaust system.

4.9.2 REGULATORY SETTING

City of Long Beach General Plan Noise Element

The Noise Element of the General Plan contains noise standards for mobile noise sources. These standards address the impacts of noise from adjacent roadways and airports. The City specifies

outdoor and indoor noise limits for residential uses, places of worship, educational facilities, hospitals, hotels/motels, and commercial and other land uses. The noise standard for exterior living areas is 65 dBA CNEL. The indoor noise standard is 45 dBA CNEL, which is consistent with the standard in the California Noise Insulation Standard.

City of Long Beach Municipal Code

The City has adopted a quantitative Noise Control Ordinance, No. C-5371, Long Beach 1977 (Municipal Code, Chapter 8.80). The ordinance establishes maximum permissible hourly noise levels (L_{50}) for different districts throughout the City. Tables 4.9.A and 4.9.B list exterior noise and interior noise limits for various land uses. For the purposes of the proposed project, the exterior noise standard of 70 dBA L_{max} has been applied to all of the sensitive land uses, the residences, the preschool, and the open space located within the vicinity of the project construction areas.

Table 4.9.A: Exterior Noise Limits, L_N (dBA)

Receiving Land Use	Time Period	L_{50}	L_{25}	L_8	L_2	L_{max}
Residential (District One)	Night: 10:00 p.m.–7:00 a.m.	45	50	55	60	65
	Day: 7:00 a.m.–10:00 p.m.	50	55	60	65	70
Commercial (District Two)	Night: 10:00 p.m.–7:00 a.m.	55	60	65	70	75
	Day: 7:00 a.m.–10:00 p.m.	60	65	70	75	80
Industrial (District Three)	Anytime[1]	65	70	75	80	85
Industrial (District Four)	Anytime[1]	70	75	80	85	90

[1] For use at boundaries rather than for noise control within industrial districts.
dBA = A-weighted decibels
L_{max} = maximum sound level
L_N = percentile noise exceedance level

Table 4.9.B: Maximum Interior Sound Levels, L_N (dBA)

Receiving Land Use	Time Interval	L_8	L_2	L_{max}
Residential	10:00 p.m.–7:00 a.m.	35	40	45
	7:00 a.m.–10:00 p.m.	45	50	55
School	7:00 a.m.–10:00 p.m. (while school is in session)	45	50	55
Hospital and other noise-sensitive zones	Anytime	40	45	50

dBA = A-weighted decibels
L_{max} = maximum sound level
L_N = percentile noise exceedance level

The City's Noise Control Ordinance (Section 8.80.202) governs the time of day that construction work can be performed. The Noise Ordinance prohibits construction, drilling, repair, remodeling, alteration, or demolition work between the hours of 7:00 p.m. and 7:00 a.m. on weekdays or federal holidays (considered a weekday) if the noise would create a disturbance across a residential or commercial property line or violate the quantitative provisions of the ordinance, except for emergency work authorized by the building official. The Noise Ordinance prohibits construction,

drilling, repair, remodeling, alteration, or demolition work between the hours of 7:00 p.m. on Friday and 9:00 a.m. on Saturday and after 6:00 p.m. on Saturday, except for emergency work authorized by the building official. No construction, drilling, repair, remodeling, alteration, or demolition work shall occur at anytime on Sundays, except for emergency work authorized by the building official.

4.9.3 METHODOLOGY

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

- Determine the short-term construction noise impacts on on-site and off-site noise-sensitive uses with industry-recognized noise emission levels for construction equipment.
- Determine the long-term operational noise impacts, including vehicular traffic and aircraft activities, on on-site and off-site noise-sensitive uses.
- Determine the required mitigation measures to reduce short-term and long-term noise impacts from all sources.

4.9.4 THRESHOLDS OF SIGNIFICANCE

Based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines, the following thresholds were used to assess the significance of potential noise impacts:

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

The applicable noise standards governing the project site are the criteria in the City of Long Beach General Plan Noise Element and the City of Long Beach Municipal Code.

4.9.5 IMPACTS AND MITIGATION MEASURES

Implementation of the proposed project would result in short-term construction noise impacts. Once the project has been completed, the noise generated by on-site activities would return to preexisting levels. The following focuses on the increase in noise associated with the construction of the proposed project.

Less Than Significant Impacts

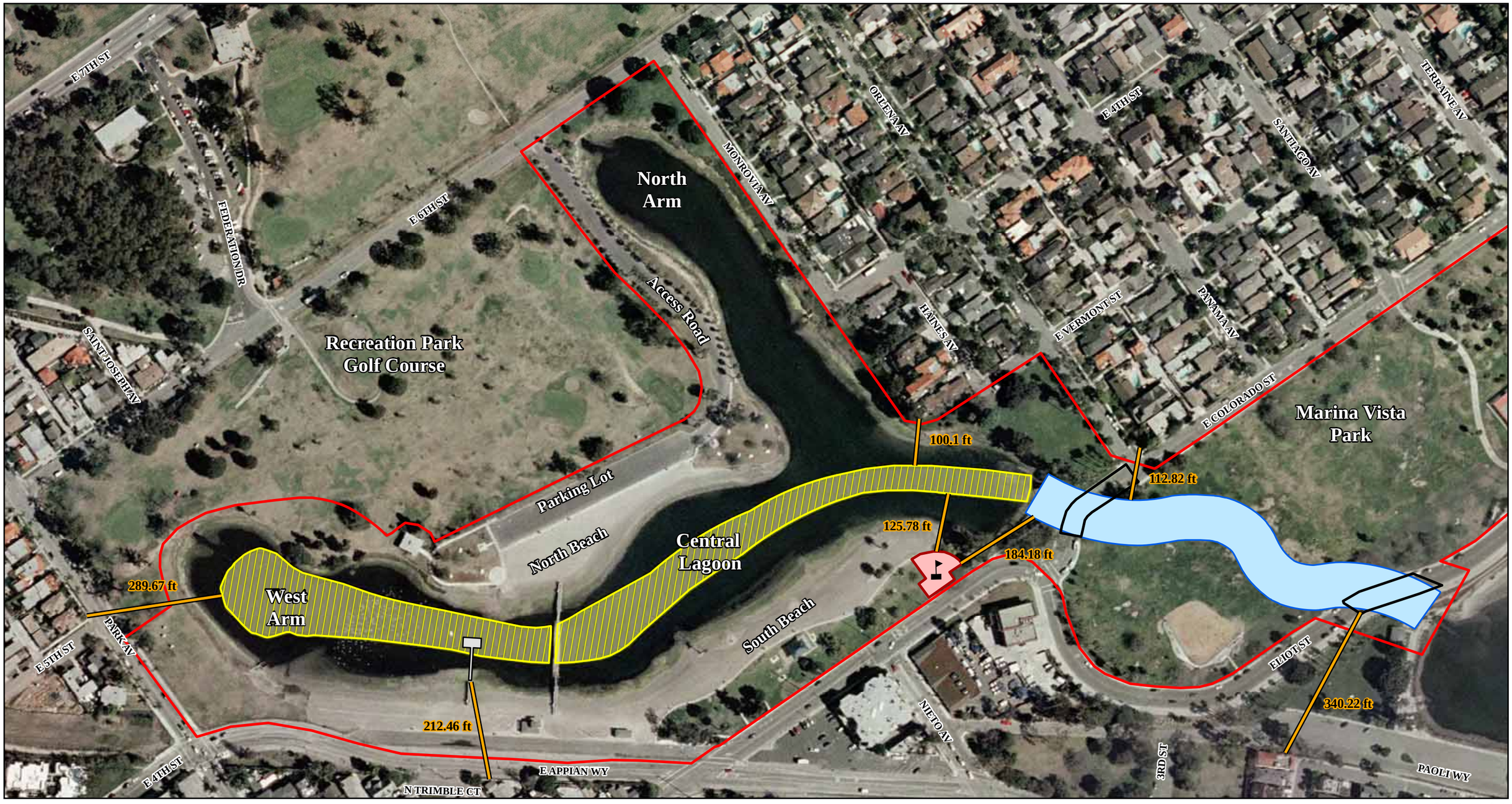
The following impacts that could result from implementation of the proposed project were evaluated and considered less than significant.

Long-Term Operational Noise Impacts. The primary existing noise sources in the project area are transportation facilities. Traffic on streets adjacent to the project site is the dominant source contributing to ambient noise levels in the project vicinity. Noise from motor vehicles is generated by engine vibrations, the interaction between the tires and the road, and the exhaust system.

The proposed project would implement habitat and recreation improvements to the existing project area. The proposed project would retain the existing recreation and open space uses of the project site, and any change in park attendance and patterns of use is expected to be negligible as a result of project implementation. Likewise, the proposed project would not result in additional traffic and traffic-related noise sources. In addition, the proposed project does not involve the use of on-site noise-generating equipment, with the exception of the pumps for the stormwater diversion system. The pumps would be below ground and in the bottom of the wet well. The noise generated by the pumps would be very minimal. Therefore, the proposed project would not result in a substantial permanent increase in ambient noise levels in the project vicinity, and impacts related to long-term operational noise sources are less than significant.

Airport Noise Impacts. The Long Beach Municipal Airport is located approximately 3 miles north of the project site. Based on the aircraft noise contours produced by the airports, the project site does not lie within the 60 dBA CNEL contour of the airport. Therefore, the potential for a significant impact from airport-related activities is small, and a single-event noise impact analysis is not warranted for this site.

Short-Term Construction-Related Vibration Impacts. The primary source of vibration during construction would be generated by the proposed pile driving that would occur during construction of the viewing platform and bridge structures. Construction of the viewing platform would occur towards the end of Phase 1 and bridge construction would occur during the first year of Phase 2. See Figure 4.9.1 for location of the platform and bridge improvements. The closest pile driving activities to a sensitive receptor would occur at a distance of 112 ft from the residential uses located near the intersection of East Colorado Street and Orlena Avenue in the project vicinity. Using Equation 9 and Table 17 from the California Department of Transportation (Caltrans) *Transportation and Construction-Induced Vibration Guidance Manual* (Jones & Stokes, June 2004), it was estimated that the vibration level at the residential structures would be 0.07 inches per second (in./sec). Although perceptible, this level would not exceed the 0.1 in./sec threshold below which there is virtually no risk of resulting in architectural damage to normal buildings. Therefore, the proposed project would not result in any significant vibration impacts.



LSA

0 100 200 Feet

LEGEND

- Project Boundary
- Proposed Open Channel (Top of Channel 100')
- Dredge Area
- Distance to Sensitive Receptors
- Preschool
- Proposed Viewing Platform
- Proposed Bridge

FIGURE 4.9.1

Colorado Lagoon Restoration Project

Construction Distance to Sensitive Receptors

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

I:\CLB0702\GIS\SensitiveDistances_Figure4.9.1.mxd (5/20/2008)

Exposure of Sensitive Land Uses Along the Haul Truck Routes. Sensitive land uses located along the proposed haul truck routes, such as residences, parks, and schools, would be exposed to noise levels of up to 86 dBA L_{max} at a distance of 50 ft. However, the increase in traffic flow on roads due to construction traffic is expected to be small. Therefore, the associated increase in long-term traffic noise will not be perceptible, and impacts are less than significant.

Potentially Significant Impacts

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

Short-Term Construction-Related Noise Impacts. Two types of short-term noise impacts would occur during project construction. The first is the increase in traffic flow on local streets associated with the transport of workers, equipment, and materials to and from the project site. The pieces of heavy equipment to be utilized during construction will be moved to the site and remain for the duration of each construction phase. The increase in traffic flow on the surrounding roads due to construction traffic would not cause an increase in traffic that is substantial in relation to the existing traffic load of the street system. The associated increase in long-term traffic noise will not be perceptible. However, there will be short-term, intermittent, high-noise levels associated with trucks passing by from the project site.

The second type of short-term noise impact is related to the noise generated by heavy equipment operating within the project area. The proposed Colorado Lagoon Restoration project will be divided into two phases. Phase One would implement improvements at the Lagoon, and Phase Two would implement improvements in Marina Vista Park. Each phase of construction will consist of multiple components. The activities that will occur during these components will include:

- Phase One Improvements at the Lagoon
  - Existing culvert improvements
  - Western arm sediment removal
  - Central area sediment removal
  - Storm drain treatments
  - Bio-swales
  - North parking lot, access road, and restroom demolition
  - Side slope recontouring
  - Trail and viewing platform construction
  - Demolition of north shore restroom
- Phase Two Improvements in Marina Vista Park
  - Open channel construction
  - Reconfiguration of sports fields

- Development of walking trail and vegetation buffers
- Demolition and reconstruction of two restrooms
- Development of two bridges spanning the open channel

The following construction equipment will be required to complete the above tasks:

- Bulldozers
- Loaders
- Backhoes
- Excavators
- Graders
- Cranes
- Pile Driver
- Paving Equipment
- Pumps
- Generators
- Dredge Tender Boat

Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 4.9.C lists typical construction equipment noise levels recommended for noise impact assessments, based on a distance of 50 ft between the equipment and a noise receptor.

Pile driving will be the noisiest activity on site, generating up to 93 dBA L_{max} at a distance of 50 ft. As stated previously, proposed pile driving would occur during construction of the viewing platform and bridge structures. Construction of the viewing platform would occur towards the end of Phase 1 and bridge construction would occur during the first year of Phase 2. See Figure 4.9.1 for location of the platform and bridge improvements. Other construction equipment used on site, such as loaders and backhoes, would generate up to 86 dBA L_{max} at a distance of 50 ft.

The following sensitive land uses are located within the vicinity of the proposed construction activities:

- **On-site Preschool.** The on-site preschool is located within the vicinity of the central Lagoon dredge area and the open channel construction area. Standard construction equipment that would generate up to 86 dBA L_{max} at a distance of 50 ft would be required for the central Lagoon dredging. Pile driving equipment would generate up to 93 dBA L_{max} at a distance of 50 ft would be required for the construction of the bridges for the open channel and the viewing platform. Standard construction activities that occur within 315 ft and pile driving that occurs within 706 ft of the preschool would generate noise levels in excess of the City's daytime exterior noise standard of 70 dBA L_{max}. The preschool shall be closed whenever construction or pile driving would occur within 315 and 706 feet, respectively, as prescribed by Mitigation Measure NOI-5.

Table 4.9.C: Typical Construction Equipment Noise Levels

Type of Equipment	Range of Maximum Sound Levels Measured (dBA at 50 ft)	Suggested Maximum Sound Levels for Analysis (dBA at 50 ft)
Pile Drivers, 12,000 to 18,000 ft-lb/blow	81–96	93
Rock Drills	83–99	96
Jackhammers	75–85	82
Pneumatic Tools	78–88	85
Pumps	74–84	80
Scrapers	83–91	87
Haul Trucks	83–94	88
Cranes	79–86	82
Portable Generators	71–87	80
Rollers	75–82	80
Dozers	77–90	85
Tractors	77–82	80
Front-End Loaders	77–90	86
Hydraulic Backhoe	81–90	86
Hydraulic Excavators	81–90	86
Graders	79–89	86
Air Compressors	76–89	86
Trucks	81–87	86

Source: Noise Impact Analysis, May 2008.
dBA = A-weighted decibels
ft = feet
ft-lb/blow = foot-pounds per blow

- **Residential Developments.** Residential developments are located within close proximity of construction activity during each of the proposed project's construction phases. The highest noise levels would be generated by the pile driving required to construct the viewing platform from the Phase 1 improvements and the bridges and open channel through Marina Vista Park in Phase 2. The existing homes in this area are located within 150 ft of the active construction areas and would be exposed to pile driving noise levels of up to 81 dBA L_{max}. Homes located within 315 ft of the standard construction equipment and 706 ft of the pile driving would be exposed to noise levels in excess of the City's daytime exterior noise standard of 70 dBA L_{max}.
- **Open Space Land Uses.** Open space land uses, such as the Marina Vista Park, the north and south Lagoon beaches, and the Recreation Park golf course, are located within close proximity of each of the proposed project's construction phases. The highest noise levels within these uses would be generated by the pile driving required to construct the bridges for the open channel and the viewing platform. Sensitive open space land uses located within 315 ft of the standard construction equipment and 706 ft of the pile driving would be exposed to noise levels in excess of the City's daytime exterior noise standard of 70 dBA L_{max}.

See Figure 4.9.1 for a depiction of the distances between several on-site and off-site sensitive receptors and the sources of construction noise, such as pile driving areas for the viewing platform and bridge construction, dredge areas within the Lagoon, and open channel construction that will

include some pile driving in addition to excavation. As described, construction-related noise impacts from the proposed project would be significant and unavoidable because sensitive land uses in the project vicinity would be exposed to noise levels in excess of the City's noise standards.

Mitigation Measures

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

NOI-1 The City of Long Beach (City) Noise Control Officer shall ensure that the construction contractor limits construction activity, which produces loud or unusual noise that annoys or disturbs a reasonable person of normal sensitivity to between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday and federal holidays, and between 9:00 a.m. and 6:00 p.m. on Saturdays, and no construction activities on Sundays in accordance with the City's Noise Ordinance.

NOI-2 During all site excavation and grading, the project contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards, as documented in construction plans and verified by the City Building Official.

NOI-3 The project contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site, as documented in construction plans and verified by the City Building Official.

NOI-4 The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction, as documented in construction plans and verified by the City Building Official.

NOI-5 Prior to issuance of a grading permit, the Construction Contractor shall provide evidence to the City of Long Beach Building Official (or designee) that on-site sensitive land uses, such as the on-site preschool and the beaches, shall be closed or relocated when construction activities occur within 315 feet or pile driving occurs within 706 feet.

NOI-6 Prior to issuance of a grading permit, the Director of Parks, Recreation, and Marine shall hold a community pre-construction meeting, in concert with the Construction Contractor, to provide information regarding the construction schedule. The construction schedule information shall include the duration of each construction activity and the specific location, days, frequency, and duration of the pile driving that will occur during both Phase 1 and Phase 2 of the project construction. Public notification of this meeting shall be done in the same manner as the Notice of Availability mailings for this Draft Environmental Impact Report (EIR).

Due to the distance between construction activities and the existing sensitive receptors, project construction activities would result in a significant noise impact; however, the noise impact would be intermittent and temporary. Construction-related, short-term noise levels would be higher than

existing ambient noise levels in the project area but would no longer occur once construction of the project is completed. 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. Adherence to the City's noise regulations and implementation of Mitigation Measures NOI-1 through NOI-5 would reduce construction noise impacts to sensitive receptors; however, the construction noise impacts would remain significant and unavoidable.

4.9.6 CUMULATIVE IMPACTS

Construction and on-site operations are point sources of noise and would not contribute to off-site cumulative noise impacts from operation of other planned and future projects. The proposed project would not change the existing recreation and open space uses of the project site and is not anticipated to lead to an increase in the number of visitors to the project area. Therefore, the long-term ambient noise levels, such as those associated with increased traffic, are not anticipated to change as a result of the proposed project, and no cumulative operational impacts would occur.

One of the five related projects, described in Section 4.8.7, the Termino Avenue Drain Project (TADP), is the only one located adjacent to the proposed project. The Los Angeles County Department of Public Works is proposing to replace and reroute the Termino Avenue Drain that currently drains to the Lagoon. The project would extend and reroute the drain to empty into Marine Stadium, thereby bypassing the Lagoon. This project would also redirect flows from three other local storm drains located on the south shore of the Lagoon that currently discharge into the Lagoon. Construction for the TADP project that would occur adjacent to the Colorado Lagoon project area would occur along East Appian Way, which is adjacent to the south shore of the Lagoon. The existing sensitive receptors within this area are residential land uses located on the south side of East Appian Way. Because the TADP is an infrastructure project, no long-term operational noise impacts are anticipated.

The construction activity for the proposed project and construction of the TADP in the vicinity of and at the project site may occur at the same time. These projects, when combined, have the potential to contribute to short-term construction noise impacts, which could be cumulatively significant, even with implementation of mitigation measures as described above and in the TADP Environmental Impact Report (EIR).

4.9.7 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Operational project impacts related to noise are less than significant. Implementation of Mitigation Measures NOI-1 through NOI-5 would reduce temporary and intermittent construction related noise impacts; however, construction noise impacts to on-site sensitive receptors and to off-site residential uses would remain significant and unavoidable. In addition, depending upon the timing of implementation of the proposed project and the TADP project, there is a potential for significant unavoidable cumulative short-term construction noise effects.

4.10 PUBLIC SERVICES AND UTILITIES

INTRODUCTION

The following section provides an analysis of utilities, public services, and public facilities for the proposed Colorado Lagoon Restoration project in the City of Long Beach (City). Utilities include the provision or disposition of water, wastewater, and solid waste disposal services. Public services include law enforcement and fire protection services. Public facilities included in this discussion address public schools and public libraries.

4.10.1 EXISTING ENVIRONMENTAL SETTING

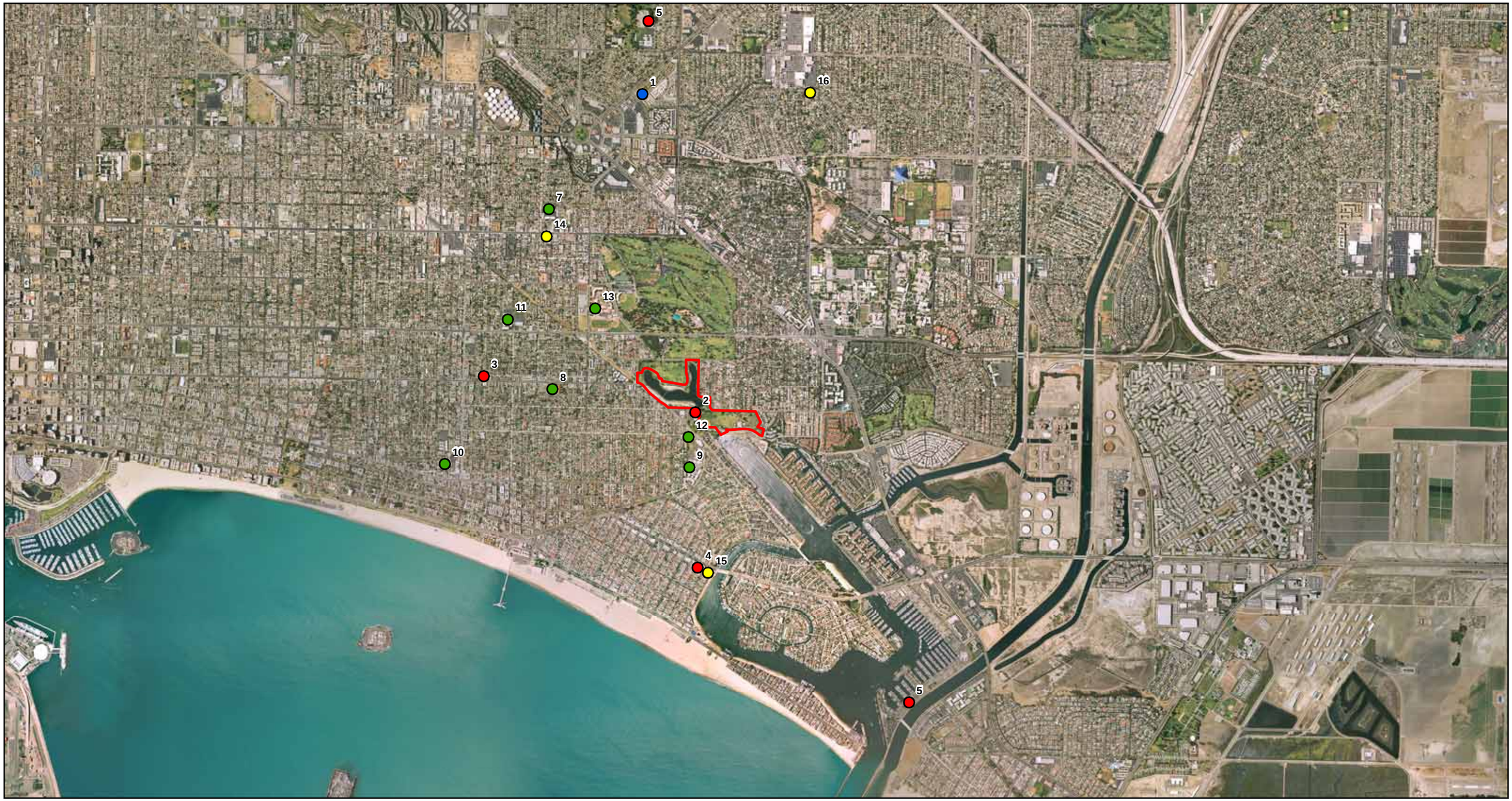
Police Protection

The Long Beach Police Department (LBPD) provides a full range of law enforcement services throughout the City of Long Beach. The LBPD operates a helicopter program; a canine unit; a full-service, 24-hour jail facility; a communications/dispatching center; an investigation bureau; and a police academy including a firing range. Community-oriented police activities include community relations, traffic and parking enforcement, a Neighborhood Watch Program, crime prevention, bicycle patrol, Marine Patrol Unit, Port Police Unit (on the water), SWAT team, and a DARE Program.

There are currently 1,020 budgeted sworn officers within the LBPD service area. This provides an officer-to-population ratio of approximately 2.0 officers per 1,000 residents. It is the goal of the LBPD to strengthen that ratio to 2.5 officers per 1,000 residents. The average citywide response time to Priority 1 calls (life or property in imminent danger) for service is 4.5 minutes. The LBPD goal for average police response times for Priority 1 calls is 5 minutes or less.

The Patrol Bureau of the LBPD is divided into four geographic divisions (North, South, East, and West). The project site is located within the East Patrol Division and is served by the eastern substation, which is located approximately 1.5 miles from the project site at 4800 Los Coyotes Diagonal (shown in Figure 4.10.1). This full-service police station, which opened in January 1994, has a maximum capacity of 145 employees. It currently operates at approximately 88 percent capacity (128 employees).

The LBPD is part of the Los Angeles County Law Enforcement Mutual Aid Organization, which is overseen by the Los Angeles County Sheriff's Department. In the event that mutual aid is needed, the Emergency Operations Bureau of the Sheriff's Department would be notified, and in turn they would notify appropriate response agencies. The City also has mutual aid relationships with the City of Signal Hill Police Department, California State University Long Beach Police Department, Veteran's Hospital Police, and the United States Coast Guard.



LSA

FIGURE 4.10.1

Legend

Project Boundary

Police

1. LBPD eastern substation- 4800 Los Coyotes Diagonal

Fire Stations

2. Station 14- 5200 Eliot Avenue
3. Station 4- 411 Loma Avenue
4. Station 8- 5365 E. 2nd Street
5. Station 17- 2241 Argonne Avenue
6. Station 21- 225 Marina Drive

Schools

7. Bryant Elementary- 4101 E. Fountain Street
8. Freemont Elementary- 4000 E. 4th Street
9. Lowell Elementary- 5201 E. Broadway
10. Mann Elementary- 257 Coronado Avenue
11. Jefferson Middle School- 750 Euclid Avenue
12. Rogers Middle School- 365 Monrovia Avenue
13. Wilson High School- 4400 E. 10th Street

Libraries

14. Brewitt Library- 4036 E. Anaheim Street
15. Bay Shore Library- 195 Bay Shore Avenue
16. Los Altos Library- 5614 Britton Drive

N

0 1,250 2,500 Feet

SOURCE: AirPhoto USA (06/07); TBM (2007)

Colorado Lagoon Restoration Project

Public Service Facility Locations

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Fire Protection

The City of Long Beach Fire Department (Fire Department) provides fire and emergency medical response, marine safety and lifeguards, fire prevention, hazardous materials spill response, and hazardous materials regulatory enforcement services to the project area. The Fire Department consists of four bureaus (Administration, Operations, Fire Prevention, and Support Services) and maintains a staff of approximately 450 fire personnel. The Operations Bureau includes the Emergency Medical Services Division (EMS) and the Marine Safety Division. The Marine Safety Division is responsible for management of the lifeguards and other emergency personnel that service the City's beaches, waterways, and marinas. This includes the lifeguard services currently provided at the Colorado Lagoon (Lagoon).

The Lagoon is currently staffed with lifeguards from 9:00 a.m.–8:00 p.m. daily during the summer season (June 15–September 15). Monday through Friday staffing consists of three Recurrent Ocean Lifeguards, and Saturday through Sunday staffing is seven Recurrent Ocean Lifeguards. The Lagoon is also staffed during the fall and up through October and in spring from April to the summer season. During the fall and spring, however, staffing is limited to weekends and on an as-needed basis, depending on the level of activity. Table 4.10.A provides the number of swimming rescues, medical aid, and advisory contacts (including both municipal codes and safety matters) for the last 5 years.

To provide services, the Fire Department maintains the following facilities and equipment: 23 fire stations, a Fire Training Center, 22 engines, 4 trucks, 9 paramedic rescue vehicles, 1 foam apparatus, 3 airport firefighting and rescue vehicles, two harbor fireboats, and one technical rescue vehicle. Several fire stations serve the project area. Fire Station No. 14 and Fire Station No. 4 are the two closest stations to the project site. Table 4.10.B lists the fire stations located within an approximately 2.5-mile radius of the project site, all of which are shown on Figure 4.10.1. In addition, a lifeguard station is located on the southern shore of the Lagoon.

Table 4.10.A: Lifeguard Activity at the Lagoon

Activity	2003	2004	2005	2006	2007
Swim Rescues	164	138	66	175	134
Medical Aid	88	76	31	69	95
Advisories	4,902	10,788	6,565	10,796	9,577

Source: Fire Department, Marine Safety Division, March 2008.

Table 4.10.B: Fire Stations in Proximity to the Project Site

Station	Location	Distance from Project Site	Response Time Approximately	Equipment
Fire Station 14	5200 East Eliot Street	0.50 mile	2 minutes	Engine company with a paramedic rescue
Fire Station 4	411 Loma Avenue	1.11 miles	3 minutes	Engine
Fire Station 8	5365 East 2nd Street	1.29 miles	4 minutes	Engine
Fire Station 17	2241 Argonne Avenue	2.25 miles	6 minutes	Engine and Paramedic Rescue
Fire Station 21	225 Marina Drive	2.97 miles	7 minutes	Engine and Truck

Source: www.longbeach.gov/fire/station_locations.asp. Downloaded 12/07.

The average citywide emergency response time from dispatch to arrival is less than 5 minutes. The Fire Department goal for emergency response times is to have the first engine arrive within 4 minutes of dispatch and for the first Paramedic Rescue to arrive within 8 minutes. Six personnel are dispatched for life-threatening medical responses, and a minimum of 19 personnel are dispatched for initial response to structure fires.

The Fire Department maintains mutual aid agreements with the Los Angeles County Fire Department, City of Los Angeles Fire Department, and Orange County Fire Department. The Fire Department is also part of the California Office of Emergency Services Master Mutual Aid system.

Public Schools

The Long Beach Unified School District (LBUSD) provides public school services to the project area. Of the 96 schools in the LBUSD, Lowell Elementary School, Fremont Elementary School, Jefferson Middle School, Rogers Middle School, and Wilson High School are located within less than 1.5 miles of the project area. (The location of each school is shown on Figure 4.10.1.) Classroom sizes for the three schools nearest the project are provided in Table 4.10.C.

Table 4.10.C: LBUSD Schools Near the Project Area

School Name and Location	Distance from Project[1]	Grades	Number of Classes (2006–2007)	Average Class Size (2006–2007)	Total Number of Students (2006–2007)
Bryant Elementary 4101 East Fountain Street	1.41 miles	K–5	17	21.4	364
Fremont Elementary 4000 East 4th Street	0.46 mile	K–5	20	22.5	410
Lowell Elementary 5201 East Broadway	0.32 mile	K–5	31	21.8	660
Mann Elementary 257 Coronado Avenue	1.49 miles	K–5	17	21.6	368
Jefferson Middle School 750 Euclid Avenue	0.97 mile	6-8	187	31.1	1,086
Rogers Middle School 365 Monrovia Avenue	0.15 mile	6-8	129	34.4	895
Wilson High School 4400 East 10th Street	0.66 mile	9-12	911	30.5	4,453

Source: www.ed-data.k12.ca.us. Downloaded 12/07.

[1] Distances were measured using a Geographic Information System (GIS). Measurements were taken from the project boundary closest to each school's location.

In addition to the LBUSD schools listed in Table 4.10.C, the Colorado Lagoon Playgroup Preschool, which is a private program for 3- to 5-year-old children, is located on the south side of the Lagoon.

Enrollment in the LBUSD in 2006–2007 totaled 90,663 students in grades Kindergarten through Grade 12. Over the past 10 years, the annual growth in the school district-wide student population has averaged 0.5 percent annually. However, for the past 3 years the student population within LBUSD

has decreased (1.3 percent decrease in 2004–2005, 2.8 percent decrease in 2005–2006, and 3.1 percent decrease in 2006–2007).

Libraries

The project area is served by the Long Beach Public Library System, which is composed of 1 main library and 11 neighborhood branch libraries. The main library, which serves as a State and federal depository, is located at 101 Pacific Avenue in downtown Long Beach, adjacent to City Hall. This library includes a Family Learning Center that provides homework assistance for students in grades Kindergarten through Grade 8, and facilities for Family and Preschool Storytime Programs and a Children's Film Program.

While the main library serves the entire city, neighborhood libraries serve smaller areas, generally located within a 1-mile radius of the library. There are several neighborhood libraries located near the project site, as listed in Table 4.10.D. (Figure 4.10.1 provides the locations of the schools and libraries closest to the project site.) All of these libraries offer computers with Internet access, the library catalog, a community resource file, and various online reference resources.

Table 4.10.D: Public Libraries in the Project Area

Library	Location	Distance to Project Site
Brewitt Library	4036 East Anaheim Street	0.97 mile
Bay Shore Library	195 Bay Shore Avenue	1.34 miles
Alamitos Library	1836 East 3rd Street	2.40 miles
Los Altos Library	5614 Britton Drive	2.56 miles
Mark Twain Library	1401 East Anaheim Street	2.79 miles

Source: www.lbpl.org. Downloaded 12/07.

Water

The Long Beach Water Department (LBWD) provides water service to the entire city through a system of underground pipelines. The City provides both potable and reclaimed water. Reclaimed water is wastewater that has been treated to a sufficient degree to be used for specific nonpotable uses, such as irrigation. Reclaimed water is conveyed in a separate system to maintain the quality of the potable water.

The LBWD obtains its water supply from LBWD-operated wells and imported water from the Metropolitan Water District (MWD). The LBWD satisfies almost 42 percent of its demand by pumping its own wells and about 50 percent by importing water from the MWD. The remaining 8 percent of the water supply is tertiary treated reclaimed water from the Sanitation Districts of Los Angeles County (LACSD) Long Beach Water Reclamation Plant (WRP) that is used for nondrinking purposes. The Long Beach WRP provides approximately 21 million gallons per day (mgd) of reclaimed water. The City currently utilizes reclaimed water on the project site for irrigation purposes. The City currently has approximately 7 mgd of reclaimed water that is unused.[1]

[1] Source: Ana Aranda, Senior Civil Engineer, Long Beach Water Department, February 2008.

As shown in Figure 4.10.2, LBWD maintains potable water lines in most streets surrounding the project site. The existing restrooms in the project area are served by the nearby potable water lines. In addition, 10-inch reclaimed water lines are located in East 6th Street, Monrovia Avenue, and East 4th Street. These lines currently provide irrigation water to the project area.

Sewer

The City of Long Beach is a member of the LACSD, a confederation of independent special districts that provide wastewater and solid waste services in Los Angeles County (County). The LACSD serves about 5.4 million people in the County. The LACSD service area covers approximately 800 square miles and encompasses 78 cities and unincorporated territory within the County.

The proposed project is located within the jurisdictional boundaries of the LACSD District 3. The existing wastewater flowing from the project area solely consists of the flows from the four existing restrooms. Restrooms are currently located on both the north and south shores of the Lagoon, another is located in Marina Vista Park north of East Eliot Street, and the last is south of East Eliot Street adjacent to Marine Stadium. As shown on Figure 4.10.2, the current wastewater flows originating from the existing restrooms on the project site discharge to City and LACSD sewer lines in East 6th Street, East Colorado Street, and Paoli Way. Currently, the wastewater generated by the project site is treated at the Joint Water Pollution Control Plant (JWPCP) located at 24501 South Figueroa Street in the City of Carson, which has a design capacity of 400 mgd and currently processes an average flow of 310.8 mgd. The JWPCP provides full secondary treatment to all wastewater received.

Solid Waste

As previously stated, the City of Long Beach is a member of the Sanitation Districts of Los Angeles County (LACSD), a confederation of independent special districts that provide wastewater and solid waste services in Los Angeles County. Within Long Beach and at the project site, solid waste collection services are provided by the City's Environmental Services Bureau. In 2005, residents and businesses in Long Beach disposed of 610,838 tons of solid waste. This disposal amount reflects a diversion rate of approximately 53 percent. A large majority of Long Beach's solid waste is disposed of at two LACSD facilities: Puente Hills Landfill and the Southeast Resource Recovery Facility (SERRF).

The Puente Hills Landfill is the closest Class III landfill operated by LACSD that could be used to dispose of waste generated at the project site. The Conditional Use Permit for the Puente Hills Landfill authorizes the disposal of a maximum of 13,200 tons per day. Typically, the landfill closes early due to this permit-imposed tonnage restriction. The facility has an estimated remaining capacity of 49,348,500 cubic yards (cy). Disposal operations will continue under the Conditional Use Permit until October 31, 2013, at which time the site will stop accepting waste for disposal. As indicated in Table 4.10.E, 175,685 tons, or 29 percent of the solid waste disposed of by Long Beach residents and businesses, were disposed of at the Puente Hills Landfill.

LSA

LEGEND

- Project Boundary
- Reclaimed Water Lines
- Potable Water Lines
- Existing City Sewer Lines
- Existing County Sanitation District Sewer Lines
- Existing Storm Drain Pipelines
- Proposed Stormwater Diversion Pipes
- Proposed Wet Well
- Existing Restrooms
- Major System Outfalls

0 112.5 225 FEET

FIGURE 4.10.2

Colorado Lagoon Restoration Project

Water & Sewer Lines in the Project Vicinity

SOURCE: Air Photo USA (2006), Moffat & Nichol (2007), Thomas Bros. (2007).

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Table 4.10.E: City of Long Beach Solid Waste Disposal by Facility, 2005

Facility Name (County)	Disposal Amount (tons)	Percent of Total
CWMI-B18 Nonhazardous Codisposal (Kings Waste and Recycling Authority)	1,413	0.23%
Antelope Valley Public Landfill (Los Angeles)	2,740	0.44%
Azusa Land Reclamation Co., Inc. (Los Angeles)	4,213	0.69%
Waste Management of Lancaster Sanitary Landfill (Los Angeles)	1,507	0.25%
Chiquita Canyon Sanitary Landfill (Los Angeles)	21,613	3.54%
Puente Hills Landfill #6 (Los Angeles)	175,685	28.77%
Commerce Refuse to Energy Facility (Los Angeles)	577	0.09%
Sunshine Canyon Sanitary Landfill County Extension (Los Angeles)	18,966	3.10%
Southeast Resource Recovery Facility (Los Angeles)	241,242	39.49%
Bradley Landfill West and West Extension (Los Angeles)	1,450	0.24%
Prima Deshecha Sanitary Landfill (Orange)	38,298	6.27%
Olinda Alpha Sanitary Landfill (Orange)	50,154	8.21%
Frank R. Bowerman Sanitary Landfill (Orange)	4,810	0.78%
El Sobrante Sanitary Landfill (Riverside)	35,127	5.75%
Simi Valley Landfill-Recycling Center (Ventura)	2,167	0.35%
Total	**610,838**	**100.00%**

Source: CIWMB, Disposal Reporting System, Jurisdiction Disposal and Alternative Daily Cover Tons by Facility for the City of Long Beach, 2005. Downloaded 12/07.

The Puente Hills Materials Recovery Facility (PHMRF), which is located next to the Puente Hills Landfill, is also owned and operated by LACSD. The purpose of the PHMRF is to recover recyclable materials from commercial waste and to provide efficient transfer of residual waste to permitted landfills for proper disposal. The facility is permitted to accept 4,400 tons per day or 24,000 tons per week of municipal solid waste.

The City of Long Beach and the LACSD have a Joint Powers Agreement to own SERRF, which is located at 120 Pier S Avenue in Long Beach. SERRF is a refuse-to-energy transformation facility that is permitted to accept 2,240 tons of refuse per day. The facility reduces the volume of solid waste by approximately 80 percent while creating electrical energy. The SERRF produces 36 megawatts of electricity for Southern California Edison (SCE), which is enough to supply 35,000 homes with electrical power. In 2005, approximately 241,242 tons of the solid waste (39.5 percent) disposed of by Long Beach residents and businesses were disposed of at SERRF.

Table 4.10.E lists all of the solid waste disposal sites that currently receive Long Beach solid waste and may be used to dispose of waste generated at the proposed project site.

In addition to the facilities discussed above, the Port of Long Beach (Port), the second busiest container seaport in the United States, may provide available sediment disposal sites. In response to continued growth from overseas trade and forecasts of future growth, the Port is (and historically has been) expanding facilities to accommodate the increasing flow of international cargo. To expand land areas to provide for needed port facilities, the Port constructs landfill areas that, when filled, provide additional land acreage for container terminals and other port-related facilities. The development of

landfill areas requires large amounts of rock and fill material. Generally, the fill material is obtained from various dredging activities within and nearby the Port. Currently ongoing and near-term Port landfill projects include:

- **Middle Harbor Terminal Redevelopment:** Consolidation of two existing container terminals into one 345-acre (ac) terminal. This includes construction of 48 ac of landfill. Anticipated construction: 2008–2025.
- **Pier T Terminal Phase III:** Expansion of the container terminal to 375 ac, which includes construction of 22 ac of landfill. Project is under construction.
- **Piers G and J Terminal Redevelopment:** Consolidation of Piers G and J into a 315 ac terminal and Piers E and F into a 338 ac marine terminal. Anticipated construction: 2005–2015

Contaminated and hazardous materials within the region are disposed of at Kettleman Hills Landfill. Kettleman Hills Landfill is a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, approved Class I, II and III disposal facility. The Kettleman Hills facility is permitted to manage virtually every type of hazardous waste and constituent. The Kettleman Hills facility is located in Kings County on the Interstate 5 (I-5) corridor, north of the City of Bakersfield. The Kettleman Hills Landfill has been permitted for land disposal of liquid and solid hazardous wastes since 1975. Liquid hazardous wastes are solar evaporated in lined Class I surface impoundments. Solid hazardous wastes are discharged to lined Class I landfills. Other hazardous wastes requiring stabilization or solidification are treated on site prior to disposal. This facility is permitted to accept 8,000 tons per day and has a remaining capacity of 6,000,000 cy.

Los Angeles County faces a potentially large landfill capacity shortfall. As detailed in the Final Municipal Service Review for the LACSD (May 2005, prepared by the Los Angeles County Local Agency Formation Commission [LAFCO]), the amount of solid waste in need of disposal is forecast to exceed the combined daily capacity of all Class III landfills and refuse-to-energy facilities in 2013. Due to this, the LACSD has expanded recycling, secured additional disposal capacity, researched additional solid waste conversion technologies, and implemented a remote waste-by-rail landfill system. The waste-by-rail system will consist of transfer stations and intermodal railyards that will transfer solid waste to new landfills in Riverside and Imperial Counties for disposal.

Eagle Mountain Landfill in Riverside County is currently planned, but not yet operational. Mesquite Regional Landfill in Imperial County is permitted to receive up to 20,000 tons per day of municipal solid waste. Mesquite Regional Landfill, which is owned and will be operated by the LACSD, is under construction and expected to be ready for landfill operations in 2009. Construction of the rail spur and railyard necessary to receive waste by rail is expected to be complete in 2011/12. With implementation of the waste-by-rail landfill system, Los Angeles County would be able to meet the projected landfill needs.

State legislation (Assembly Bill 939 [AB 939]) requires that every city and county in California implement programs to recycle, reduce refuse at the source, and compost solid waste in order to achieve a 50 percent reduction in solid waste disposed of at landfills. AB 939 also requires that all cities conduct a Solid Waste Generation Study (SWGS) and prepare a Source Reduction Recycling Element (SRRE). In accordance with AB 939, local agencies must submit an annual report to the

California Integrated Waste Management Board (CIWMB) summarizing its progress in diverting solid waste disposal.

Senate Bill 1374 (SB 1374) also requires that the annual report submitted to CIWMB include a summary of the progress made in diversion of construction and demolition waste materials. In addition, SB 1374 requires the CIWMB to adopt a model ordinance suitable for adoption by any local agency that requires 50 to 75 percent diversion of construction and demolition waster materials from landfills by March 1, 2004. Local jurisdictions are not required to adopt their own construction and demolition ordinances, nor are they required to adopt the CIWMB's model by default. However, adoption of such an ordinance may be considered by the CIWMB when determining whether to impose a fine on a jurisdiction that has failed to implement its SRRE.

Waste haulers are expected to contribute by recycling residential and commercial waste they collect, and project developers are expected to employ measures to reduce the amount of construction-generated waste by 50 percent or more. During reporting year 2004, the City of Long Beach was in full compliance with waste diversion goals set by the State of California. The CIWMB has not approved or accepted diversion rates reported by the City since the 2004 report. However, a biennial review indicates that the City's diversion rate for 2005 was approximately 53 percent. The City also receives a 10 percent waste diversion credit through use of the SERRF, thereby further raising the City's waste diversion rate.

To ensure that the City maintains compliance with solid waste regulations, the City provides recycling services such as residential curbside recycling and commercial pickup service through a private contractor. In addition, each of the 21 permitted private waste haulers operating in Long Beach are required to have a City-approved recycling program in order to meet applicable waste diversion requirements. In order to maintain compliance goals, contractors will be required to reuse construction supplies where practicable or applicable, reuse soils on site, and reuse landscape containers to the extent feasible.

4.10.2 METHODOLOGY

This EIR section includes information concerning current levels of service to the project site and information on possible constraints or impacts to services at project build out. The impact analyses are based on the project description, information available on agency websites, and through phone and email conversations with City and other agency staff. Correspondence from the public service and utility providers as a result of the Notice of Preparation (NOP) distribution is included in Appendix A.

4.10.3 THRESHOLDS OF SIGNIFICANCE

The effects of a project on public services and utilities may be considered significant if the proposed project would:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain

acceptable service ratios, response times, or other performance objectives for public services including fire protection, police protection, schools, libraries, or other public facilities;

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board (RWQCB);
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Require new or expanded water entitlements to have sufficient water supplies available to serve the project;
- Result in a determination by the wastewater treatment provider that serves or may serve the project that it has inadequate capacity to serve projected demand in addition to the provider's existing commitments;
- Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs; or
- Not be in compliance with federal, State, and local statutes and regulations related to solid waste.

4.10.4 IMPACTS AND MITIGATION MEASURES

Less Than Significant Impacts

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

Police Protection. The proposed project would implement habitat and recreation improvements to the existing project area. The proposed project would retain the existing recreation and open space uses of the project site. These improvements will enhance the existing environment at both park sites. Currently, both sites are used by neighborhood residents, Wilson High School students who walk to the parks, and area residents who drive to the parks. It is not known to what extent the proposed improvements to the project area will attract additional visitors to the parks. The removal of the north shore parking lot and beach may make the Lagoon less desirable to visitors who now drive to the Lagoon for swimming. The habitat improvements may make the Lagoon more attractive to bird watchers and local residents who are interested in the passive and natural components of the site. Similarly, the open channel may be of interest to people who wish to view or walk along the feature, but the channel does not incorporate new active uses that would attract a greater number of park users on a regular basis. In addition, the proposed project would not create additional jobs nor would it include the construction of new residential units that would generate additional population in the area. Overall, any changes in park attendance and/or patterns of use are expected to be negligible as a result of project implementation. Therefore, police resources are not anticipated to change as a result of the proposed project. The project would not result in the need for additional officers or law enforcement equipment or facilities to maintain adequate and appropriate response capabilities.

The project includes demolishing the restroom on the north shore of the Lagoon and two restrooms near the end of the proposed open channel (one in Marina Vista Park and one south of East Eliot Street at Marine Stadium). The restrooms in Marina Vista Park and Marine Stadium will be replaced with new facilities that are the preferred design of the LBPD and consistent with the Crime Prevention Through Environmental Design (CPTED) guidelines. Each of the new restrooms will provide eight unisex toilets and three sinks, which is the same as the existing facilities. One stall in each new restroom building will be a "family restroom" sized to be in full compliance with the Americans with Disabilities Act (ADA). Per the recommendation of the LBPD, the restroom buildings would be designed so that the exterior of the building is lined with doors to individual stalls that can be locked from the inside. Washbasins would be outside at one end of the building. This design would eliminate hallways or other central areas in which criminal activity can take place and has the advantage of not providing room for multiperson criminal acts. In addition, restroom entrances and washbasin areas would be well lit. Removal of the old restroom facilities and the design of the new facilities are anticipated to benefit the LBPD by deterring crime.

As described, the proposed project is not anticipated to result in an increase in calls for police services or require additional personnel to maintain acceptable service ratios, response times, or other performance objectives. Similarly, the project will not require new or expanded police facilities. Therefore, impacts related to police protection services are considered less than significant.

Schools. Generally, analysis of potential impacts to school facilities focuses on impacts associated with demand for new or expanded public education facilities resulting from construction of new housing units. The proposed project would implement habitat and recreation improvements to the existing project area. The proposed project would retain the existing recreation and open space uses of the project site. The proposed project does not involve the construction of residential units or include components that would create additional jobs in the project area. As such, the proposed project will not increase demand or negatively impact capacity in the LBUSD. Specifically, the available capacity of the schools in the vicinity of the proposed project will not be affected by the project. Therefore, the proposed project would not create a need to expand or construct new school facilities to maintain acceptable service levels, and no mitigation is required to reduce project impacts on schools to below a level of significance.

As noted previously in Section 4.10.1, several schools are located in the vicinity of the project site. Implementation of the proposed project, specifically construction activities, has the potential to affect the sensitive receptors at the school locations. These potential impacts related to the proposed project are described in the following EIR Sections: Section 4.2, Air Quality; Section 4.6, Hazards and Hazardous Materials; Section 4.9, Noise; and Section 4.12, Transportation and Circulation. As described within these sections, impacts to schools would be reduced to less than significant levels with the implementation of mitigation measures.

Libraries. Impacts to libraries are typically associated with development projects that include the construction of residential units because new residential units generate a permanent increase in residential population. Conversely, nonresidential projects are typically viewed as having relatively limited impacts attributable to occasional and incidental use of area library facilities.

The proposed project would implement habitat and recreation improvements to the existing project area. The proposed project would retain the existing recreation and open space uses of the project site. The proposed project does not involve the construction of residential units or include components that would create additional jobs in the project area. As such, the proposed project will not result in an increase of population in the project area that would result in increased demands on the existing library facilities. Therefore, the proposed project is not expected to have a significant impact on library services in Long Beach or to create a need for the expansion of library facilities or staffing levels. No mitigation is necessary to reduce project impacts to below a level of significance.

Sewer. The proposed project is located on City parkland that is currently being served by both City and LACSD sewer lines. As described previously, wastewater generated by the project site is treated at the LACSD JWPCP located in the City of Carson. The proposed project would implement habitat and recreation improvements to the project area. The proposed project would not change the existing recreation and open space uses of the project site. As described previously, the proposed project includes demolishing the restroom on the north shore of the Lagoon and two restrooms in Marina Vista Park near the end of the proposed open channel (one in Marina Vista Park and one south of East Eliot Street at Marine Stadium). The locations of the existing restrooms are shown on Figure 4.10.2. The restrooms in Marina Vista Park and Marine Stadium will be replaced in similar locations (but outside of the open channel alignment) with new facilities that are the preferred design of the LBPD. The restroom on the north shore of the Lagoon will not be replaced. Each of the new restrooms will provide eight unisex toilets and three sinks, which provide the same capacity as the existing facilities. One stall in each new restroom building will be a “family restroom” sized to be in full compliance with ADA. Additionally, the new restrooms will be equipped with low-flow faucets and toilets (pursuant to Title 24 of the California Administrative Code) that would reduce the amount of water consumed by the fixtures, thereby also reducing the amount of wastewater generated when compared to existing conditions. Any changes in park attendance and/or patterns of use are expected to be negligible as a result of project implementation. Therefore, due to the use of low-flow facilities, the restroom component of the project would result in a small reduction of wastewater generation. Hence, the restroom component of the proposed project would not require new or expanded wastewater treatment capacity.

The proposed project includes construction of a dry weather runoff diversion system from three major storm water drain lines to a wet well that would discharge into the LACSD sanitary sewer system, as shown on Figure 4.10.2. The diversion system would include flow meters and valve control devices so that during a large storm event, the control device would shut off when the meter indicates that the flow had reached the capacity of the wet well. One-way flap gates would be installed at the end of these storm drain lines so as to preclude tidal saltwater from the Lagoon from entering into the storm drain (and thus potentially the sanitary sewer system) while allowing storm flows to freely discharge into the Lagoon.

New diversion pipes would be installed underground to carry the diverted storm water from the storm drain outlet locations to the underground wet well. The underground wet well and aboveground pump station would be built on the golf course at the corner of East 6th Street and Park Avenue, as shown on Figure 4.10.2. The underground wet well would measure approximately 40 x 40 feet (ft) in area and 12 ft in depth. A small pump would also be constructed as part of the diversion system for the storm drain located on the east side of the north arm of the Lagoon in order to pump storm water into

the wet well. The locations of the new diversion pipes and wet well are also shown on Figure 4.10.2. The runoff collected in the wet well would be pumped via the LACSD Marina Relief Trunk Sewer, Section 1B, which is located in East 6th Street near the intersection of Park Avenue, to the LACSD JWPCP. Due to an LACSD-imposed restriction, pumping operations would be limited to only certain times of day (i.e., midnight to 5:00 a.m.).

Based on the 5-hour-per-day allowed pumping period (midnight to 5:00 a.m.), the diversion flows from the wet well are estimated to average 110,000 gallons per day (gpd), which would equate to approximately 367 gallons per minute (gpm) into the sewer line. Maximum flows into the sewer line are estimated to be 120,000 gpd, which would equate to approximately 400 gpm. The LACSD has stated that Marina Relief Trunk Sewer, Section 1B has a design capacity of 5.5 mgd and conveyed a peak flow of 3.4 when last measured in 2003, leaving 2.1 mgd as available capacity. Based on this available capacity as measured in 2003, the proposed project's maximum daily flow (120,000 gpd) would reduce the sewer's available capacity (2.1 mgd) by 5.71 percent to 1.98 mgd. This maximum flow would only occur during or after large storm events that would fill the wet well; hence, this maximum flow capacity would not be utilized regularly. Also, due to the LACSD pumping restrictions, the wet well would be discharged between midnight and 5:00 a.m., when flows in the sanitary system are the lowest. Likewise, the JWPCP has a design capacity of 400 mgd and currently processes an average flow of 310.8 mgd. Therefore, the JWPCP has a current available capacity of 89.2 mgd. The estimated maximum daily flow from the wet well (120,000 gpd) represents 0.13 percent of this available capacity. As described previously, the wet well would be discharged during the nighttime when wastewater flows are reduced in comparison to daytime flows. Therefore, the additional wastewater flows that would result from operation of the storm water diversion system would not require expansion of the sewer system or the JWPCP in order to accommodate the additional flows.

The design capacities of the LACSD's wastewater treatment facilities are based on the regional growth forecast adopted by the Southern California Association of Governments (SCAG). Any future expansions of LACSD facilities must be sized and service phased in a manner that is consistent with SCAG regional growth forecasts for Los Angeles County. The available capacity of the LACSD's treatment facilities is, therefore, limited to levels associated with the approved growth identified by SCAG.

Payment of a connection fee to the LACSD, pursuant to the California Health and Safety Code, will be required before a permit to connect to existing sewer facilities is issued. This connection fee is a capital facilities fee imposed in an amount equal to the cost of constructing an incremental expansion of the system. The fees are to provide funding for future system enhancements. In addition, the project will be required to comply with all LBWD and LACSD requirements for design and construction of new sewer infrastructure and will not result in temporary or long-term disruptions of service to the surrounding area or adversely affect service levels.

In summary, project-generated wastewater will not exceed the existing capacity of the sewer delivery system and will not require the construction of new sewer delivery facilities other than those to be constructed on site for the storm water diversion system. In addition, based on the anticipated flows and existing available capacity of the JWPCP, the proposed project would not exceed wastewater treatment requirements of the Los Angeles RWQCB or require the construction or expansion of the JWPCP facilities. Likewise, the proposed project is not anticipated to result in a determination by the

LACSD that inadequate capacity exists to serve the project in addition to existing commitments. Hence, project impacts related to the provision of wastewater services are considered less than significant, and no mitigation measures are required.

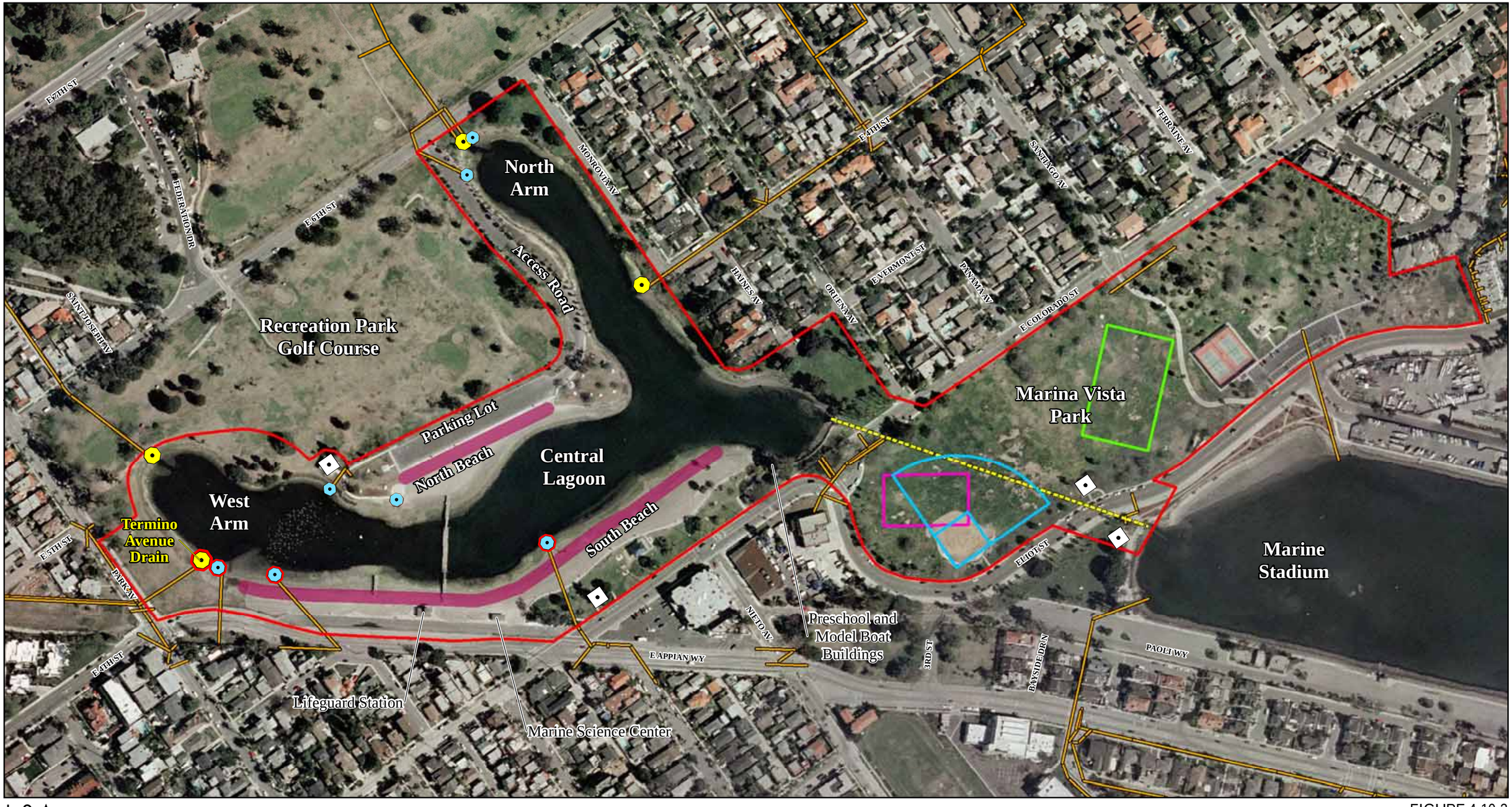
Potential impacts related to the construction of the storm water diversion system are evaluated along with the other potential construction-related impacts within the following EIR Sections: Section 4.1, Aesthetics; Section 4.2, Air Quality; Section 4.4, Cultural and Paleontological Resources; Section 4.5, Geology and Soils; Section 4.7, Hydrology and Water Quality; Section 4.8, Land Use; Section 4.9, Noise; Section 4.11, Recreation; and Section 4.12, Transportation and Circulation.

Storm Water. The proposed project would implement enhancements to existing storm drains that currently discharge into the Lagoon. There are 11 storm drains that currently discharge into the Lagoon, as identified on Figure 4.10.3. Four of these are major system outfalls that serve large areas of the watershed. One of the major system outfall structures entering the Lagoon is referred to in this EIR as the Termino Avenue Drain. This major outfall drain is currently proposed by the County to be modified so as to no longer discharge into the Lagoon. Instead, the drain would bypass the Lagoon and discharge storm water flows into Marine Stadium and dry weather flows into the sanitary sewer system. This project would also redirect flows from three other storm drains located on the south shore of the Lagoon that currently discharge into the Lagoon. The drains that would be diverted by the County Termino Avenue Drain Project (TADP) are shown on Figure 4.10.3. A full description of the TADP is provided in Section 3.5 of the Project Description. The TADP would abandon in place the four existing drain discharge structures at the Lagoon. The proposed Lagoon project would close off the ends of these drains and remove the outlet structures.

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

The trash separation devices would trap trash and debris prior to entering the wet well for the diverted runoff and/or discharge into the Lagoon during storm events. These filtration devices would be installed within the pipe just upstream of the diversion structure. These filtration devices would need cleaning on a periodic basis. The storm drain locations and the proposed upgrades are shown on Figure 4.10.4.

To divert dry weather flow and the first storm flows, diversion structures/mechanisms would be installed a short distance upstream of the discharge ends of the three major system outfalls. The diversion system would be designed so that storm flows would bypass the diversion and discharge directly into the Lagoon, whereas the dry weather runoff and storm first-flush discharges would be diverted to a wet well. The diversion system would include flow meters and valve control devices such that during a large storm event, the control device would shut off when the meter indicated that



LSA

LEGEND

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

0 125 250 Feet

FIGURE 4.10.3

Colorado Lagoon Restoration Project

Existing Conditions

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

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LSA

0 100 200 Feet

LEGEND

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

FIGURE 4.10.4

Colorado Lagoon Restoration Project

Proposed Water and Sediment Quality Improvements

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

I:\CLB0702\GIS\WaterSedimentImprovements_Fig4.10.4.mxd (5/2/2008)

the flow had reached the upset limit of the available storage within the wet well. One-way flap gates would be installed at the end of these storm drain pipes so as to preclude tidal saltwater from entering into the storm drain (and, thus, potentially the sanitary sewer system) while allowing storm flows to freely discharge into the Lagoon.

New diversion pipes would be installed underground to carry the diverted storm water from the storm drain outlet locations to the underground wet well. The underground wet well and aboveground pump station would be built on the golf course at the corner of East 6th Street and Park Avenue. The size of the underground wet well would be approximately 40 ft by 40 ft and 12 ft deep. The locations of the new diversion pipes and wet well are shown on Figures 4.10.2 and 4.10.4. The runoff collected in the wet well would be pumped via the LACSD sewer line located on East 6th Street near the intersection of Park Avenue to the JWPCP. Due to an LACSD-imposed restriction, pumping operations would be limited to only certain times of day (midnight to 5:00 a.m.).

The flows from the remaining four local storm drains would be treated via vegetated bioswales. In addition, a bioswale would also be developed on the north shore of the western arm of the Lagoon to treat golf course sheet flow runoff. These vegetated bioswales would treat storm water and dry weather runoff through filtration to remove sediment and pollutants prior to discharge into the Lagoon. Bioswales located between the Lagoon and the golf course would treat the discharge from the two local drains on the tip of the north arm and any runoff from the golf course, and two smaller bioswales would treat the discharge from the two local drains on the north shore of the Lagoon to the west of the footbridge. The swales are designed to be 3 ft deep and 10 ft wide at the top. The swales would have a V-shaped cross-section with sides sloping at a 2:1 ratio down to the channel centerline. The locations of all upgraded drains and proposed bioswales are shown on Figure 4.10.4.

Therefore, the proposed project would construct storm water drainage facilities, which could result in significant environmental effects. Potential impacts related to the construction of the storm water drainage facilities are evaluated along with other potential construction-related impacts within the following EIR Sections: Section 4.1, Aesthetics; Section 4.2, Air Quality; Section 4.4, Cultural and Paleontological Resources; Section 4.5, Geology and Soils; Section 4.7, Hydrology and Water Quality; Section 4.8, Land Use; Section 4.9, Noise; Section 4.11, Recreation; and Section 4.12, Transportation and Circulation.

Potentially Significant Impacts

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

Fire Protection. The proposed project would implement habitat and recreation improvements to the project area. The proposed project would retain the existing recreation and open space uses of the project site. Any changes in park attendance and/or patterns of use are expected to be negligible as a result of project implementation; therefore, the on-site population that could be endangered by possible fire or emergency medical events would not be increased. The project does not include residential units, public facility buildings, or other structures that would increase the existing fire hazards on site. Therefore, the project is not anticipated to result in an increase in calls for emergency fire services.

The project does include development of an open tidal channel through Marina Vista Park. The open channel, as fully described in Section 3.0, Project Description, would be designed with gently sloping banks for safety and a landscaped buffer that would be installed along the sides of the channel. The landscaped buffer would contain a mixture of armor rock and native plantings that would create a safety barrier. Signage will be installed along the channel to deter pedestrians and children from entering the channel area. However, development of an open channel with tidal flows would create an area with potential safety concerns that could result in the need for a reallocation of lifeguard services. Therefore, as required by Mitigation Measure PSU-1, upon completion of construction of the open channel, the Long Beach Fire Department and the City Department of Parks, Recreation, and Marine will monitor lifeguard services in the project area to ensure adequate staffing.

The proposed project would not affect activity levels and uses within the project area and would not create a need to expand or construct new facilities to maintain acceptable service ratios, response times, or other performance objectives. Hence, impacts to fire protection would be less than significant. Construction of the open channel would create an attractive safety nuisance. However, implementation of Mitigation Measure PSU-1 would reduce impacts to a less than significant level.

Water. The proposed project is located on City parkland currently being served by the City water utility. Both potable and reclaimed water supply lines are in place and do not need to be extended in order to serve the project. The proposed project would implement habitat and recreation improvements to the project area. The proposed project would retain the existing recreation and open space uses of the project site. In addition, the proposed project includes demolishing the restroom on the north shore of the Lagoon and two restrooms near the Marine Stadium end of the proposed open channel (one in Marina Vista Park and one south of East Eliot Street at Marine Stadium). Existing restrooms are shown on Figure 4.10.2. The restrooms in Marina Vista Park and Marine Stadium will be replaced in similar locations (but outside of the open channel alignment) with new facilities that are the preferred design of the LBPD. Each of the new restrooms will provide eight unisex toilets and three sinks, which provide the same capacity as the existing facilities. One stall in each new restroom building will be a “family restroom” sized to be in full compliance with the ADA. Additionally, the new restrooms will be equipped with low-flow faucets and toilets (pursuant to Title 24 of the California Administrative Code) that would reduce the amount of potable water consumed by the fixtures compared to existing conditions. Any changes in park attendance and/or patterns of use are expected to be negligible as a result of project implementation. Therefore, 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. Hence, the proposed project would not require new or expanded potable water entitlements in order to have sufficient potable water supplies to serve the project, and impacts related to potable water supplies would be less than significant. Other than the restrooms, the remainder of the project area would continue to utilize reclaimed water for landscape irrigation.

Potential impacts related to the demolition and reconstruction of the restroom facilities are evaluated along with other potential construction-related impacts within the following EIR Sections: Section 4.1, Aesthetics; Section 4.2, Air Quality; Section 4.4, Cultural and Paleontological Resources; Section 4.5, Geology and Soils; Section 4.7, Hydrology and Water Quality; Section 4.8, Land Use; Section 4.9, Noise; Section 4.11, Recreation; and Section 4.12, Transportation and Circulation.

The proposed project includes revegetation of various areas at the Lagoon, as described in Section 3.5.2 and shown on Figure 3.6. The revegetation component of the project would create native upland, marsh, shrubs, and vegetated buffer areas around the Lagoon. Revegetation of the nontidal areas at the Lagoon would include installing a temporary irrigation system (using reclaimed water) that would be utilized to irrigate the new vegetation until it becomes fully established. After establishment, the irrigation system would be abandoned in place. Because the new native vegetation is drought tolerant, it does not require long-term irrigation. The establishment of the newly vegetated areas to the point of not requiring irrigation is anticipated to take approximately 3 years. Irrigation of the native vegetation types that would be installed at the Lagoon is estimated to use approximately 1.75 acre-feet (af) of water per year during establishment. As shown in Table 4.10.F, the revegetation process is estimated to require approximately 11.40 af of irrigation water per year for 3 years. This equates to a temporary demand increase of approximately 10,177 gpd of irrigation water.

Table 4.10.F: Temporary Increase in Native Landscape Irrigation Demands at the Lagoon

Revegetation Area	Acreage	Irrigation Demand (Acre-Feet Annually)
High Marsh/Upland	2.24	3.92
Coastal Sage Scrub	2.80	4.90
Shrubs	0.65	1.14
Vegetated Buffer/Berm	0.82	1.44
Total		**11.40 acre-feet annually or 10,177 gallons per day**

As described previously, the City currently has approximately 7 mgd of unused reclaimed water. As shown in Table 4.10.F, the proposed project would result in a temporary (approximately 3 years) increase of 10,177 gpd of reclaimed water use. This increase in reclaimed water demand is equal to 0.15 percent of the City's unused reclaimed water supply. As ample reclaimed water supplies exist, this temporary increase would not result in a significant impact to reclaimed water supplies. In addition, since reclaimed water supply lines are in place and currently serving the area, no extension of supply infrastructure (other than the temporary on-site irrigation system) are required to serve the project, and impacts are considered less than significant.

The LBWD has stated that intermittent nighttime water pressure decreases currently occur within the reclaimed water system in the project vicinity. Because the main use of the reclaimed water is for landscape irrigation, most users irrigate at night, which results in times of decreased water pressure. However, the LBWD has stated that no water pressure decreases occur during the daytime or non-peak irrigation hours. Because intermittent nighttime water pressure declines are an existing condition, Mitigation Measure PSU-2, which requires coordination with LBWD to schedule temporary irrigation at the Lagoon to occur during non-peak water usage times, has been included to ensure that the proposed project does not exacerbate the existing intermittent nighttime water pressure declines. With implementation of the proposed mitigation measure, project impacts related to exacerbation of existing intermittent nighttime water pressure declines would be less than significant.

Marina Vista Park is currently irrigated with reclaimed water supplies and associated infrastructure. The proposed project improvements within Marina Vista Park include replacement and reconfiguration of the existing irrigation system. The existing system within Marina Vista Park is

aged and in need of replacement. In addition, the alignment of the open channel within Marina Vista Park would require the irrigation system to be reconfigured. The new reconfigured irrigation system would not result in increased water demand or require the extension of water infrastructure (other than the described on-site system replacement). Conversely, due to the conversion of 2.02 ac of currently irrigated turf area to nonirrigated open channel landscape area, implementation of the improvements within Marina Vista Park would result in a slight decrease of water needed for irrigation. Therefore, the project improvements within Marina Vista Park would not result in significant impacts related to water entitlements or the extension of water infrastructure, and no mitigation is required.

Construction of the proposed project improvements largely involves dredging, excavation, and reuse of soil materials. Because groundwater levels at Marine Stadium and the Lagoon are approximately 5 ft below ground, a large portion of the dredge and excavation materials will be wet. As a result, there will be little or no need for additional water for fugitive dust control during most of the construction activities. However, during demolition of the three restrooms, demolition of the north parking lot and access road to East 6th Street, and development of the walking trail at the Lagoon, additional water for construction activities, including fugitive dust control, my be needed. The demand for water during these construction activities is approximately 2,660 gallons per acre per day. The size of the areas that may require water and the estimated water demands for construction activities are listed in Table 4.10.G.

Table 4.10.G: Estimated Construction Water Demands

Project Component Area	Acreage	Daily Construction Water Demand
North shore parking lot, access road, and restroom	1.26	3,351.60 gallons per day
Walking trail at the Lagoon	1.52	4,043.20 gallons per day
Restroom in Marina Vista Park and restroom south of East Eliot Street at Marine Stadium	0.15	399.00 gallons per day

As described in Section 3.6, the proposed project will be implemented in two phases consisting of sequenced components. Due to this, each project component listed in Table 4.10.G will be implemented at separate times, which would result in a lower daily demand for construction water than if the project components were being implemented simultaneously. Overall, these demolition and construction activities require minimal water and are not expected to have any adverse impacts on the existing water system or availability of water supplies. Therefore, impacts associated with short-term construction activities will be less than significant.

In summary, the project will not necessitate new or expanded water entitlements or infrastructure as significant increases in both potable and reclaimed water demands would not result from the proposed project. Therefore, with implementation of Mitigation Measure PSU-2, project impacts associated with an increase in water demand or an extension of supply infrastructure are less than significant.

Solid Waste. The proposed project would implement habitat and recreation improvements to the existing project area. The proposed project would retain the existing recreation and open space uses of the project site. Any changes in park attendance and/or patterns of use are expected to be negligible

as a result of project implementation. Therefore, solid waste generation is not anticipated to significantly increase with implementation of the proposed project as a result of land use changes or increased visitors. However, a slight increase in solid waste generation may result from implementation of trash management protocols at the Lagoon, which would involve more frequent and effective solid waste collection and disposal. Specifically, the proposed trash management protocols at the Lagoon include ensuring that all trash containers are covered, disallowing trash trucks to drive on the sand areas, providing additional trash containers at key locations, educating Lagoon users on litter control and its effect on the environment, and enforcing littering laws. The objective of the trash management protocol is to reduce refuse in the water and adjacent areas, especially during summer months, when the Lagoon is utilized most by picnickers. The increase in solid waste disposal from implementation of the trash management protocols is anticipated to be minimal. The regional landfills and SERRF have sufficient capacity to accommodate this demand for solid waste disposal facilities. Therefore, impacts related to operational increases in solid waste generation are considered less than significant.

Construction of the project would result in solid waste that would need to be disposed of in off-site facilities. The types of solid waste that would be generated include: dredge material, excavation soils, asphalt, concrete, rock, marine growth, and building materials. The project components that would generate materials for off-site disposal include: cleaning the existing culvert and removing impedances at the culvert, dredging Lagoon areas, creating Bird Island, recontouring the Lagoon's side slopes, removing the north shore parking lot and access road to East 6th Street, demolishing three existing restrooms, constructing a storm water diversion system and bioswales, developing the open channel, and constructing the bridges at East Colorado and East Eliot Streets. The quantities and types of solid waste that would be generated by these project components are listed in Table 4.10.H.

Table 4.10.H: Solid Waste Generated by Construction Activities

Solid Waste Generation	Quantities Disposed Off Site
Contaminated dredge material from the western arm of Colorado Lagoon	16,000 cubic yards
Noncontaminated soils from the central Lagoon area dredge and development of Bird Island, bioswales, and diversion system	20,400 cubic yards
Cleaned culvert sediment and marine growth	900 cubic yards
Culvert rock and sill impedances	130 tons
Excavation soils from development of the open channel	25,500 cubic yards
Demolished culvert concrete debris	2,300 tons
Demolished East Eliot Street and East Colorado Street pavement debris from open channel development	1,800 tons
Demolished north parking lot and access road to East 6th Street debris	1,840 tons
Demolished Appian Way divider concrete	190 tons
Demolished restroom debris	30 tons

As noted in Table 4.10.H, dredge of the western arm of the Lagoon would generate 16,000 cy of contaminated dredge material. Because this material is contaminated (as further described in Section 4.6, Hazards and Hazardous Materials), there are limitations as to where the material can be placed. It would not be eligible for disposal at a Class III nonhazardous landfill along with the other solid wastes generated by the project. The preferred disposal location for this material is at the Port of Long Beach within a confined location, such as a Port landfill. As described previously in Section 4.10.1,

the Port constructs landfill areas to provide additional land for the expansion of port facilities. Developing landfill areas requires large amounts of rock and fill material. Several existing Port projects, as listed in Section 4.10.1, will require large volumes of fill material. However, disposing of the contaminated sediment at a Port landfill project is constrained by the timing between the Lagoon dredge activities and the construction of the Port landfill. If the timing of these activities does not coincide, the contaminated sediment would be hauled to the closest Class I landfill, which is Kettleman Hills Landfill.

Kettleman Hills Landfill is located in Kings County on the I-5 corridor, north of the City of Bakersfield. The facility is an approved Class I, II, and III disposal facility that is permitted to accept 8,000 tons per day and has a remaining capacity of 6,000,000 cy. Disposal of the contaminated western dredge material would be a one-time contribution to the facility that would equate to 0.27 percent of the remaining capacity within the landfill. All of the contaminated material will be removed by a California State licensed contractor and disposed of in accordance with applicable laws and regulations. Refer to Section 4.6, Hazards and Hazardous Materials, for additional information related to contaminated sediments. This one-time contribution would not result in a significant impact to the permitted capacity of the Kettleman Hills Landfill and would be in compliance with federal, State, and local statutes and regulations related to solid waste.

The remainder of the demolition and excavation material will be disposed of at Class III nonhazardous landfills, which would also be a one-time contribution to those facilities. The landfills that accept such materials have sufficient capacity to accommodate the disposal materials that will be generated by implementation of the project. For example, the Puente Hills Landfill, which is the closest Class III landfill, has an estimated remaining capacity of 49,348,500 cy and will be able to accommodate the noncontaminated solid waste listed in Table 4.10.H. Therefore, impacts to unclassified landfills due to project implementation will be less than significant.

As previously stated, AB 939 requires that every city and county in California implement programs to recycle, reduce refuse at the source, and compost waste to achieve a 50 percent reduction in solid waste being taken to landfills. In order to assist in meeting this goal, the proposed project will be required to incorporate the collection of recyclable materials into project design and to require contractors to reuse construction supplies, including landscape containers, where practicable or applicable to the extent feasible. Mitigation Measure PSU-3 will assist the City in its effort to meet its waste reduction goals by facilitating recycling on site during construction and operation of the proposed project. As identified previously, the proposed project would not result in significant impacts related to landfill capacity or compliance with federal, State, and local statutes and regulations related to solid waste.

Mitigation Measures

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

PSU-1 Upon completion of construction of the open channel within Marina Vista Park, the Long Beach Fire Department and the Long Beach Department of Parks, Recreation, and Marine shall assess and monitor lifeguard services, and re-allocate staff as warranted, at the Lagoon and Marina Vista Park to ensure adequate staffing.

PSU-2 During the irrigation and establishment of newly vegetated areas at the Lagoon, the Long Beach Department of Parks, Recreation, and Marine shall coordinate with the Long Beach Water Department (LBWD) to develop a schedule for the use of reclaimed water for temporary irrigation purposes at the Colorado Lagoon. The temporary irrigation of Lagoon areas shall occur during non-peak water usage times so as to ensure that the proposed project does not exacerbate the existing intermittent nighttime reclaimed water pressure decreases.

PSU-3 A solid waste management plan for the proposed project shall be developed by the City of Long Beach Department of Parks, Recreation, and Marine, and submitted to the City of Long Beach Environmental Services Bureau for review and approval prior to issuance of permits. The plan shall identify methods to promote recycling and reuse of construction materials as well as safe disposal consistent with the policies and programs outlined by the City of Long Beach. The plan shall identify methods of incorporating source reduction and recycling techniques into project construction and operation in compliance with State and local requirements such as those described in Chapter 14 of the California Code of Regulations and AB 939.

4.10.5 CUMULATIVE IMPACTS

Police Protection

The geographic area for cumulative analysis of police protection services is defined as the service territory for the LBPD. A net increase of up to approximately 79,702 residents and 19,740 housing units is forecast for the City by 2035.[1] These growth projections are generated by the SCAG using the latest census data, local input, and historical growth trends, and reflect reasonably foreseeable developments and growth.

As stated above, the proposed project would retain the existing open space and recreation uses on the project site. Any changes in park attendance and/or patterns of use are expected to be negligible as a result of project implementation. Due to this, the project would not result in additional calls for police services or have any other significant impacts on law enforcement services. The planned future land use projects, as listed in Table 4.10.I, are generally improvements to existing facilities, infill residential projects, or new commercial developments. These future projects will likely include specific features designed to reduce impacts on police protection services and may be assessed additional mitigation measures specific to the given project's impacts. The need for additional police protection services associated with cumulative growth will be addressed by the City through the annual budgeting process when budget adjustments may be made to meet changes in service demand. Therefore, the combined cumulative impact associated with the project's incremental effect and the effects of other projects in the area is considered less than significant.

[1] The change in the number of residents and jobs was measured using the California Department of Finance 2007 population estimate for the City of Long Beach and growth forecasts from the Southern California Association of Governments, Draft 2008 RTP Baseline Growth Forecast.

Table 4.10.I: Planned Future Projects

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

N/A = not applicable

Fire Protection

Similar to the cumulative analysis area for police protection services, the geographic area for cumulative analysis of fire protection (including marine safety/lifeguard) services is defined as the service territory for the Long Beach Fire Department. As stated above, a net increase of up to approximately 79,702 residents and 19,740 housing units is forecast for the City by 2035.[1]

As stated above, the proposed project would retain the existing open space and recreation uses on the project site. Any changes in park attendance and/or patterns of use are expected to be negligible as a result of project implementation. Due to this, the project would not result in increased demand for fire, lifeguard, or emergency medical services or have any other significant impacts on fire protection services. The planned future land use projects, as listed in Table 4.10.I, are generally improvements to existing facilities, infill residential projects, or new commercial developments. These future projects will likely include specific features designed to reduce impacts on fire protection services and may be assessed additional mitigation measures specific to the given project's impacts. The need for additional fire, lifeguard, and emergency medical services associated with cumulative growth will be addressed by the City through the annual budgeting process when budget adjustments may be made to meet changes in service demand. Therefore, the proposed project will not generate a significant cumulative increase in demand for fire protection, emergency medical, or lifeguard services.

Public Schools

The geographic boundary for the cumulative analysis for schools is the area within the LBUSD. The proposed project would retain the existing recreation and open space uses of the project site. The proposed project does not involve the construction of residential units or include components that would create additional jobs in the project area. As such, the proposed project will not increase

[1] The change in the number of residents and jobs was measured using the California Department of Finance 2007 population estimate for the City of Long Beach and growth forecasts from the Southern California Association of Governments, Draft 2008 RTP Baseline Growth Forecast.

demand or negatively impact capacity in the LBUSD. Likewise, the project will not contribute to an adverse direct or cumulative impact to schools and therefore does not require mitigation.

Libraries

The geographic area for the cumulative analysis of impacts to library facilities is the City of Long Beach. The proposed project will not result in population or jobs growth in the City, and therefore is not expected to have a significant impact on the provision of library services in the City of Long Beach or the area surrounding the project site. Any increase that does result from implementation of the proposed project would be incidental and not cumulatively considerable because library services would not be adversely impacted by the habitat and recreation improvements that would be provided by the proposed project.

Water

The geographic area for the cumulative analysis for the supply of potable and reclaimed water is defined as the LBWD service territory. As previously stated, the project includes short-term requirements for additional reclaimed and construction water supplies. The LBWD currently has approximately 7 mgd of unused reclaimed water, and this surplus is sufficient to serve the project and future planned development. Therefore, no significant cumulative impacts to the distribution or supply of reclaimed water are expected.

The proposed project would not increase long-term demand for potable water. Therefore, no significant cumulative impacts on potable water services are expected to occur as a result of project implementation.

Sewer

The geographic area for the cumulative analysis for sewer treatment is defined as the LACSD service territory. Within its service area, the LACSD uses SCAG forecasts for future population and employment growth to project needed capacity. Because the LACSD projects that its existing and programmed wastewater treatment capacity will be sufficient to accommodate the growth forecasted by SCAG within its service area, development that is generally consistent with this forecast can be adequately served by LACSD facilities. The proposed project is consistent with SCAG projections for the City of Long Beach and the County of Los Angeles. Therefore, the proposed project will not contribute to a significant cumulative impact to wastewater services.

Solid Waste

Development associated with future projects in the City of Long Beach will contribute to increased demand for landfill capacity for solid waste from construction activities and operations. Unclassified landfills that accept inert waste (construction debris), including waste created by the proposed project, face no capacity shortfall.

There is, however, insufficient capacity within the existing system serving Los Angeles County to provide for long-term nonhazardous solid waste disposal needs. Additional capacity will be available through the expansion of local landfills and the use of waste-by-rail disposal at Eagle Mountain Landfill in Riverside County and the Mesquite Regional Landfill in Imperial County. The Mesquite Regional Landfill is under construction, and expected to be ready for landfill operations in 2009 and waste-by-rail operations in 2011/12. With operation of the Mesquite Regional Landfill, the LACSD would be able to meet the projected landfill needs. Therefore, the project's contribution when coupled with solid waste generated by future projects would not result in cumulatively significant impacts to solid waste disposal capacity. In addition, as previously stated, Mitigation Measure PSU-2 will reduce project impacts to regional waste disposal capacity to the extent feasible.

4.10.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of Mitigation Measure PSU-1 will ensure adequate lifeguard staffing after construction of the project. Implementation of Mitigation Measure PSU-2 will reduce project impacts on irrigation water services to a less than significant level. Implementation of Mitigation Measure PSU-3 will assist the City in its effort to meet waste-reduction goals, and project impacts related to compliance with federal, State, and local status and regulations for solid waste will be reduced to a less than significant level. All other potential impacts associated with the proposed project are less than significant and do not require mitigation.