1950s to Present Day: Modern Developments

By the late 1970s, most of the shrubbery and flowers had been removed due to increasing crime, vagrancy, and a lack of budget to maintain the exotic and lush plantings at the Park. In 1976, a local Cuban American arts and culture group erected a bronze bust of José Martí in the northwest corner of the Park.[46]

In the 1980s, the Lady of the Lake statue was removed due to vandalism. The statue was re-installed in its present location on the east side of the Lake in 1999. The pump house was built on the former statue location in 1986.

The Park continues to be used for a variety of community recreational activities, including the annual Lotus Festival. The festival was created in 1977 and celebrates Asian and Pacific Islander cultures. Modern amenities include a modern playground and picnic tables at the northern end of the Park. Concrete benches have replaced the wooden rustic benches around the perimeter of the Lake. The boathouse continues to rent paddleboats.[47]

EXISTING CONDITIONS

An archival records research of the project site was conducted on April 21, 2008 at the South Central Coastal Information Center housed at California State University, Fullerton. The archival research involved review of historic maps, previously recorded archaeological site records and reports, and historic site and building inventories. The records search revealed that a total of nine cultural resource investigations were previously conducted within a one-half-mile radius of the project site. Of the nine previous investigations, three are cultural resource surveys, assessments, or survey and assessment; two are literature searches; one is related to an EIR; one is related to an Initial Study/Mitigated Negative Declaration; one is related to telecommunication services; and one is a Phase III technical report. Approximately ten percent of the one-half-mile record search study area has been previously surveyed. The project site itself has not been previously surveyed. The previously surveyed areas within one-half-mile of the project site are described in Table 3.4-2.

TABLE 3.4-2 CULTURAL RESOURCE INVESTIGATIONS WITHIN ONE-HALF-MILE OF THE PROJECT SITE

Author	Report No.	Description	Date
Billat, Lorna	7995	Historic Consultation for Nextel Communications, Inc. Telecommunications Service (WTS) Facility Project Elevado/CA-7512B, in Los Angeles City and County, California	2005

[46] Ibid.
[47] Ibid.

Author	Report No.	Description	Date
Dillon, Brian D.	1741	Archaeological and Paleontological Reconnaissance and Impact Evaluation of the Central City West Study Area Los Angeles, California	1989
Dillon, Brian D. and Roy Sails	2768	Draft Environmental Impact Report Central City West Specific Plan	1989
Duke, Curt	4606	Cultural Resource Assessment for Pacific Bell Mobile Services Facility LA 671-02, County of Los Angeles, California	1999
McKenna, Jeanette A.	7387	Historic Cultural Resources Study: The Los Angeles Unified School District Central Region Elementary School No. 14, Located in the Echo Park Area of The City of Los Angeles, Los Angeles County, California	2005
Thal, Erika	7382	CA-7728A/Cortez 1333 West Temple Street, Los Angeles, CA, Los Angeles County	2004
Unknown	5069	Initial Study/Mitigated Negative Declaration for the El Centro del Pueblo Recreation Center	2000
Wlodarski, Robert J.	7357	A Phase I Archaeological Study for the Proposed Temple Villas Apartment Building Located at 1417–1429 Temple Street City of Los Angeles, County of Los Angeles, California	2004
Wood, Catherine	8265	Archaeological Report for the Visaya Garden Project Located at 418-430 N. Alvarado Street, Los Angeles, California	2007

Source: EDAW 2008.

The records search revealed that no prehistoric archaeological resources have been recorded within a one-half-mile radius of the project site. As shown in Table 3.4-3, one cultural resource has been recorded within one-half-mile of the project site. This resource consists of a historic railroad bed, possibly a remnant of the Pacific Electric Trolley system, which once operated in Los Angeles. The remains of the historic transportation systems which ran in an east/west direction were found approximately six to eight feet below the surface of the road along Beverly Boulevard, between Loma Drive and Wider Street.

TABLE 3.4-3 ARCHAEOLOGICAL RESOURCES RECORDED WITHIN ONE-HALF-MILE OF THE PROJECT SITE

Resource Number	Description	Date Recorded
P-19-100429	Linear feature associated with historic trolley or railroad system	April 2001

Source: EDAW 2008.

A review of the Office of Historic Preservation's Directory of Properties for Los Angeles County, the National Register of Historic Places (National Register), and documents provided by the City of Los Angeles were limited to properties within the project site and to properties on streets adjacent to the project site. As shown in Table 3.4-4, the records indicated that eight historic or potentially historic properties have been recorded on a local listing or designation, the California Register of Historic Resources (California Register) or the National Register within the immediate project area. Of these eight properties, two are within the project site and six are located along the streets directly surrounding the project site.

TABLE 3.4-4 HISTORIC PROPERTIES RECORDED WITHIN OR ADJACENT TO PROJECT SITE

Address	Building/Site Name	Year Built/Completed	Location in Relation to Project Site	Status
751 N. Echo Park Ave.	Echo Park**	1892	Project site	City of Los Angeles Historic-Cultural Monument No. 836
751 N. Echo Park Ave.	Echo Park Boathouse**	1932	Within the project site, on the east side of the Lake	2S2: Individual property determined eligible for the National Register by consensus through Section 106 process. Listed in California Register.
1632 Bellevue Ave.	Echo Park Recreation Center	1925	South of the Lake, between Bellevue and US 101	2D2: eligible as contributor to National Register district. Listed in California Register.
840 Echo Park Ave.	Saints Athanasius and Paul Episcopal Church and associated buildings	1921/1931	East of the boathouse within the Park, between Echo Park Ave. and Laguna Ave.	7N: needs to be re-evaluated
801 Glendale Blvd.	Residence	1912	West of the Park, between Kent St. and Santa Ynez St.	5S2: eligible for local listing or designation
823 Glendale Blvd.	Residence	1905	West of the Park, between Kent St. and Santa Ynez St.	5S2: eligible for local listing or designation
827 Glendale Blvd.	Residence	1920	West of the Park, between Kent St. and Santa Ynez St.	5S2: eligible for local listing or designation

Address	Building/Site Name	Year Built/Completed	Location in Relation to Project Site	Status
1100 Glendale Blvd.	Angelus Temple	1921/1923	North of the Park, at intersection of Glendale Blvd. and Park Ave.	1S: listed on the National Register as individual property

**indicates Historic Property within the project area.
Source: EDAW 2008.

The neighborhood located on the east side of Echo Park Avenue, east of the project site, is within the City of Los Angeles Angelino Heights Historic Preservation Overlay Zone (HPOZ). No part of the project site is located within this HPOZ.[48]

SACRED LANDS FILE SEARCH

As part of the cultural resources assessment, information concerning sacred lands located in the vicinity of the project site was requested from the Native American Heritage Commission as part of a standard records search. The results indicated that no sacred lands have been reported in the vicinity of the project site. However, the absence of specific site information in the Sacred Lands File does not preclude the possibility of cultural resources within the project site.

CULTURAL RESOURCES SURVEYS

Archaeological Survey

An archaeological field survey was conducted on July 31, 2008. The survey area consisted of the approximately 11-acre open recreational space surrounding the Lake. Because the project site consists of an existing park, the ground surface is obscured by lawn (approximately 95 percent) and ground surface visibility is poor. As a result, the survey was focused to all areas throughout the project site where soils were exposed; these, in most instances, were limited to tree wells. A low vertical cut on the east side of the Lake where the grass meets the pathway was also inspected. No prehistoric and/or historic archaeological resources were identified during the field survey.

HISTORIC RESOURCES SURVEY

A cultural landscape survey of the project site was conducted on August 25, 2008 to document the Park's historic landscape. Historic features were recorded on State of California, Department of Parks and Recreation (DPR) forms.

In order to understand the relationship between the current Park landscape (as surveyed in 2008) and the historic landscape that existed during its period of significance (1870 to 1943), a description of extant

[48] City of Los Angeles Department of City Planning, Office of Historic Resources. Historic Preservation Overlay Zones (HPOZs). Website http://www.preservation.lacity.org/hpoz. Accessed May 5, 2010.

historic features is presented below. The goal of the cultural landscape survey was to understand what historic features contribute to the significance of the landscape, and to provide the basis for a treatment plan for the cultural landscape (see Appendix E). Sources such as historic photographs, maps, and aerial photographs were used to understand the character of the landscape during its period of significance, which is described below.

The period of significance for the Park spans the years between 1870 (when the dam was completed for Reservoir No. 4) and 1943, when construction on the US 101 began. The project site landscape is connected with significant historic events (Criterion A or 1), connected with locally significant people (Criterion 2 only), and design styles (Criterion C or 3). Themes significant in the history of the Park are associated with relevant National Register and California Register Criteria listed below. As part of this historic resources evaluation, individual landscape characteristics and features are identified with a particular historic context and Criterion.

Themes associated with Criterion A or 1: Events that have made a significant contribution to the broad patterns of our history include:

- Development of Los Angeles' early water supply systems, by both public and private entities (c. 1860–1900).

- Development of Los Angeles municipal parks as part of a larger national City Beautiful Movement (c. 1850–1910).

- Development of Los Angeles recreational facilities as part of the Progressive-era Parks and Playgrounds Movement (c. 1890–1910).

Based upon the available research and analysis performed in preparation for this historic resource evaluation, the following additional areas of local cultural landscape significance should be considered:

- The Echo Park area was a "gateway" for immigrants into Los Angeles that resulted in its multi-cultural history. The Park continues to support the cultural activities of the neighborhood (e.g., Lotus Festival).

- The Echo Park area functioned for a time as a community characterized by its leftist politics; it was referred to as "Red Gulch," and the Park playground was the home to one of its cooperative schools.

Themes associated with Criterion B or 2: Associated with the lives of persons significant in our past may include:

- Ada May Sharpless, a prolific artist in the Los Angeles area during the New Deal era (c. 1930s); likely local significance only.

Themes associated with Criterion C or 3: Distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction include:

- Picturesque-style municipal park design in the United States (c. 1840–1910).
- Spanish Colonial Revival architecture in California (c. 1910–1940).

There are no known themes associated with Criterion D or 4: have yielded, or may be likely to yield information important in prehistory or history.

The assessment of a landscape's historic integrity is based on the presence and condition of historic physical features and systems remaining from the project site's period of significance. As summarized under the regulatory setting discussion below, the landscape of the proposed project is considered a significant historical resource according to CEQA and National Register criteria.

Historic Buildings

Three historic buildings remain in the Park: the Park Maintenance Building (pre-1916) on peninsula near Park Avenue, the boathouse (1932) on the east edge of the Lake, as well as the Park Recreation Structure (1925) located directly adjacent the project site to the south of Bellevue Avenue (not a part of the project site).

These buildings each remain from the period of significance. The boathouse and Park Recreation Structure reflect the significance of the Spanish Colonial Revival architecture theme through characteristics such as their stucco or brick cladding and tiled roofs. These buildings include small additions, such as a new accessibility ramp at the Park Recreation Structure; the boathouse has minor new additions of fencing/railing on its roof.

Historic Structures

The historic structures within the Park include the bridge (from the Park to the island within the Lake) and perhaps some sections of the Lake edge wall. The existing bridge is the second bridge constructed at that location in the Park's history (c. 1930–1950), and replaced the original rustic-style bridge. The bridge's abutments on both the island and the peninsula side appear to include the original riprap that was used to create the island and to shore up the peninsula edges. The boat docks at the boathouse may survive from the historic period as well. One storm water inlet also appears to survive from the historic period.

Historic Circulation

Surviving historic circulation systems include the approximate alignments of the pathways that encircle the Lake and provide access to the peninsula. These paths remain in their approximate locations from the 1910s. The historic materials of the path system may have included crushed stone, sand, soil, and later, asphalt and concrete. In addition, two concrete stairways installed along the sidewalk at Glendale

Boulevard also survive from the historic period (one additional original stairway appears to have been reconstructed in place).

Historic Vegetation

Some trees at the Lake survived from the earliest construction, such as the palm trees along the Lake north of the boathouse, palm trees lining paths on the peninsula, and other scattered trees on the island and along the Lake and street edges. The lotus beds, the exact origins of which are unknown, have been growing at Echo Park since the 1920s. The lotus plants are also the focus of the Lotus Festival, which has been taking place at the Park since the 1970s. The lotus plants do not appear to have survived, as they have not been visible at the Lake in recent years. There are some understory plants, such as a small grove of bamboo near the southeast end of the Park, and pampas grass on the island which may be remnants of historic plantings. Other historic understory plants located on the project site include fuschias, roses, hydrangeas, and spireas. A majority of the historic vegetation has been removed or has not survived.

Historic Water Features

The most important feature of the Park is the Lake, which survives from the late 1870s when it was still a reservoir. The reservoir was modified during the project site's creation as a park, though the Lake continues to serve as a detention basin for the City's storm water system. The precise configuration of the Lake edge has changed, although the Lake's basic outline has remained nearly unchanged over the last century. The northwestern lobe of the Lake was partially filled in and no longer remains as a water feature. Another historic water feature that is now missing is a small fountain formerly located south of the concrete block utility shed along the east side of the Park.

Historic Small-Scale Features

The Lady of the Lake statue, sculpted by Ada May Sharpless, was installed at the Park in 1935 at the tip of the northern peninsula. After being vandalized, the statue was removed and stored for many years before it was reinstalled on the east side of the Lake. This statue does not have a historic designation or significance. However, the statue is locally significant to the community in the project area.

3.4.2 Regulatory Setting

California Register of Historic Resources

The criteria for evaluation of cultural resources for inclusion in the National Register of Historic Properties are set forth in Title 36, Section 60.4 of the Code of Federal Regulations (CFR):

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and:

A. That are associated with events that have made a significant contribution to the broad patterns of our history; or

B. That are associated with the lives of persons significant in our past; or

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

D. That have yielded, or may be likely to yield, information important in prehistory or history.

A resource meeting one or more of the National Register criteria must also retain the essential physical features that enable it to convey its historic identity. The quality of significance is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling and association. To retain historic integrity a property will always possess several, and usually most, of these aspects of integrity.

A cultural resource is considered "historically significant" under CEQA if the resource meets one or more of the criteria for listing on the California Register of Historic Resources (California Register). The California Register was designed to be used by state and local agencies, private groups, and citizens to identify existing cultural resources within the state and to indicate which of those resources should be protected, to the extent prudent and feasible, from substantial adverse change. The following criteria have been established for the California Register (Pub. Res. Code Section 5024.1, Title 14 California Code of Regulations [CCR] Section 4852). A resource is considered significant if it:

1. is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;

2. is associated with the lives of persons important to local, California, or national history;

3. embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

4. has yielded, or has the potential to yield, information important in prehistory or history of the local area, California, or the nation.

In addition to meeting one or more of the above criteria, historical resources eligible for listing in the California Register must retain enough of their historic character or appearance to be able to convey the reasons for their significance. Such integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association.

3.4.3 ENVIRONMENTAL IMPACTS

The following cultural resources analysis is based on the archival and library search and historical and archaeological surveys conducted for the proposed project. A detailed Cultural Resources Phase I and Cultural Landscape Treatment Plan was prepared for the proposed project (see Appendix E). This discussion is limited to potential impacts to cultural resources during construction as the proposed project would not involve operational activities that would disturb or destroy underlying historical or archaeological remains.

THRESHOLDS OF SIGNIFICANCE

As part of the Initial Study (see Appendix A), it was determined that the proposed project would not directly or indirectly destroy a unique paleontological resource, site, or unique geologic resource, or disturb any human remains interred outside of a formal cemetery. Accordingly, these issues are not further analyzed in the EIR.

Pursuant to the CEQA Guidelines, the proposed project would have a significant effect on cultural resources if it would:

- Cause a substantial adverse change in the significance of a historical resource as defined in California Code of Regulations Section 15064.5; or

- Cause a substantial adverse change in the significance of an archaeological resource pursuant to California Code of Regulations Section 15064.5.

For historical resources, the L.A. CEQA Thresholds Guide (page D.3-3) states that a project would normally have a significant impact on historical resources if it would result in a substantial adverse change in the significance of an historical resource. A substantial adverse change in significance occurs if the project involves:

- Demolition of a significant resource;

- Relocation that does not maintain the integrity and significance of a significant resource;

- Conversion, rehabilitation, or alteration of a significant resource which does not conform to the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings; or,

- Construction that reduces the integrity or significance of important resources on the site or in the vicinity.

For archaeological resources, the L.A. CEQA Thresholds Guide (page D.2-3) states that a project would normally have a significant impact upon archaeological resources if it could disturb, damage, or degrade an archaeological resource or its setting that is found to be important under the criteria of CEQA because it:

- Is associated with an event or person of recognized important in California or American prehistory or of recognized scientific importance to prehistory;
- Can provide information which is both of demonstrable public interest and useful in addressing scientifically consequential and reasonable archaeological research questions;
- Has a special or particular quality, such as the oldest, best, largest, or last surviving example of its kind;
- Is at least 100-years old and possesses substantial stratigraphic integrity; or

IMPACT ANALYSIS

CR-1: *The proposed project would potentially cause a substantial adverse change in the significance of a historical resource with the solar lighting option. The impact would be significant.*

As part of a previous evaluation of Echo Park as a Los Angeles Historic-Cultural Monument (No. 836), the Park has design significance (under Criterion C of the National Register) related to its English-style picturesque park landscape and for the Spanish Colonial Revival architectural style of the buildings. The previous evaluation also concluded that the Park has historical significance (under Criterion A of the National Register) as "one of Los Angeles' earliest parks and is the location of the city's second established, and oldest remaining, municipal playground. The history of Echo Park's creation and development represents significant trends in the provision of municipally funded parks and recreation facilities in Los Angeles during the early twentieth century. It is also significant as a remnant of Los Angeles' early water system and the trends and policies that shaped the city's distribution and use of public lands in the late nineteenth century".[49,50]

As described above, three historic buildings remain within the Park: the Park Maintenance Building (pre-1916) on the peninsula near Park Avenue; the boathouse (1932) on the east edge of the Lake; and the Park Recreation Structure (1925) located directly adjacent to the project site south of Bellevue Avenue. The Park Recreation Structure has been previously evaluated and is located within the portion of Echo Park that is south of Bellevue Avenue which is not a part of the project site. The boathouse within the project site has been previously evaluated. None of the buildings or historic structures would be removed,

[49] Cultural Heritage Commission. *Echo Park Historic-Cultural Monument Application.* Historic Resources Group. 2005.
[50] Historic Resources Group. *Section 106 Review for the "Echo Park Boathouse" – Finding of Effect Memorandum*. On file Los Angeles Community Development Department. 2005.

relocated, or renovated as part of the proposed project. However, the boathouse there is a potential for the structural integrity of the boathouse to be impacted during the construction of the Lake edge improvements. The construction of the Lake edge improvements located adjacent to the boathouse to remain in place would be in compliance with all applicable federal, state, and City requirements for the protection of the existing structural integrity of the building. Impacts to the boathouse during construction would be less than significant.

The goals of the proposed project include the improvement of Lake water quality and a reduction in the current use of municipal water resources in order to maintain the water level of the Lake. Construction activities to support these goals include in-Lake and storm drain improvements, as well as Lake edge improvements, parkland structural best management practices (BMPs), water conservation, educational elements and habitat restoration. Construction of the proposed project would result in significant impacts to the historic resources of the Park without the consideration of design features and construction BMPs, as summarized in Chapter 2.0, Project Description, and without the implementation of various construction procedures as described below. The considerations related to historic resources are discussed below in detail:

Re-alignment of Paths. Though very few exact historic path alignments remain within the project site, there are small sections of paths within the project site that appear to remain from the historic period. New construction would present the opportunity to re-align paths to their historic configuration. The final design of the proposed project would re-align paths to their historic configuration to the highest extent feasible. As such, implementation of the proposed project would not result in historic impacts related to Park's historic path alignments.

Historic Plantings and Trees. A majority of the historic vegetation on the project site has been removed or has not survived. Many of the understory plantings including fuschias, roses, pampas grass, bamboo, hydrangeas, and spireas, have been removed from the Park over the years. The use of understory plants is incorporated into the landscape plan for the proposed project (where feasible) to be compatible with the historic design of the Park. The northwestern lobe of the Lake formerly included a historic lotus bed that has diminished and failed to survive in recent years. As such, the proposed project would not result in significant impacts on this former lotus bed. The proposed project would rehabilitate and recondition the lotus bed, as well as plant new lotus flowers of a similar species to those of the historic period of significance.

Many of the trees on the project site appear to remain from the historic period of significance. In addition, these trees contribute to the historic views seen from the Park. The proposed project would include the removal of approximately 54 trees, the relocation of three trees, and the protection of numerous existing palm and canopy trees. Of the approximately 54 trees to be removed, three are City street trees located within the public parkways near the northeast and southeast corners of the project site, respectively. One of the trees to be removed with the proposed project is a designated Heritage Tree. The City street trees are Gold Medallion Trees (*cassia leptophylla*) and the designated Heritage Tree is a

Caucasian Wingnut (*pterocarya fraxinifolia*) located in the northwestern portion of the Park. The Caucasian Wingnut is currently in poor condition. Many of the trees to be removed have been identified as having various tree diseases, requiring eventual removal regardless of the proposed project. In addition, some of the trees to be removed are designated as being unstable and unsafe considering that they are located directly adjacent to the existing Lake edge and/or pathway. The location of these trees negatively impacts their root systems and the health of the trees. Also, a few of the trees may be hanging over the pathway adjacent to the Lake at unstable angles, resulting in potentially unsafe conditions for Park patrons using the pathway.[51]

According to the City of Los Angeles Department of Recreation and Parks (RAP) Tree Preservation Policy, Heritage Trees are individual trees of any size or species that are specifically designated as heritage because of their historical, commemorative, or horticultural significance. Heritage Trees are protected trees and recommendations from the RAP arborists must be obtained before any alterations to the protected trees is made that may cause the tree to become damaged, relocated, or removed. The General Manager of RAP or his/her designee must approve the recommendation before any action proceeds.

The RAP Tree Removal Procedure must be followed prior to alterations or removal of any trees located within a City park. The proposed project would require the removal and replacement of numerous existing trees, some of which have been identified as contributing to the Park's historic significance. A landscape plan has been prepared for the proposed project that outlines the protection, removal, and replacement of Park and City street trees. This landscape plan takes into consideration the importance of maintaining the Park's historic significance. Prior to construction, all historic vegetation to be protected would be marked on construction plans and flagged on the project site and all construction areas would be flagged. The removal of all trees within Park property would comply with the RAP's Tree Removal Procedure. This procedure includes the following steps:

1. Submit a tree removal request to the City Forestry Division.

2. Provide detailed information related to the project and the trees proposed to be removed (i.e., project timeline, proposed work to be completed within the tree's driplines, tree protection categories, etc.).

3. The City Forestry Division would evaluate the request, confirm the tree protection categories, inspect and evaluate the trees with appropriate staff, discuss alternatives and recommendations, and enter information into the Forestry Work Order System.

4. For Heritage Trees, City Forestry Division arborist would make a recommendation for removal to the RAP General Manager who would then make the final approval prior to the removal of the

[51] Dane S. Shota & Associates – Arborist and Nursery Service, Certified Arborist. *Tree Assessments and Recommendations – Echo Park Lake*. November 2009.

Heritage Tree. For the common Park trees, the City Forestry Division arborist would make the recommendation for removal.

5. The RAP Hazardous Tree Removal Procedures would be followed if it is determined that certain trees must be removed for safety reasons.

6. The City Forestry Division and Region would establish Notification Protocol.

Compliance with the RAP Tree Removal Procedure would ensure less than significant impacts related to the removal and replacement of various Park and City street trees.

Historic Lake and Lake Edge Conditions. The Lake edge historically appeared to have included both hard and soft (vegetated) edges. The Lake continues to have hard edges. The proposed project would rebuild some soft edges along areas of the Lake edge. Some areas of the water edge are now developed as concrete access points. The proposed project has been designed to renew and enhance the historic edging of the Lake. The existing storm water overflow structure along the western edge of the Lake would be modified to create an overlook area including railings, steps, benches, and interpretive signage related to the Proposition O. In addition, a new boardwalk area with the similar features would be constructed along the Lake edge within the northeastern lobe of the Lake, at the location of the existing outfall structures and concrete ramps. The current functions of the storm water overflow structure and the outfall structures and concrete ramps would not be removed with the proposed project. Additional interpretive signage would be provided at approximately five other locations near the Lake edge. The new overlook and boardwalk would be placed in areas along the Lake edge where there are currently concrete structures (i.e., the storm water overflow area and the outfall structures/ramps). Therefore, the addition of the overlook and boardwalk to the Lake edge would not substantially change the Lake edge from existing conditions. In addition, the overlook and boardwalk would be an improvement to the existing storm water overflow area and outfall structures/ramps.

In the Park's historic period of significance, the Lake was known for being characterized as an open body of water. This meant that the view of the Lake water surface was clear of aquatic plants, floating islands, or any other natural or man-made feature that would be visible at the water surface, particularly near the center of the Lake. The four existing constructed floating islands and a fountain located near the center of the Lake were installed after the Park's historic period of significance, impacting the open water character of the Lake. To comply with the water quality objectives of the proposed project, the proposed project would install wetland areas within the northeastern lobe of the Lake, within the southern portion of the Lake, within a small area along the western edge of the Lake, and within one small area along the eastern edge of the Lake. The proposed project would not include the installation of wetland areas near the center of the Lake. In addition, the proposed project would include the removal of the four existing constructed floating islands; therefore, improving the open water quality of the center of the Lake. Impacts would be less than significant.

Historic Topography. The historic topography of the Park appears to have remained intact in some locations, though it has been modified in others. The main modifications include the fill at the northwestern lobe of the Lake and the fill placed south of the Lake in the vicinity of Bellevue Avenue. However, the sloping topography at the peninsula, the flat topography at the island, and the bowl shape of the Lake bed remain. Impacts would be less than significant.

Historic Building Environs. The historic boathouse, which remains on the Lake edge, is considered to be very sensitive to change. It appears that the Lake edge adjacent to the boathouse was a hard edge with low retaining walls flanking the building's edges and vegetation (such as ornamental grasses) hanging over the edges. The boathouse and its environs would not be altered as a result of the proposed project. However, construction activities in the vicinity of the building may potentially impact the structural integrity of the boathouse. Prior to construction, areas containing historic resources (i.e., statues, boathouse, etc) would be flagged and/or fenced, depending on the resource, and designated as "no construction" zones. The construction of the Lake edge improvements located adjacent to the boathouse to remain in place would be in compliance with all applicable federal, state, and City requirements for the protection of the existing structural integrity of the building. Impacts would be less than significant.

Other Cultural Park Features. In 1935, the Lady of the Lake (Reina de Los Angeles) statue was installed in the northern portion of the Park at the tip of the peninsula directly adjacent to the Lake edge (the location of the current pump house). In 1986, the statue was removed from this location and was placed in storage while the pump house was then constructed at that location. In 1999, the statue was installed at its current location, within the east side of the Park, just north of the boathouse. The proposed project would preserve the Lady of the Lake statue and relocate the statue to its original location on the northern peninsula at the current location of the pump house. Since 1976, the bronze bust sculpture of José Martí has remained in the northwestern corner of the Park. The proposed project would preserve the sculpture in its current location. The relocation of the Lady of the Lake statue and the preservation of the José Martí sculpture would be in compliance with applicable requirements of the City of Los Angeles Department of Cultural Affairs, the City department that oversees such cultural resources. Prior to the start of construction, the BOE would coordinate with the City of Los Angeles Department of Cultural Affairs and/or other appropriate City department to develop appropriate measures to be followed during the construction for the preservation and relocation of the Lady of the Lake statue and for the preservation of the José Martí sculpture. In addition, prior to construction, areas containing historic resources (i.e., statues, boathouse, etc) would be flagged and/or fenced, depending on the resource, and designated as "no construction" zones. All historic features to be removed would be marked on construction plans, archived with photographic documentation, and filed in the appropriate Los Angeles Public library repository by a qualified architectural historian prior to construction. Construction staging areas would be clearly marked on plans and potential construction staging areas would include areas with little or no known historic resources, including the Lake bed, the park office maintenance/parking area, and the far northwest lobe of the Park near the corner of Park Avenue and Glendale Boulevard. All construction vehicles would use existing roads and paths, as feasible. New construction access routes would be located away from historic landscape features, as shown on construction plans. These construction procedures follow the Secretary

of the Interior's *Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*, and implementation of these required procedures would ensure a less than significant impact to historical resources.

The lighting at the project site during the period of significance appears to have been decorative metal, with wide poles that may have been cylindrical or faceted and painted a light color, with a globe fixture. The lights were affixed to a low, tiered pedestal. Based on its appearance in historic photographs, the historic light may have been 12 to 15 feet in height. No historic lights remain at the project site. Current lights are tall, thin metal poles with a double fixture. The proposed project includes two options for new lighting. The first option is a 20-foot-tall, pole-mounted light with a traditional design including a faceted base, cylindrical pole, and tapered hexagonal light fixture. The second option is a 20-foot-tall, solar light mounted on a tall, thin cylindrical metal pole and wider plain cylindrical base, with a solar panel affixed to the top above the light fixture. Refer to simulations of both lighting options in Figures 3.1-18 and 3.1-19 in Chapter 3.1, Aesthetics. The addition of the traditional lighting option would more clearly evoke the historic character of the Park's original lighting through its scale, materials, and detail. Use of this lighting option would represent an improvement over current lighting and the implementation of this option would not result in impacts to the historic landscape. Additionally, the final design, types, and colors of the proposed lighting would be in coordination with the appropriate City departments, City committees/commissions, and with the local residents through on-going project meetings. As such, less than significant impacts are anticipated related to the traditional lighting option.

The solar lighting option represents a greater departure from the historic lighting than the traditional lighting option. Its utilitarian design and large solar panel are substantially different in scale and design from the historic lights. Though the solar lighting would provide a sustainable light source, and resemble the existing lights in scale, their design is incompatible with the rest of the Park landscape. The solar lighting option would represent a new addition to the Park that would not be compatible with the massing, scale, and architectural features of the Park. As such, the solar lighting option would not act to protect the historic landscape of the Park and may not fully conform to the Secretary of the Interior's *Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*. This impact is considered to be significant. The final design, types, and colors of the proposed lighting would be in coordination with the appropriate City departments, City committees/commissions, and with the local residents through on-going project meetings. Specifically, the solar lighting option would be required to be approved by the City of Los Angeles Cultural Heritage Commission during the project approval process. It is anticipated that the project review and approval process may potentially minimize or reduce the impact of the solar lighting option. However, it is not certain whether the project review and approval process would in fact result in a solar lighting design that is more consistent with the historic landscape of the Park. No feasible mitigation measures are available to reduce this significant impact. As such, a significant impact is anticipated with the solar lighting option.

CR-2: *The proposed project would potentially cause a substantial adverse change in the significance of an archaeological resource. Mitigation measures are required to ensure less than significant impacts.*

No prehistoric or historic archaeological resources have been previously recorded within the limits of the project site. The survey conducted in connection with the proposed project failed to reveal any surface evidence of archaeological resources within the project site. However, the lack of surface evidence of archaeological materials does not preclude the possibility that subsurface archaeological materials may exist. The dam constructed during the 1870s still exists and is buried at the south end of the Lake in the vicinity of Bellevue Avenue. Unknown archaeological materials could potentially be discovered near the dam. Any work along the southern end of the project site in the vicinity of Bellevue Avenue would require archaeological monitoring, as required by mitigation measures CR-A and CR-B. Mitigation measures CR-A and CR-B are required to reduce potential impacts to archaeological resources to a less than significant level. In all other localities archaeological monitoring is not required during construction. However, in the event any archaeological materials are encountered during earthmoving activities, the construction contractor shall cease activity in the affected area until the discovery can be evaluated by a qualified archaeologist in accordance with the provisions of CEQA Section 15064.5.

3.4.4 MITIGATION MEASURES

CR-A All ground-disturbing activities in the southern end of the project site in the vicinity of Bellevue Avenue shall be monitored by a qualified archaeological monitor. Archaeological monitors shall be under the direct supervision of a Principal Investigator or Project Manager certified by the Register of Professional Archaeologists (qualifications derived from 36 CFR Part 61). Ground-disturbing activities to be monitored include, but are not limited to, the grading, trenching, lake outlet construction, and tree removal and plantings.

CR-B Unique archaeological materials (as the term is defined in CEQA, Public Resources Code Section 21083.2(g)) recovered during archaeological monitoring shall be curated for posterity and available by future researchers at an accredited curational facility.

3.4.5 SIGNIFICANCE AFTER MITIGATION

With implementation of mitigation measures CR-A and CR-B, impacts to archaeological resources would be less than significant. No mitigation measures were required related to historical resources.

3.5 HAZARDS AND HAZARDOUS MATERIALS

Hazardous substances are defined by state and federal regulations as substances that must be regulated in order to protect the public health and the environment. Hazardous materials have certain chemical, physical, or infectious properties that cause them to be hazardous. The California Code of Regulations Title 22, Division 4.5, Chapter 11, Article 2, Section 66261.10 provides the following definition:

> A hazardous material is a substance or combination of substances which, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, or disposed of or otherwise managed.

According to Title 22 (California Code of Regulations Chapter 11, Article 3), substances having a characteristic of toxicity, ignitability, corrosivity, or reactivity are considered hazardous. Hazardous wastes are hazardous substances that no longer have a practical use, such as material that has been abandoned, discarded, spilled, contaminated, or which is being stored prior to disposal.

Toxic substances may cause short-term or long-term health effects, ranging from temporary effects to permanent disability or death. Examples of toxic substances include most heavy metals, pesticides, benzene, gasoline, hexane, natural gas, sulfuric acid, lye, explosives, pressurized canisters, and radioactive and biohazardous materials. Soils may also be toxic because of accidental spilling of toxic substances. This section discusses the potential for the proposed project to expose people to hazards and hazardous materials.

This section summarizes *Technical Memorandum No.3: Initial Geotechnical Investigations* prepared by Black & Veatch in October 2008. The purpose of this report was to develop general information regarding the soil and groundwater conditions for geotechnical engineering purposes. In addition, this analysis incorporates the results of the *Well Installation and Groundwater Monitoring Report* prepared by Ninyo & Moore on September 11, 2009. The purpose of this study was to assess groundwater conditions around the northeast lobe of the Lake with respect to the potential impact of groundwater contamination released from Hollyway Cleaners, a dry cleaning business located at 1157 Echo Park Avenue, approximately 700 feet northeast of the Lake. The scopes of work for these studies were developed in conjunction with the City of Los Angeles, Department of Public Works, Bureau of Engineering (BOE) staff.

3.5.1 ENVIRONMENTAL SETTING

PROJECT SITE CONDITIONS

The project site is located at 751 Echo Park Avenue within the Echo Park/Silver Lake community of the City of Los Angeles. The project site is also located within the Los Angeles River Watershed. The

project site includes a 24-acre portion of Echo Park and an open-space recreational facility. The Lake occupies 14.14 acres and is surrounded by 10 acres of developed parkland.

Recreational amenities at the Lake include paddle boating, catch-and-release fishing, model boating, walking around the perimeter path, and jogging. The Park contains numerous trees, other trees, shrubs, and open grassy areas.

The project site is surrounded by commercial, public facility, and single- and multi-family residential uses. Sunset Boulevard is located approximately 0.1 mile north of the project site. Additional recreational facilities associated with the Park, including a playground, swimming pool, and childcare center, are located south of the project site, on the south side of Bellevue Avenue. The US 101 is located directly south of these recreational uses. One- to four-story single- and multi-family residential buildings are located west of the project site, on the west side of Glendale Boulevard. One- to two-story single- and multi-family residential buildings and a large two- to five-story church are located north of the project site, on the north side of Park Avenue. One- to four-story single- multi-family residential buildings and a large two- to four-story church are located east of the project site, on the east side of Echo Park Avenue. Glendale Boulevard, which is aligned north-south adjacent to the west side of the project site, is designated by the City as a Major Highway-Class II.

The Park has been a part of the City's history for more than 150 years. Historical records indicate that the Lake was originally built as a water supply reservoir in the 1860s. Over time, use of the Lake was transformed to that of a detention basin in the storm drainage system, providing hydraulic relief during storm events. The State of California has identified the Lake as an impaired water body with the following types of water quality issues: algae, ammonia, eutrophic conditions, copper, lead, odor, polychlorinated byphenyls (PCBs), trash, and pH. As a result, the City is proposing to implement in-Lake improvements; vegetation, habitat and Park improvements; and parkland structural best management practices at the Lake.

Two open leaking underground storage tank (LUST) cleanup sites are located within 0.5 mile of the project site and potentially upgradient from the project site. These sites include the 76 Station #0779 at 1340 Glendale Boulevard and Sunset Carwash at 2028 Sunset Boulevard. The 76 Station #0779 site is currently undergoing site assessment under the oversight of the Regional Water Quality Control Board (RWQCB) for potential groundwater contamination. The Sunset Carwash at 2028 Sunset Boulevard is undergoing remediation for potential groundwater contamination. The State Water Resources Control Board's GeoTracker database was reviewed to obtain the most current information for these sites. GeoTracker is an internet-accessible groundwater quality information system whose central purpose is compliance with Assembly Bill 599, the Groundwater Quality Monitoring Act of 2001, which called for improving comprehensive groundwater monitoring and increasing the availability of information related to groundwater quality to the public.[1] The following details the results of the review.

[1] Los Angeles Regional Water Quality Control Board. *State Water Board Releases Geotracker Interactive Groundwater Quality Website***.** August 13, 2009. Available at < http://geotracker.swrcb.ca.gov/>. Accessed November 2009.

- **76 Station #0779 (1340 Glendale Boulevard).**[2] This former gas station site is located approximately 0.40 miles north of the project site. The site is currently a fenced vacant lot. All former service station facilities removed since February 2004. A *Subsurface Soil Contamination Report* was prepared on August 3, 2009. Concentrations of fuel constituents in groundwater have been determined to exceed the maximum contaminant levels (MCLs). Specifically, the southern and northern corners of the site are impacted by petroleum hydrocarbons. The report concluded that the impacted areas have been adequately defined in all directions and no additional borings were necessary. A work plan for limited excavation of impacted soil will be prepared. The groundwater was last monitored and sampled on October 15, 2009. The *Fourth Quarter 2009 Site Status Report* was submitted on January 13, 2010. The extent of contamination has not been determined and may pose a threat to the groundwater. The site has been undergoing site assessment since March 2008; however, remediation has not yet been conducted.

- **Sunset Carwash (2028 Sunset Boulevard).**[3] The site is located approximately 0.20 miles northwest of the project site. The extent of contamination has not been determined and may pose a threat to the groundwater. A remediation action plan was approved on July 23, 2008, and the site has been undergoing remediation since July 2008.

Another site was identified as a Cleanup Program Site. Cleanup is conducted under the direction of the lead regulatory agency and may include free product removal, vapor extraction, ozone sparging or technologies such as groundwater extraction, for example. In some cases, soil excavation and disposal completes the cleanup.

- **Hollyway Cleaners (1157 Echo Park Avenue)**. The Hollyway Cleaners site is located approximately 0.20 miles northeast of the project site. The three-story building was originally constructed in approximately 1915. Hollyway Cleaners began operating in one of the units of the building in approximately 1941 and has since been in operation under successive owners. According to the 1988 site investigation reports submitted to the RWQCB, soil and groundwater beneath the site are contaminated with perchloroethylene (PCE), trichloroethylene (TCE), and other volatile organic compounds (VOCs) as a result of release(s) from dry cleaning operations. Subsequent subsurface investigations involving soil vapor survey, soil and groundwater sampling, and installation of groundwater monitoring wells confirmed the contamination of the soil, soil vapor, and groundwater beneath the site. Groundwater monitoring began in 1998, continued through 1999, and was discontinued in 2000. A soil vapor extraction (SVE) system was installed at the site in approximately 1994. On May 27, 2008, RWQCB staff directed the current owner of the site to continue the site investigation activities discontinued after 2002, to resume groundwater monitoring discontinued since 2000, and to submit a remedial action plan. Site investigations and groundwater monitoring were conducted in February 2009 to determine whether contaminated groundwater exists beneath the project site. The PCE plume in the

[2] Los Angeles Regional Water Quality Control Board . *Geotracker*. Available at <http://geotracker.swrcb.ca.gov/profile_report.asp?global_id=T0603758404>. Accessed January 2010.
[3] Los Angeles Regional Water Quality Control Board . *Geotracker*. Available at <http://geotracker.swrcb.ca.gov/profile_report.asp?global_id=T0603700718>. Accessed January 2010.

groundwater was determined to have migrated off-site, threatening the existing beneficial uses of Echo Park located down-gradient of the Hollyway Cleaners.

In April 2009, the First Quarter Ground Water Monitoring Report was prepared, which collected samples from 10 groundwater monitoring wells located on- and off-site. This was the first assessment of groundwater quality since monitoring activities were discontinued in 2000. A detailed copy of the report can be found at the California Regional Water Quality Control Board website.[4] The assessment found that VOC concentrations have increased since the last sampling event (March 28, 2000); however, in most cases, these concentrations were not as high as the highest recorded concentrations.

In March 2009, a Work Plan was prepared to conduct a multi-depth soil gas survey and an evaluation of indoor air quality at Hollyway Cleaners. The purpose of this Work Plan was to assess the current extent of the soil gas plume beneath the site and to assess the human health threat posed because of VOCs from the underlying soil and shallow groundwater. This Multi-Depth Soil Gas Survey and Evaluation of Indoor Air Quality Work Plan was approved by Regional Board staff on April 10, 2009. The results of this Work Plan was to be submitted on January 11, 2010, however, this date waived due to financial hardship claimed by the owners (Echo Complex Inc.) and former owner, Mr. Milt Chortkoff.[5]

In a letter dated January 25, 2010, the California Regional Water Quality Control Board requested preparation of a Remedial Action Plan in lieu of the Multi-Depth Soil Gas Survey and Evaluation of Indoor Air Quality Work Plan. The Remedial Action Plan would evaluate *in situ* soil and ground water remediation with bioremediation technology.[6] The Work Plan for a Bench Scale Test of Bioremedial Alternatives at Hollyway Dry Cleaners was submitted to RWQCB on February 4, 2010.[7] This Work Plan outlines the tasks that are necessary to conduct a bench scale test of bioremedial alternatives that is anticipated to provide the basis for the next phase of remedial effort. As of the preparation of this Draft EIR, there has been no indication that this Work Plan has been approved by RWQCB.

ECHO PARK LAKE REHABILITATION PROJECT (VOLUME 2) – TECHNICAL MEMORANDUM NO.3: INITIAL GEOTECHNICAL INVESTIGATIONS

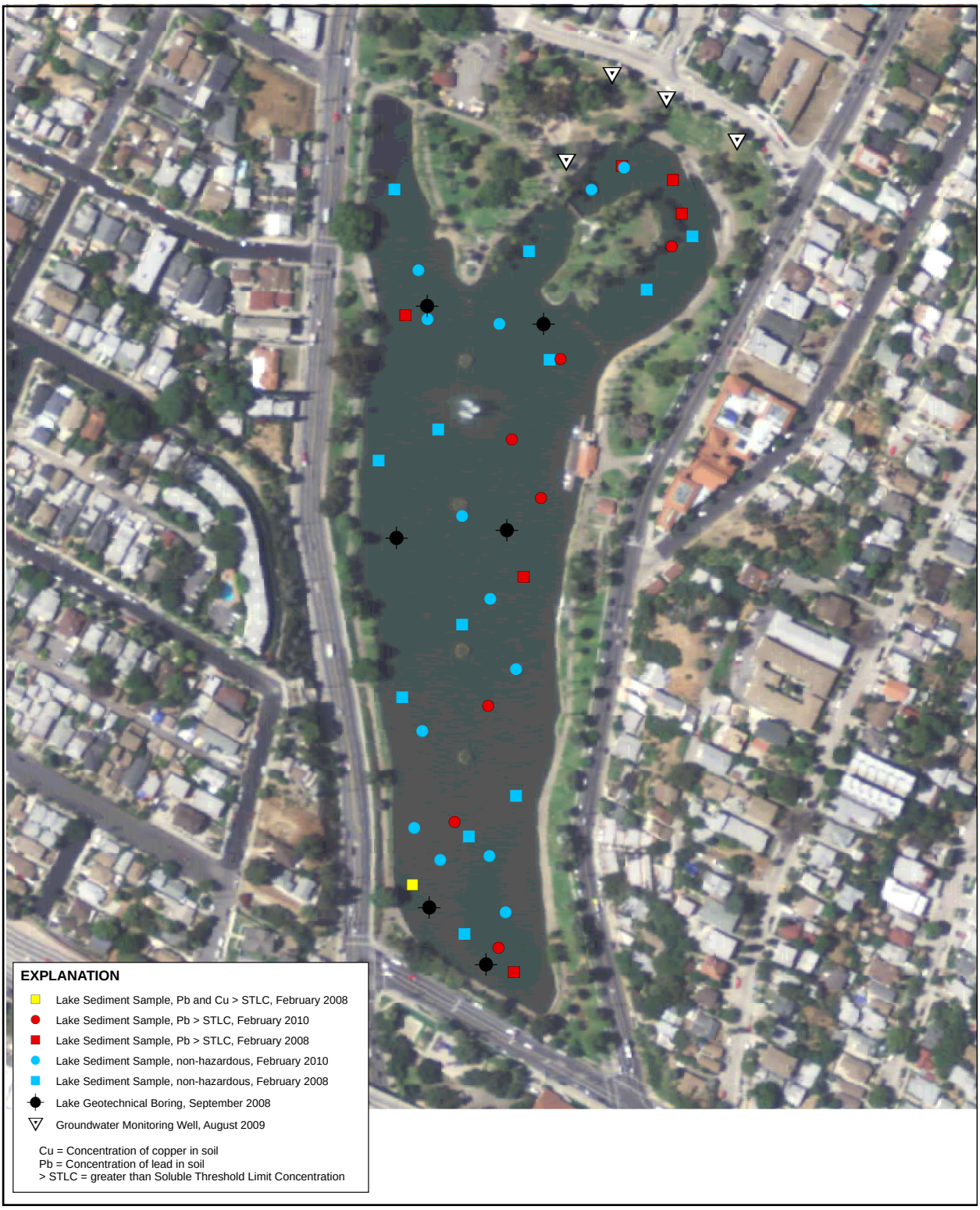
This technical memorandum was compiled in October 2008. However, in January 2008, Black & Veatch performed sediment sampling at two key inlets to the Lake and two locations near the outlet. The purpose

[4] Los Angeles Regional Water Quality Control Board . *Geotracker*. Available at < http://geotracker.swrcb.ca.gov/esi/uploads/geo_report/8317925572/SL2048E1699.PDF>. Accessed May 2010.
[5] Los Angeles Regional Water Quality Control Board . *Geotracker*. Available at <http://geotracker.swrcb.ca.gov/regulators/deliverable_documents/7270688712/Order%20Modification%20-%20Hollyway%20Cleaners.pdf>. Accessed May 2010.
[6] Los Angeles Regional Water Quality Control Board. *Amendment of an Existing California Water Code Section 13267 Order – Hollyway Cleaners, 1157 Echo Park Avenue, Los Angeles, CA (Site Cleanup No. 0075, Site ID No. 2048E00)*. January 25, 2010. Available at <http://geotracker.swrcb.ca.gov/regulators/deliverable_documents/7270688712/Order%20Modification%20-%20Hollyway%20Cleaners.pdf>. Accessed April 2010.
[7] Jonas & Associates. Workplan for a Bench Scale Test of Bioremedial Alternatives. February 3, 2010.

of the subsurface exploration was to develop general information regarding the soil and groundwater conditions for geotechnical engineering purposes. These collected samples were laboratory analyzed for 18 metals, including mercury and hexavalent chrome, polychlorinated biphenyls (PCBs), volatile and semi-volatile organic compounds, pH, and oil and grease. Results of the initial laboratory analyses indicated metal concentrations (except arsenic) were below the U.S. Environmental Protection Agency (EPA) Region 9 Preliminary Remediation Goals for residential soil. Arsenic was reported at levels consistent with those from native soil in the Los Angeles basin with no other analyzed compounds reported above the laboratory method detection limits. In addition to arsenic, concentrations of lead exceeded the California Modified Preliminary Remediation Goal for residential soils of 150 mg/kg in one sample with a reported concentration of 180 mg/kg. Concentrations of copper were reported higher than what would be expected with respect to other metal concentrations, but were below the Preliminary Remediation Goal concentrations for residential soil.

Additional testing was conducted on February 2008. These samples were further analyzed by the California Waste Extraction Test (WET) to determine their Soluble Threshold Limits Concentration (STLC). In February 2008, Black & Veatch retained Ninyo & Moore to collect a total of 34 Lake sediment samples from 19 boring locations. The purpose of these additional investigations was to characterize the soil in the Lake bed and to determine if special handling under the California hazardous waste criteria is required. Figure 3.5-1 illustrates the sampling locations and the results.

During the February 2008 investigation, detectable concentrations of oil and grease increased to the north and closer to the Lake inlet. In addition, detectable concentrations of Total Petroleum Hydrocarbons (TPH) were also found to the north and closer to the Lake inlet. However, neither oil and grease or TPH are addressed under the California Code of Regulations Title 22. As such, it was determined that soil containing either oil and grease and/or TPH does not necessarily warrant special handling for disposal. However, if the soil is removed, any concentrations present above 1,000 mg/kg may limit the disposal or reuse options. Two samples of soil at 2.5 feet were found to have concentrations of oil and grease that exceed 1,000 mg/kg. No Lake sediment samples were found to exceed the 1,000 mg/kg criteria for TPH.



Source: Black & Veatch 2010

NORTH 0 125 250 500 feet

Figure 3.5-1
Sampling Locations and Results

During the February 2008 investigation, a total of eight samples from the northeastern lobe of the Lake and the composite sample from the geotechnical borings were analyzed for polychlorinated biphenyls (PCBs). PCBs did not exceed total threshold limit concentration (TTLC) hazardous waste criteria in the northeastern lobe of the Lake bed for the 2008 investigation. However, PCB analysis was not run for the majority of samples in the Lake bed.

During the February 2008 investigation, eight samples from the northeastern lobe of the Lake (locations LS-13 to LS-18) and the composite sample from the geotechnical borings were analyzed for organochlorine pesticides. Organophosphorous pesticides were not detected in any of the samples. All pesticides were detected below their respective TTLC hazardous waste criteria.

During the February 2008 investigation, all 34 Lake sediment samples and the composite sample from the geotechnical borings were analyzed for the list of California Code of Regulations Title 22 that included antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc. No concentrations of metals were detected above their respective TTLC for this investigation. Based on the results from the February 2008 investigation, only lead and copper exceeded the STLC hazardous waste criteria. Sixteen samples from 13 boring locations had a TTLC concentration for lead that was greater than ten-times the STLC criteria for hazardous waste classification. Of these 16 samples, 11 samples also had a TTLC concentration for copper that was greater than 10 times the STLC criteria. Eight samples from seven locations have concentrations of lead that exceeded the STLC value of 5.0 mg/L, and one sample has a concentration of copper that equaled the STLC value of 25.0 mg/L.

WELL INSTALLATION AND GROUNDWATER MONITORING REPORT

Black & Veatch retained Ninyo & Moore to conduct a more detailed exploratory program for locations outside the Lake. On September 11, 2009, Ninyo & Moore prepared the *Well Installation and Groundwater Monitoring Report*. The purpose of this monitoring report was to evaluate the likelihood of a hydrologic connection between the groundwater and the Lake. Additionally, the monitoring aimed to evaluate groundwater conditions around the northeast lobe of the Lake with respect to contamination from VOCs, consisting of tetrachloroethylene (PCE), trichloroethylene (TCE), and 1,2-dichloroethene (1,2-DCE), emanating from a dry-cleaning facility (Hollyway Cleaners) located approximately 600 feet northwest of the site. Groundwater beneath the facility flows to the south-southwest toward the Lake. Groundwater analytical data from March 2009 indicate that VOC-impacted groundwater extends to the south of the facility, beyond the existing monitoring well network.

The methodology included advancing and sampling four soil borings, which were then converted to groundwater monitoring wells. On August 13, 2009, four groundwater monitoring wells (MW-1 through MW-4) were installed around the northeast edge of the Lake. The locations of the groundwater monitoring wells were selected based on the anticipated groundwater gradient and concentration of VOCs

in groundwater as evaluated in a previously prepared groundwater monitoring report.[8] Based on the results of the Ninyo & Moore report, the following conclusions have been made:

- PCE was detected in MW-2. It was concluded that PCE detected in the soil sample on the site is likely from impacted groundwater from the Hollyway Cleaners facility.

- Detectable concentrations of PCE, TCE, and 1,2- dichloroethene (DCE) were reported in groundwater samples collected at MW-2 and MW-3. The detected concentrations of PCE and TCE in MW-2 and MW-3 are above the drinking water screening levels for PCE and TCE. It was concluded that the soil concentration on the project site is likely adversely impacted by the groundwater from the Hollyway Cleaners facility.

- Based on the groundwater elevations measured in the monitoring wells, a hydraulic connection exists between the Lake and adjacent groundwater. The Lake water flows into the groundwater. This flow has deflected the plume of groundwater containing PCE and TCE upgradient of the northeast lobe of the Lake toward the west. Based on the available information, it is unknown at this time how the groundwater plume interacts (if at all) with the northwest lobe of the Lake.

- Draining the Lake may affect groundwater flow in the vicinity of the northeast lobe of the Lake, causing it to flow toward the Lake. Based on groundwater elevations and the reported bottom of the Lake, draining activities would likely cause seepage of PCE and TCE-affected groundwater into the Lake bed, unless mitigation measures to minimize this flow are installed.

Concentrations of PCE, TCE, and 1,2-DCE levels above applicable RWQCB thresholds were detected at the project site. As such, contaminated groundwater plumes migrating from Hollyway Cleaners toward Echo Park could potentially pose an ecological and hydrological threat.

ADDITIONAL INVESTIGATION OF LAKE BED SEDIMENTS

In February 2010, Ninyo & Moore (retained by Black & Veatch) conducted additional investigation of potentially hazardous Lake bed sediments (soils) in the Lake. The additional investigation of Lake bed sediments was conducted to supplement past efforts (2008 and 2009 investigations, as described above) to characterize potentially hazardous Lake bed sediments at the proposed project site. For this investigation, Ninyo & Moore collected 37 Lake sediment samples from 20 sample locations, which were chosen to fill in data gaps from the 2008 sampling event. All 37 samples were analyzed by an environmental testing laboratory for lead and copper. The metals analysis was limited to lead and copper because these were the only two metals detected above the STLC during the 2008 investigation. The PCB analysis was conducted on all samples because too few samples were analyzed from a small area of the Lake bed during the 2008 investigation.

[8] Environmental Resolutions Inc. (ERI). *First Quarter 2009, Groundwater Monitoring Report, Hollyway Cleaners, 1157 Echo Park Avenue, Los Angeles, California*. April 10, 2009.

No concentrations of lead or copper are detected above the TTLC values of 1,000 mg/kg or 2,500 mg/kg, respectively, in any of the 2010 investigation samples. No concentration of copper exceeds the STLC value of 25 mg/L. However, seven samples from seven locations have concentrations of lead that exceed the STLC value of 5.0 mg/L.

Based on the results from the 2010 investigation, only lead exceeds the STLC hazardous waste criteria. These results are combined with the 2008 results to define areas of potentially hazardous soil in the Lake bed. PCBs did not exceed TTLC hazardous waste criteria in any samples from the Lake and, therefore, are not a concern in the Lake sediment at the site.

A REPORT OF THE SURFACE WATER AMBIENT MONITORING PROGRAM (SWAMP) - CONTAMINANTS IN FISH FROM CALIFORNIA LAKES AND RESERVOIRS: TECHNICAL REPORT ON YEAR ONE OF A TWO-YEAR SCREENING SURVEY

In March 2009, the State Water Resources Control Board's Surface Water Ambient Monitoring Program (SWAMP) prepared the Contaminants in Fish from California Lakes and Reservoirs report. The SWAMP was created to fulfill the State Legislature's mandate for a unifying program that would coordinate all water quality monitoring conducted by the State and Regional Water Boards. SWAMP is managed by a Roundtable of monitoring coordinators from the State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards. This technical report presents results from the first year of a two-year screening survey of contaminant accumulation in fish from California lakes and reservoirs. The report also provides lake-specific information that can be used to establish priorities for cleanup actions, and identifies lakes where additional sampling may be needed to support fish consumption advisories.

The overall goal of this screening study is to determine whether fish in California lakes have concentrations of contaminants that exceed thresholds for protection of human health. Fish tissue samples were collected from both targeted and randomly selected lakes throughout the state. The study focused on sampling indicator species that tend to accumulate high concentrations of the contaminants of concern. Black bass (including largemouth, smallmouth, and spotted bass) and Sacramento pikeminnow were the key indicator species for methylmercury. Channel catfish and common carp were the primary indicators for organic pollutants. In the first year of this screening study, over 6,000 fish from 18 species were collected from 152 lakes and reservoirs in California. Overall, the Lakes Survey will sample more than 200 of the most popular fishing lakes in the state and randomly sample 50 of California's other 9,000 lakes to provide a statistical statewide assessment.

In 2007, a list of the 216 most popular fishing lakes and reservoirs in California was compiled, as identified through a review of published fishing guides, websites, and consultation with Regional Board staff. Sampling was conducted at 152 lakes and reservoirs across the state. Sport fish tissue concentrations were evaluated using thresholds developed by the California Office of environmental Health Hazard Assessment (OEHHA) for methylmercury, PCBs, dieldrin, DDTs, chlordanes, and selenium. Lakes were considered "clean" if all average pollutant concentrations in all species were below all OEHHA thresholds. Only 15 percent of the lakes sampled in 2007 were in the "clean" category. Furthermore, whether these lakes are entirely clean depends upon whether high-methylmercury species such as

largemouth bass or self-sustaining trout populations are really absent from these lakes. Nevertheless, falling into the clean category in this survey is a positive outcome indicating that the most readily caught species in a lake has pollutant concentrations that are below thresholds for concern. These lakes can be considered low priority for monitoring to support development of fish consumption advisories. Methylmercury was the pollutant primarily responsible for the remaining 85 percent of lakes having at least one species with an average concentration above thresholds.

Echo Park Lake was identified as a "targeted popular" lake. Currently, the Lake is used for recreational fishing. The poor water quality has affected the fish in the Lake. The survey determined that PCB concentrations from the Lake were among the highest concentrations measured in the state. The common carp and largemouth bass sampled in the Lake were observed to have concentrations of 101 ppb and 48 ppb, respectively.

3.5.2 REGULATORY SETTING

FEDERAL

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act, commonly known as Superfund, provides broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. The Comprehensive Environmental Response, Compensation, and Liability Act established prohibitions and requirements concerning closed and abandoned hazardous waste at these sites, provided for liability of persons responsible for releases of hazardous waste at these sites, and established a trust fund to provide for cleanup when no responsible party could be identified.

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act provide the U.S. Environmental Protection Agency (EPA) the authority to control hazardous wastes from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. The Resource Conservation and Recovery Act also set forth a framework for the management of nonhazardous wastes.

STATE

Title 22 of the California Code of Regulations

Title 22 of the California Code of Regulations includes state hazardous waste regulations enforced by the California Department of Toxic Substances Control (DTSC) and local Certified Unified Program Agencies. Authority from the state was delegated to the local Certified Unified Program Agencies to establish a unified hazardous waste and hazardous materials management program for hazardous waste generators, treatment of hazardous waste subject to tiered permitting, facilities with underground storage

tanks and aboveground storage tanks, risk management and prevention plans, and hazardous materials management plans and inventory statements required by the Uniform Fire Code.

According to California hazardous waste criteria (California Code of Regulations [CCR] – Title 22), sediments remaining undisturbed are not considered a waste material until they are removed from the lake bed for disposal or recycling. Once removed, any sediment would be considered a hazardous waste if one or more regulated substances exceed the total threshold limit concentration (TTLC) or the STLC set forth in Title 22. Both TTLC and STLC criteria define a substance's toxicity. Any substance that exceeds one or both of these criteria is considered toxic at that concentration. This toxicity also defines any waste that contains the substance as a Resource Conservation and Recovery Act (RCRA) hazardous waste by the EPA.

California Health and Safety Code

State hazardous waste control laws enforced by DTSC are included in the California Health and Safety Code. These regulations identify standards for the classification, management, and disposal of hazardous waste in California.

Occupational Safety and Health Act

Federal and state occupational safety and health regulations also contain provisions on hazardous materials management as it relates to worker safety, worker training, and worker right-to-know. The applicable federal law is the Occupational Safety and Health Act (OSHA). Under the Occupational Safety and Health Act, authority to administer the Act is delegated to states that have developed a plan with provisions that are at least as stringent as those provided by the federal government. California is a delegated state for federal OSHA purposes. The California Occupational Safety and Health Act and authorized regulations and programs are commonly referred to as Cal/OSHA.

3.5.2 Environmental Impacts

Thresholds of Significance

As part of the Initial Study (see Appendix A), it was determined that the proposed project would not:

- create a significant hazard to the public or the environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment;
- emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5;
- result in a safety hazard located within an airport land use plan or, within two miles of a public airport or public use airport, where such a plan has not been adopted;

- pose a safety hazard for people residing or working within two miles of a public airport or private airstrip;
- impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- expose people or structures to significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Accordingly, these issues are not further analyzed in the EIR.

Pursuant to the CEQA Guidelines, the proposed project would have a significant effect on hazards and hazardous materials if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

IMPACT ANALYSIS

HAZ-1: *The proposed project would potentially create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Mitigation measures are required.*

Construction

Construction activities would be short-term and may involve limited transport, storage, use, or disposal of hazardous materials. The estimated duration of the construction of the proposed project is 26 months, from January 2011 through February 2013. It is anticipated that the project site would be fenced and closed to the public during the construction phase.

The construction activities would include draining the Lake to remove the targeted sediment. The removed sediment would require drying, handling, and hauling from the project site. The Lake bed would be lined, requiring an area for stockpiling materials. It is anticipated that the majority of staging areas and the storage of materials for the Lake bed improvements would occur within the empty Lake basin itself. It is anticipated that the Lake bed improvements would occur concurrently with parkland improvements. This would ultimately depend on the amount of available construction staging within or near the Park.

Contaminated groundwater from two upgradient sources has the potential to pose an ecological and hydrological threat to the project site. Petroleum hydrocarbons have been detected at the 76 Station #0779 site, which is located approximately 0.40 miles north of the project. However, the Ninyo & Moore report did not determine any upgradient contamination from the 76 Station #0779. As such, 76 Station #0779 would not adversely impact the proposed project.

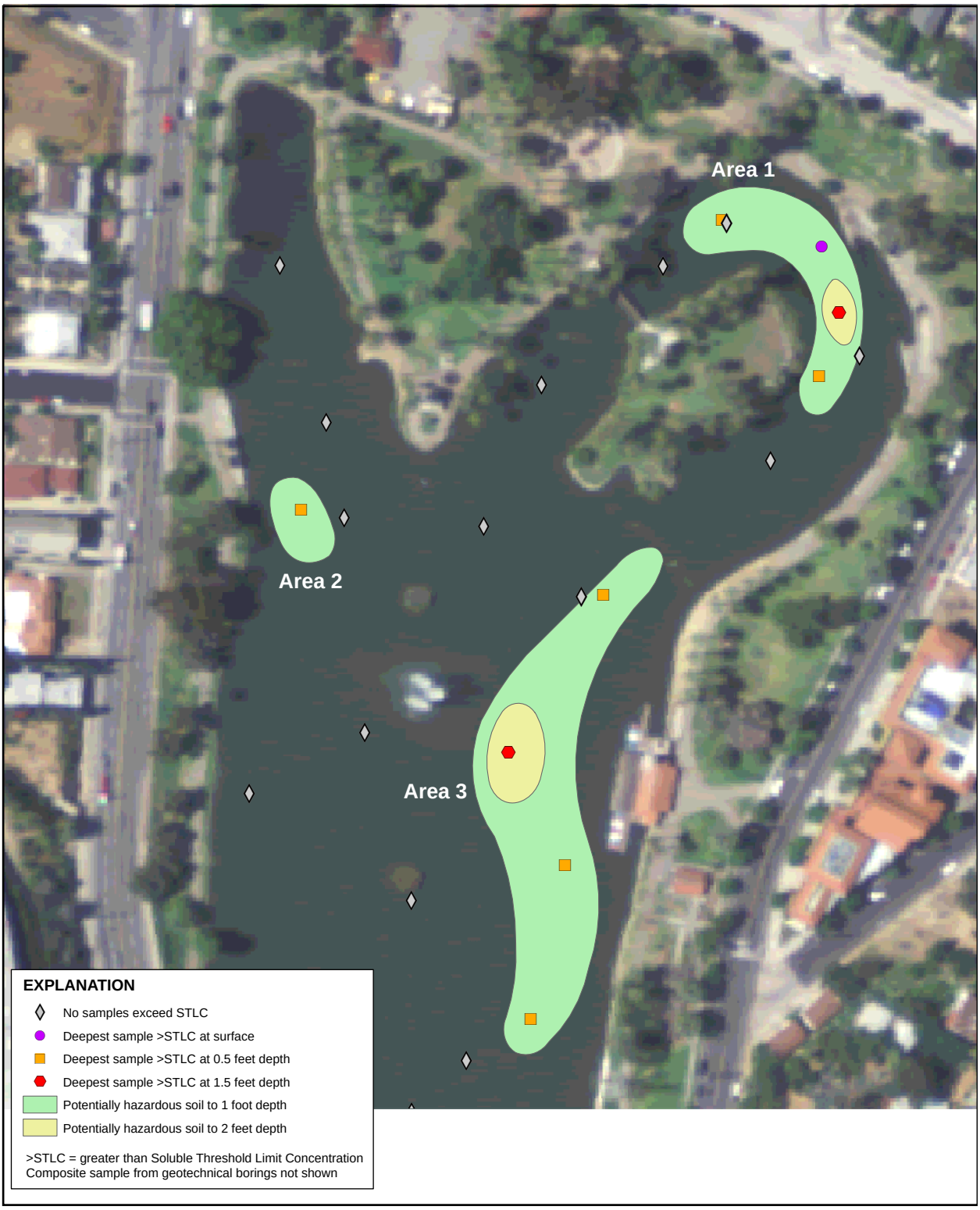
Sub-aqueous soil samples of the Lake bed conducted for the Black & Veatch report detected high copper and lead levels. Based on the investigation results, mitigation measure HAZ-A is required. HAZ-A recommends allowing the soil to dry after the Lake is drained and then taking additional unsaturated samples from the areas where the soil had exceeded the STLC for lead. The additional samples would further define the extent of soil exceeding the STLC and allow for the removal of the impacted soil prior to recontouring of the Lake bed. Prior to this removal process, the DTSC should be notified and a work plan created outlining the disposal and post remedial sampling strategies. It is anticipated that any contaminated soils detected at the project site would be remediated in accordance with City, state, and federal regulations prior to being transported to the Chiquita Canyon Sanitary Landfill, the Puente Hills Landfill, or other designated landfills.

The Ninyo & Moore report detected VOC (PCE, TCE, and 1,2-DCE) releases migrating from Hollyway Cleaners toward the Lake that may adversely affect the proposed project. As such, mitigation measures HAZ-B and HAZ-C would be required to minimize the impact of these contaminants on the project site.

As previously discussed, the March 2009 Work Plan would assess the current extent of the soil gas plume beneath the site and the human health threat posed because of VOCs from the underlying soil and shallow groundwater. HAZ-D requires coordination between the City and the California Regional Water Quality Control Board in order to ensure that the Work Plan provides remediation measures that minimize the ecological and hydrological threat posed by the PCE plume emanating from Hollyway Cleaners.

The investigations conducted in February 2010 identified an additional measure for addressing the hazardous sediment in the Lake bed (Figures 3.5-2 and 3.5-3). As previously discussed, the Lake sediment removal (up to a depth of approximately 1.5 feet) is planned as a part of the proposed project. Included in this sediment are areas that contain lead at concentrations exceeding the STLC values for soluble lead. This would classify the soil as a RCRA hazardous waste under California state law, once it is removed from the Lake bed. Mitigation measure HAZ-E would eliminate the need for removal of hazardous waste from the project site, as the soil would no longer require handling. Mitigation measure HAZ-E would involve the on-site chemical treatment and stabilization of soil containing hazardous levels of soluble lead and/or copper. The goal is to reduce the amount of lead and/or copper to less than 5.0 mg/L (the STLC).

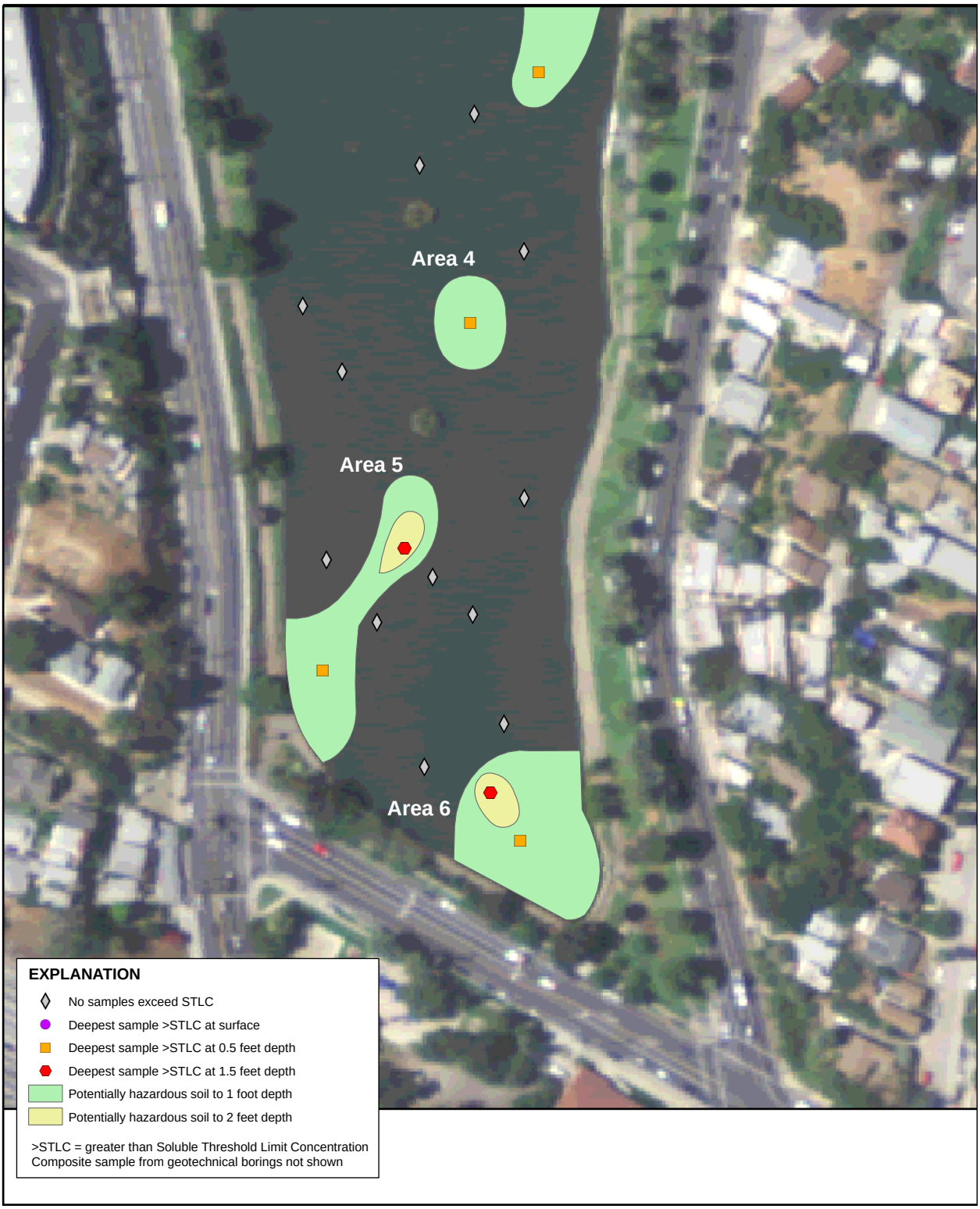
Mitigation measures HAZ-F through HAZ-I are also provided to minimize any adverse impacts resulting from handling of hazardous soil.



Source: Black & Veatch 2010

NORTH 0 62.5 125 250 feet

Figure 3.5-2
Potentially Hazardous Waste (Northern Half)



Source: Black & Veatch 2010

NORTH 0 62.5 125 250 feet

Figure 3.5-3
Potentially Hazardous Waste (Southern Half)

Implementation of mitigation measures HAZ-A through HAZ-I and compliance with all federal, state, and local requirements would ensure a less than significant impact.

Operation

The operation of the proposed project would not differ from the existing operations of the Park, including the Lake. Operation of the proposed project would not routinely require transport, use, or disposal of significant quantities of hazardous materials, including, but not limited to oils, pesticides, or chemicals.

Any chemicals or pesticides related to the maintenance of the grass and landscaping at the project site would be stored in relatively small quantities in appropriate containers and handled in accordance with the manufacturer's instructions to protect the health and safety of Park employees and the public. Some new mechanical equipment would be introduced around the Lake (i.e. new pump house, hydrodynamic separator); however, these facilities would not introduce significant quantities of any hazardous materials to the Park. The proposed project would implement in-Lake improvements; vegetation, habitat and Park improvements; and parkland structural best management practices at the Lake. Upon completion, the proposed project would be consistent with the RWQCB's intent to attain the designated beneficial uses in the Lake. As such, the operational impacts would be less than significant.

3.5.3 MITIGATION MEASURES

HAZ-A After the Lake is drained of water, the soil shall be allowed to dry and then additional unsaturated samples taken from the areas where the soil exceeded the STLC for lead. The additional samples shall further define the extent of soil exceeding the STLC and allow for the removal of the impacted soil prior to recontouring of the Lake bottom.

HAZ-B In order to minimize contaminated groundwater infiltration into the drained Lake bed, before and after the Lake is drained of water, groundwater elevations in the four groundwater monitoring wells shall be measured and water samples shall be collected daily and analyzed from all wells. The duration of measurements and samples shall be based on the rate of the water lowering in the Lake and the response of the groundwater table to the draining of the Lake. If the measurements at each groundwater monitoring well are not below seven feet, a groundwater extraction well(s) shall be installed in the alluvial channel to reduce contaminated groundwater infiltration into the Lake bed.

HAZ-C To limit the impact of the PCE and TCE plumes in groundwater during the Lake dewatering process, sheet piling and dewatering wells shall be placed along the northern edge of the Lake.

HAZ-D The City, in contact with the California Regional Water Quality Control Board, shall monitor the progress on the Work Plan prepared for Hollyway Cleaners in order to ensure that the PCE plume migrating off-site does not pose an ecological and hydrological threat to Echo Park Lake.

HAZ-E Soil containing hazardous levels of soluble lead shall be chemically treated and stabilized on-site with available lead treatment technologies utilizing *in-situ* or *ex-situ* methods for remediating the lead to less than 5.0 mg/L (the STLC). Following treatment of the soil, representative samples shall be collected to confirm that all soil containing hazardous levels of lead has been treated to levels below the STLC. Confirmation soil samples shall be collected and sent to an off-site environmental laboratory for testing. The lead treatment technology shall comply with all federal, state, and local requirements. In the event the soil is not needed at the project site as part of the new Lake structure, the soil shall be removed and disposed as a non-hazardous waste.

Some small quantities of soils classified as hazardous may be hauled off-site to an appropriate Class I or Class II Hazardous waste Landfill, or other appropriate treatment or recycling facility, as appropriate for the type of contamination present. Any applicable testing and disposal procedures shall be followed.

The contractor shall provide the City legible copies of all soil and debris manifests, as well as copies of any remediation approval letters.

HAZ-F All hazardous soil excavation activities shall be performed by workers that are trained in Occupation Safety and Health Administration (OSHA) hazardous waste operations according to 29 CFR 1910.120 (HAZWOPER). In addition, the trucking company shall be a licensed hazardous waste hauler. The contractor shall provide the City copies of all soil and debris manifests, as well as copies of any remediation approval letters.

HAZ-G Equipment shall require decontamination when moving from hazardous to non-hazardous areas. If soil tracking is assumed negligible, a final decontamination (one event) shall be performed upon completion of hazardous soil excavation.

HAZ-H The site-specific health and safety plan shall be in place at the beginning of the soil work and account for all hazardous waste operations.

HAZ-I A 40-hour trained representative or an industrial hygienist shall be present to supervise hazardous waste operations and ensure compliance.

3.5.4 SIGNIFICANCE AFTER MITIGATION

Compliance with existing hazards regulations and the implementation of mitigation measures HAZ-A through HAZ-I would ensure a less than significant impact. No significant unavoidable adverse impacts to hazards and hazardous materials would occur as a result of the proposed project.

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3.6 HYDROLOGY AND WATER QUALITY

This section evaluates existing hydrologic resources at the project site and potential impacts associated with the proposed project. This section describes impacts to water quality and alteration of existing drainage patterns, as well as potential increases in surface runoff, flooding, and soil erosion. The existing setting and regulatory framework governing water resources are described below.

3.6.1 EXISTING SETTING

REGIONAL SETTING

The project site is located within the Los Angeles River Watershed, one of the largest watersheds in the South Coast Region. The watershed covers an approximately 834-square-mile area from the eastern portion of the Santa Monica Mountains, Simi Hills, and Santa Susana Mountains to the San Gabriel Mountains in the west. The watershed is highly modified, with an upper 360-square-mile portion covered by forest and open space, and the remaining 474 square miles developed with highly urbanized land uses. The watershed encompasses and is shaped by the path of the Los Angeles River.[1]

The Los Angeles River flows from its headwaters in the mountains eastward to the northern corner of Griffith Park, where the channel turns southward through the Glendale Narrows before it flows across the coastal plain and into San Pedro Bay near Long Beach. The Los Angeles River once flowed freely over the coastal plain but was channelized for flood control purposes by the United States Army Corps of Engineers (USACE) from the 1930s to the 1960s. Currently, 47.9 miles of the total 51-mile length of the river is lined with concrete. The current flow in the river is effluent-dominated, with approximately 80 percent of its flow originating at discharges and the remaining flow coming from storm drain runoff and groundwater recharge reaching the surface.[2]

The Los Angeles River Watershed includes 22 lakes and a number of spreading grounds within its boundaries. Major tributaries of the Los Angeles Rover include the Pacoima Wash, Tujunga Wash, Burbank Western Channel, and Verdugo Wash in the San Fernando Valley and the Arroyo Seco, the Rio Hondo, and Compton Creek south of the Glendale Narrows.

TOPOGRAPHY AND GEOLOGY

The ground surface at the project site has gentle to moderate slopes that drain toward the Lake edge at an elevation of approximately 385 feet above mean sea level. The open recreational space at the north end of the Lake is relatively flat. The neighboring properties include moderately steep rolling hills. The hillside slopes east and west of the Lake ascend to elevations of approximately 480 to 500 feet above

[1] County of Los Angeles Department of Public Works. Los Angeles River Watershed. Available: http://ladpw.org/wmd/watershed/LA. Accessed November 11, 2009.
[2] Ibid.

mean sea level. The Lake bottom is relatively shallow and ranges from approximately 380 to 375 feet above mean sea level. Water depths range from approximately three to eight feet. In the northeast lobe of the Lake, the bottom is estimated to range between two and three feet deep.[3]

The project site is located within the central block the Los Angeles Basin and near the transition between the Peninsular Ranges and the Transverse Ranges of southern California. The Los Angeles Basin is divided into four blocks that include uplifted ridges and synclinal depressions. The north end of the central block is bounded by the Santa Monica fault zone and the uplifted Santa Monica Mountains.[4]

The project site is underlain by shale deposits and alluvium. The bedding in the shale deposits strikes to the east-west and dips moderated to the south. The alluvium consists of unconsolidated clay, sand, and gravel.[5]

Regional groundwater flow is generally to the southwest. In April 2009, the State Water Resources Control Board indentified the groundwater depth in the vicinity of the project site to range from approximately 3.5 to 18 feet below ground surface. The depth to groundwater can vary with time due to many factors such as the amount of precipitation, recharge, and extraction.[6]

The groundwater basin beneath the Lake is the Central Basin. This basin is primarily a confined aquifer with minimal storage potential because the aquifer is nearly at capacity. However, the unconfined aquifer portion of the basin does provide some storage potential.[7]

FLOOD PROTECTION AND STORM DRAIN SYSTEM

The Lake functions as a storm water detention basin to protect against flooding of downstream urban areas by providing temporary storage of peak flows during storm events. The Lake discharges to a storm drain that is a tributary to the Los Angeles River. The estimated drainage area that flows to the Lake is approximately 770 residential/commercial acres. The Lake is connected to the existing City of Los Angeles and County of Los Angeles storm drain systems. Two main systems convey storm drain flows into and around the Lake: one largely beneath Glendale Boulevard and one beneath Echo Park Avenue. Both storm drains are generally oriented in a north-south direction.

City storm drains enter the Lake at the northeastern end (near Echo Park Avenue) and include a 63-inch reinforced concrete pipe and an eight-foot by four-foot reinforced concrete box. A 36-inch storm drain is also located at this location, which allows low or dry weather flow to bypass the Lake. The Lake outlet is located at the southern end. Deterioration of the storm drain system infrastructure and has prevented the

[3] Ninyo & Moore. *Draft Well Installation and Groundwater Monitoring Report Echo Park Lake Rehabilitation Project*. September 2009.
[4] Ibid.
[5] Ibid.
[6] Ibid.
[7] CDM. *Final Concept Report Echo Park Lake Rehabilitation Proposition O Project*. December 13, 2006.

Lake from functioning as it was designed. In addition, the storm drains surrounding the Lake have large amounts of debris within them, which has contributed to the deterioration in the water quality of the Lake.

A Los Angeles County Flood Control District storm drain system connects to the Lake on the western edge (Glendale Boulevard), south of the lotus bed area via a large weir structure. This system allows low or dry weather flow to bypass the Lake.[8] A similar system to bypass low and dry weather flow was found to exist at the outlet to the northeastern part of the Lake.

The flow monitoring for dry weather flow performed in 2008 indicates that an average of 110,000 gallon per day (gpd) and 130,000 gpd were present in the piping systems north and south of the Lake, respectively. It is expected that 20,000 gallons per day are likely lost to the piping system around the Lake.[9]

WATER QUALITY

According to Section 303(d) of the Clean Water Act list of impaired water bodies, the water quality of the Lake is substantially impaired. Pollutants from nonpoint sources that currently exist in the Lake and contribute to the impairment of the water body include algae, ammonia, eutrophic conditions, copper, lead, odor, polychlorinated byphenyls (PCBs), trash, and pH. As a result, the City is proposing to implement in-Lake improvements; vegetation, habitat and park improvements; and parkland structural best management practices at the Lake. The proposed project would be consistent with the Regional Water Quality Control Board's (RWQCB) intent to restore the existing and potential beneficial water quality uses in the Lake. Because dry weather flow is routed to bypass the Lake, existing bacteria levels in the Lake are likely from the current population of fish, ducks, pigeons, geese, and turtles that inhabit the project site.[10] Nonpoint sources from the local area that are conveyed to the Lake from runoff include fertilizers, pesticides, pet waste, and trash. In addition, storm water contains various pollutants that are picked up as runoff travels through urban areas. Typical pollutants in urban storm water are bacteria, nutrients, trash, sediment, heavy metals, and organic compounds (e.g., pesticides, vehicular exhaust materials, and chemicals used in industrial processes). The types and amounts of pollutants contained in storm water are highly variable. This problem is common to all water bodies within the County of Los Angeles and is not specific to the Lake.

Total Maximum Daily Loads (TMDLs) establishes a maximum limit for specific pollutants that can be discharged into a water body without causing it to become impaired. Specific pollutants include trash, bacteria, chlordane, dieldrin, phosphorus, and nitrogen. TMDLs are enforced through State and Federal discharge permits issued to the City of Los Angeles, such as Municipal Stormwater National Pollutant Discharge Elimination System (NPDES) and Publicly Owned Treatment Works (POTWs) permits. The

[8] Ibid.
[9] Black & Veatch. Echo Park Lake Rehabilitation Project Final Pre-design Report Volume 2 (Appendix G – Echo Park Lake Exfiltration and Flow Monitoring. April 2009). July 2009.
[10] CDM. *Final Concept Report Echo Park Lake Rehabilitation Proposition O Project*. December 13, 2006.

U.S. Environmental Protection Agency released a draft of the Los Angeles Area Lake TMDLs in May 2010, which describes the Lake water quality impairments and draft TMDLs to address them.

In 2008, the City of Los Angeles performed flow monitoring within select storm drains at the Lake and water quality evaluations. Water quality data was collected to verify the proposed project's approach to the rehabilitation of the Lake. Initial estimates of potable water added to the Lake between February 2004 and October 2005 (more than 92.4 million gallons) had led to the conclusion that water losses through exfiltration are significant.[11] Exfiltration refers to a loss of water from a drainage system as the result of percolation or absorption into the surrounding soil.

Water samples from two manhole stations at the Lake were sampled daily for the conventional constituents from October 8, 2008 to October 20, 2008. The data were used to characterize the water quality of the flow that could potentially enter the Lake during the dry season. Table 3.6-1 summarizes the analytical results for the two stations for the sampling period. Station 1 is located north of the northwest lobe of the Lake and Station 2 is located outside of the Park north of the northeast lobe of the Lake. [12]

Table 3.6-2 summarizes the water sample data for six Lake sampling locations. Location 1 is in the northwest lobe of the Lake. Locations 2 and 4 are in the northeast lobe of the Lake adjacent to the man-made island. Locations 5 and 6 were sampled near the middle of the Lake and Location 3 is in the southern part of the Lake. The conventional constituents of primary concern are, ammonia, nitrate, nitrite, and ortho-phosphate, because these nutrients are expected to contribute to the growth of algae in the Lake. Copper and lead are important because they are on the 303(d) list for the Lake.[13]

As discussed above, the dry weather flow bypasses the Lake; thus, samples from Stations 1 and 2 (in Table 3.6-1) are not associated with Lake samples (in Table 3.6-2). Water quality in the Lake is currently related to storm water inputs only. It is expected that the dry weather nutrient inflow concentrations would be significantly higher than nutrient concentrations in the Lake because of uptake of nutrients by algae. High nutrient concentrations in Table 3.6-2 may be related to fertilizer in the runoff from irrigated properties. Nitrate plus nitrite concentrations in the Lake were very low at all locations, which may explain why chlorophyll a was not detected at Locations 1, 2, 3, and 4 and only moderately high in concentration at Locations 5 and 6. It appears that the low nitrate concentrations were limiting the growth of algae during the sampling period. Including the nutrient rich dry weather flow in the Lake may result in higher concentrations of algae during the summer months.[14]

[11] Black & Veatch. Echo Park Lake Rehabilitation Project Final Pre-design Report Volume 2 (Appendix G – Echo Park Lake Exfiltration and Flow Monitoring. April 2009). July 2009.
[12] Ibid.
[13] Ibid.
[14] Ibid.

TABLE 3.6-1 RESULTS OF DRY WEATHER SAMPLING FOR CONVENTIONAL CONSTITUENTS

Constituent	Unit	Station 1 (NW)			Station 2 (NE)		
		Avg	Max	Min	Avg	Max	Min
Alkalinity as CaCO3	mg/L	300	480	240	345	370	260
Carbonate Alkalinity as CaCO3	mg/L	42	48	ND	27	39	ND
Bicarbonate Alkalinity as HCO3	mg/L	326	590	240	397	440	320
Hydroxide Alkalinity as CaCO3	mg/L	ND	ND	ND	ND	ND	ND
Ammonia as N	mg/L	0.18	0.22	0.11	0.18	0.33	0.11
Carbonaceous BOD	mg/L	20.9	34	ND	5.7	12	ND
Nitrate as N	mg/L	7.1	8.6	5.4	7.7	25.0	5.7
Nitrite as N	mg/L	0.2	0.5	ND	0.2	0.2	ND
Ortho-Phosphate as P	mg/L	0.4	0.5	0.3	0.4	0.6	0.3
Phosphorus, Total as P	mg/L	1.0	7.4	0.4	0.4	0.8	0.1
Total Dissolved Solids	mg/L	803	1000	740	1038	1100	790
Total Suspended Solids	mg/L	420	3300	ND	10	19	ND
Volatile Suspended Solids	mg/L	120	460	ND	10	19	ND
TKN	mg/L	1.5	5.6	0.3	1.1	2.9	0.2
Turbidity	NTU	33	380	1.1	1.8	7.4	0.4
Copper, Total	ug/L	17.3	180	1.60	3.94	5.80	2.60
Lead, Total	ug/L	6.6	67	0.45	0.62	1.3	0.35
Total Coliform	MPN/100 ml	>1600	>1600	NA	>1600	>1600	900
Fecal Coliform	MPN/100 ml	>1600	>1600	NA	800	1600	240
Specific Conductance	umhos/cm	1223	1600	1100	1669	1800	1200
Dissolved Oxygen	mg/L	7.5	8.5	5.7	6.3	8.5	5.3
pH	Units	8.4	8.8	8.2	8.0	8.4	7.6
Temperature	°C	21.0	24.0	18.5	22.0	24.0	21.1

Source: Black & Veatch 2009.

Copper concentrations in the Lake were higher than the Criteria Continuous Concentrations (CCC) of 12 ug/L at three of the six locations, and the lead concentrations in the Lake were higher than the CCC concentrations of 4 ug/L at all but one of the locations. The CCC for both copper and lead assumes a hardness of 150 mg/L, which is believed to be typical for the Lake. [15]

[15] Ibid.

None of the organic compounds in any of the priority pollutants samples were measured above their analyzed detection limits. Of the eleven priority metals analyzed, nine metals were measured above their analytical detection limits. Arsenic, chromium, nickel, and selenium were most frequently detected.

TABLE 3.6-2 RESULTS OF DRY WEATHER SAMPLING FOR CONVENTIONAL CONSTITUENTS IN THE LAKE AT SIX LOCATIONS

Constituent	Unit	10/8/2008			10/15/2008					
		Loc. 1	Loc. 2	Loc. 3	Loc. 4	Loc. 5	Loc. 6	Avg	Max	Min
Ammonia as N	mg/L	0.24	0.3	0.36	0.13	ND	0.1	0.23	0.36	0.10
NO2+NO3 as N	mg/L	ND	ND	0.12	ND	ND	ND	ND	0.12	ND
Ortho-Phosphate as P	mg/L	0.05	0.048	0.21	0.039	0.037	0.019	0.07	0.21	0.02
Phosphorus, Total as P	mg/L	0.097	0.1	0.18	0.094	0.092	0.076	0.11	0.18	0.08
Total Dissolved Solids	mg/L	610	600	610	600	590	610	603	610	590
Total Suspended Solids	mg/L	16	15	54	18	25	20	25	54	15
Volatile Suspended Solids	mg/L	16	14	12	ND	9	9	12	16	9
TKN	mg/L	0.88	1.1	1.3	0.73	0.92	0.9	0.97	1.30	0.73
Turbidity	NTU	13	10	36	12	13	9.8	16	36	10
Copper, Total	ug/L	15	8.6	48	10	13	8.5	17.2	48.0	8.5
Lead, Total	ug/L	10	4.3	16	6.9	5.4	3.9	7.8	16.0	3.9
Fecal Coliform	MPN/100 mL	>1600	>1600	300	>1600	900	300	800	>1600	300
Total Coliform	MPN/100 mL	>1600	>1600	1600	1600	900	500	1000	>1600	500
E. coli	MPN/100 mL	>1600	>1600	300	1600	900	300	780	>1600	300
Chlorophyll-A	ug/L	ND	ND	ND	ND	16	21	19	21	ND

Source: Black & Veatch 2009.

CONTAMINANT ACCUMULATION IN FISH

Recreational activities at the Park currently include catch-and-release fishing. The California Department of Fish and Game stocks the Lake with rainbow trout and channel catfish. Other fish species that could be potentially found in the Lake include bluegill, largemouth bass, smallmouth bass, spotted bass, crappie, carp, and sunfish. Due to the urban location of the Lake, numerous other exotic warm water species that are typically sold in pet stores may inhabit the Lake.[16]

The State Water Resources Control Board monitors contaminants in fish around the state in lakes and reservoirs through the Surface Water Ambient Monitoring Program (SWAMP). While SWAMP provides Echo Park Lake specific data for fish contaminants, the reports do not make specific recommendations for 303 (d) listing. Southern California is the region with the highest PCBs concentrations in lakes. Echo Park Lake is the third highest measured lake in the state for PCBs, with 101 parts per billion (ppb) found in common carp. The Lake also has high concentrations of PCBs in largemouth bass (48 ppb). [17]

3.6.2 REGULATORY SETTING

FEDERAL

The National Pollution Discharge Elimination System (NPDES) storm water permitting program, under Section 402(d) of the Federal Clean Water Act (CWA), is administered by the RWQCB on behalf of the United States Environmental Protection Agency (EPA). Section 402(d) of the CWA establishes a framework for regulating nonpoint source (NPS) storm water discharges (33 USC 1251). The County of Los Angeles and 84 incorporated cities, including the City of Los Angeles, receive coverage under the NPDES storm water program under NPDES permit No. CAS004001.[18] The permit, first issued by the Los Angeles RWQCB in 2001, regulates municipal storm water and urban runoff discharges within the jurisdictions covered by the permit.[19]

To comply with the NPDES General Construction Permit requirements, developers are required to submit a Notice of Intent to the State Water Resources Control Board (SWRCB) Division of Water Quality. The Notice of Intent includes general information on the types of construction activities that would occur at construction sites. Developers are required to submit a site specific plan called a Storm Water Pollution Prevention Plan (SWPPP) to minimize the discharge of pollutants during construction. The SWPPP must include a description of the Best Management Practices (BMPs) that would be employed to reduce storm

[16] Black & Veatch. Echo Park Lake Rehabilitation Project Technical Memorandum No. 4 Wildlife Relocation Plan. October 2008.
[17] State Water Resources Control Board. *Contaminants in Fish from California Lakes and Reservoirs: Technical Report on Year One of a Two-Year Screening Study*. March 11, 2009.
[18] Los Angeles Regional Water Quality Control Board. NPDES permit No. CAS004001. Available: http://www.swrcb.ca.gov/rwqcb4/water_issues/programs/stormwater/municipal/ms4_permits/los_angeles/2001-2007/LA_MS4_Permit2001-2007.pdf. Accessed: November 11, 2009.
[19] State Water Resources Control Board. *National Pollution Discharge Elimination System.* Available: http://www.swrcb.ca.gov/water_issues/programs/npdes/. Accessed: November 11, 2009.

water pollutants to the maximum extent practicable for water quality protection. The maximum extent practicable standard relies on BMPs that emphasize pollution prevention and source control, with additional structural controls as needed. This includes implementation of BMPs aimed at sediment control, erosion control, and construction materials control (i.e., paint, solvents, concrete, petroleum products) to prevent storm water pollutants from leaving construction sites, as well as a detailed description of (and schedule for) all monitoring. Construction activities that are subject to the permit include, but are not limited to, clearing, grading, demolition, excavation, construction of new structures, and reconstruction of existing facilities involving removal and replacement that results in soil disturbance. In the event of soil disturbance during the rainy season, generally defined as October 1 through April 15, construction projects must implement a Wet Weather Erosion Control Plan. The Wet Weather Erosion Control Plan must be prepared prior to each rainy season, and must be implemented throughout that rainy season.[20]

STATE

The SWRCB and nine associated Regional Water Quality Control Boards enforce State of California statutes, which are equivalent to or more stringent than the federal statutes. The Los Angeles Regional Water Quality Control Board (LARWQCB) issues permits for activities, including construction activities that could cause impacts on surface waters and groundwater. The LARWQCB developed a Water Quality Control Plan to protect the quality of surface and ground waters of the region and is also responsible under Section 303(d) of the CWA for protecting surface waters and groundwater from both point and nonpoint sources of pollution within the project site. The Water Quality Control Plan establishes water quality standards and objectives that protect the beneficial uses of various waters. In order to protect these uses, the state develops total maximum daily loads (TMDLs), which is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality objectives established in the Water Quality Control Plan.[21]

The California Department of Water Resources, Division of Safety of Dams (DSOD) is responsible for the review and approval of plans and specifications for the design of dams throughout the state. The DSOD oversees the construction of dams to ensure compliance with these approved plans and specifications. The DSOD evaluates geologic and seismic setting, dam stability, hydrology, and conducts site investigations, construction material evaluations, and structural reviews of appurtenant structures. In addition, the DSOD inspects over 1,200 dams annually to ensure their performance and maintenance is in compliance with DSOD safety standards.[22] Consultation with DSOD is in process with the proposed project in order to identify potential jurisdictional issues related to the existing dam located at the south end of the Lake. Although the Lake is not listed in the State of California's current registry of dams, it

[20] Ibid.
[21] Los Angeles Regional Water Quality Control Board. Water Quality Control Plan: Los Angeles Region. Available: http://www.swrcb.ca.gov/losangeles/water_issues/programs/basin_plan/index.shtml. Accessed: November 11, 2009.
[22] California Department of Water Resources, Division of Safety of Dams. Available: http://www.water.ca.gov/damsafety/index.cfm. Accessed: December 2009.

has been determined that it does fall within DSOD jurisdiction. Basic criteria for DSOD jurisdiction include the volume of storage and the effective height of the dam embankment, which forms the Lake.

LOCAL

The County of Los Angeles and 84 other municipal co-permittees have been issued a storm water permit by the Los Angeles Regional Water Quality Control Board. The permit consists of various storm water management programs designed to reduce pollutants in storm water and urban runoff. Under the County's NPDES storm water permit requirements, development construction projects must implement at a minimum, BMPs to reduce pollutants to the maximum extent practicable for water quality protection. This includes sediment control, construction materials control, and erosion control to prevent storm water pollutants from leaving construction sites. Implementation of a SWPPP is required for projects with one acre or greater of soil disturbance. The SWPPP must be prepared before the project owner, developer, or contractor receives a grading or building permit and must be implemented year-round throughout construction. In the event soil is disturbed during the rainy season, generally defined as October 1 through April 15, construction projects must implement a Wet Weather Erosion Control Plan. A Wet Weather Erosion Control Plan must be prepared prior to each rainy season, and must be implemented throughout that rainy season. Projects, including those involving the construction of parking lots with 25 or more spaces, are also subject to post-construction storm water requirements of the Standard Urban Storm Water Mitigation Plan. The Standard Urban Storm Water Mitigation Plan identifies applicable, required, or suggested treatment and source control storm water BMPs based on the operational-specific nature of the project.[23] These would include the following BMPs:

- Post-development peak storm water runoff discharge rates shall not exceed the estimated pre-development rate for developments where the increased peak storm water discharge rate would result in increased potential for downstream erosion;

- Use permeable materials for private sidewalks, driveways, parking lots, or interior roadway surfaces (e.g., hybrid lots, parking groves, permeable overflow parking, etc.);

- All storm drain inlets and catch basins within the project area must be stenciled with prohibitive language (e.g., "No Dumping – Drains to Ocean") and/or graphical icons to discourage illegal dumping;

- Materials with the potential to contaminate storm water must be: (1) placed in an enclosure such as, but not limited to, a cabinet, shed, or similar structure that prevents contact with runoff or spillage to the storm water conveyance system; or (2) protected by secondary containment structures such as berms, dikes, or curbs;

[23] County of Los Angeles, Department of Public Works. Standard Urban Storm Water Mitigation Plan. Website http://ladpw.org/WMD/npdes/, accessed November 11, 2009.

- The hazardous materials storage area must be paved and sufficiently impervious to contain leaks and spills;
- The hazardous materials storage area must have a roof or awning to minimize collection of storm water within the secondary containment area;
- Trash container areas must have drainage from adjoining roofs and pavement diverted around the area(s);
- Trash container areas must be screened or walled to prevent off-site transport of trash;
- Reduce impervious land coverage of parking areas;
- Infiltrate runoff before it reaches storm drain system;
- Treat runoff before it reaches storm drain system;
- Vegetated swales and strips;
- Infiltration basin; and
- Constructed wetlands.

City of Los Angeles Integrated Pest Management Program

The Integrated Pest Management (IPM) has been developed by RAP and is implemented at its facilities. The IPM is a strategy that focuses on long-term prevention or suppression of pest problems with minimum impact on human health, the environment, and non-target organisms. Preferred pest management techniques include encouraging naturally occurring biological control, using alternate plant species or varieties that resist pests, adoption of cultivating, pruning, fertilizing, or irrigation practices that reduce pest problems, changing the habitat to make it less conducive to pest development, and selecting pesticides with a lower toxicity to humans or non-target organisms. Pesticides are used as a last resort when careful monitoring indicates they are needed and when treatments are necessary, with the least toxic and most target specific pesticides being applied. The project site is currently subject to the IPM.

3.6.3 ENVIRONMENTAL IMPACTS

The following hydrology and water quality analysis is based on review of available technical reports and knowledge of the proposed type, intensity, and duration of project construction activities and proposed changes in the surface hydrology of the project site.

THRESHOLDS OF SIGNIFICANCE

As part of the Initial Study (see Appendix A), it was determined that the proposed project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge; substantially alter the existing drainage pattern of the site or area; otherwise substantially degrade water quality; place housing within a 100-year flood hazard area; expose people or structures to a significant risk of loss, injury, or death involving flooding; or result in inundation by seiche, tsunami, or mudflow. Accordingly, these issues are not further analyzed in the EIR.

Pursuant to the CEQA Guidelines, the proposed project would have a significant effect on hydrology and water quality if it would:

- Violate any water quality standards or waste discharge requirements;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; or
- Place within a 100-year flood hazard area structures that would impede or redirect flows.

IMPACT ANALYSIS

HYDRO-1 *Construction and operation of the proposed project may potentially violate a water quality standard or waste discharge requirement, or otherwise substantially degrade water quality. Mitigation measures are required.*

Construction

Construction activities such as clearing, grading, Lake liner installation, lake outlet construction, wetland construction, storm drain modifications, plantings, improvements to the Lake edge, and construction of rain gardens would result in the disturbance of soil. Additionally, construction activities and equipment would require the on-site use and storage of fuels, lubricants, and other hydrocarbon fluids. Construction activities that involve soil disturbance would temporarily increase the potential for soil erosion. During storm events, storm water runoff could carry disturbed sediments and spilled substances from construction activities, resulting in erosion and storm water pollution discharges to the nearby receiving waters.

Prior to the issuance of grading permits, the proposed project would be required to develop a SWPPP to outline the control of storm water pollution runoff and waste management during construction. The SWPPP would include the following:

- minimizing the extent of the disturbed area and duration of exposure;
- stabilizing and protecting the disturbed area as soon as possible;
- keeping runoff velocities low;
- protecting disturbed areas from contact with runoff; and
- retaining sediment within the construction areas.

Construction BMPs would include, at minimum, the following:

- temporary desilting basins;
- silt fences;
- gravel bag barriers;
- temporary soil stabilization through mattress or mulching;
- temporary drainage inlet protection; and
- diversion dikes and interceptor swales.

This plan is part of the NPDES permit for discharge of storm water associated with construction activities. As discussed above, incorporation of BMPs in the SWPPP would reduce the potential for soil erosion and release of other pollutants into the Lake during construction. The City would be required to develop a Wet Weather Erosion Control Plan for construction activities that would occur during the rainy season. These measures would minimize the amount of runoff and associated pollutants leaving the construction site by containing runoff on-site, containing sediments on-site, and minimizing the potential for storm water to come into contact with pollutants. Compliance with existing regulations would ensure that the proposed project would not violate a water quality standard or otherwise substantially degrade water quality. The construction impact would be less than significant, and no mitigation is required.

Operation

The proposed project is specifically designed to improve water quality in the Lake and, in turn contribute to water quality improvement in the Los Angeles Watershed. Specifically, the proposed project would involve construction activities in the approximately 14-acre Lake, including the installation of a new liner, construction of wetland areas, construction of a new outlet, construction of a partition berm, and modification of existing storm drains inletting to the Lake. Other project components would include construction of a recirculation pump and piping system, planting new trees and other vegetation around the project site, construction of hydrodynamic separators, construction of rain gardens, upgrading the irrigation system, and the replacement of asphalt pathways with pervious materials. Overall, there would

be a decrease of impermeable surface at the project site because no new impervious areas would be constructed and existing asphalt pathways would be replaced with pervious materials.

The Lake is a 303(d) listed water body due to existing pollutants that enter the approximately 14-acre Lake via surface runoff. The adverse water quality impact related to surface runoff would continue to occur after construction of the proposed project. However, the proposed project has been designed to include water quality improvements features, such as hydrodynamic separators, constructed wetlands, rain gardens, porous pavement systems, and an integrated irrigation system. The functions of these project design features related to water quality are described below.

The urban environment has a tendency to accumulate trash and debris from various sources, including paper products, vegetation, trees or cuttings, and deposition of organic components from decaying sources. The collective accumulation of this debris has a tendency to be washed away as urban runoff into drainage facilities during significant rainfall events. This currently occurs at the Lake. The proposed project has been designed to utilize hydrodynamic separators as the first step to trash and debris management, which would provide an immediate water quality and aesthetic benefit (i.e., less trash in the Lake). Hydrodynamic separators would also capture sediment and associated constituents (such as organics, and nutrients, and to a lesser extent oil and grease and bacteria) that accumulate with the larger constituents.

The proposed constructed wetlands systems would include a recirculation system to reduce nutrients, bacteria, and other pollutants in the Lake to meet the water quality objectives of the proposed project (see Figure 3.6-1). While a wide variation in the results for phosphorous and other pollutants removal with wetlands BMPs have been documented, constructed wetlands are successful in removing phosphorous. These aquatic plant systems have the advantages of relatively low impacts on the operation of the Lake. Constructed wetlands with emergent plants are the optimal wetlands option and thus have been incorporated into the proposed project. Wetland areas would be constructed within the northeastern lobe and southern portion of the Lake, as well as along the eastern and western edges of the Lake to help achieve water quality objectives and prevent eutrophication.[24] Eutrophication is considered the cause of past algal blooms, followed by the depletion of available oxygen. As storm water runoff flows through the proposed constructed wetlands, pollutant removal would be achieved through settling, adsorption, and biological uptake of nutrients and dissolved pollutants by the plants within the wetlands.

The amount of surface runoff from the surrounding parkland would be reduced on-site through use of rain gardens, and porous pavement systems throughout the project site, since these features would act as temporary retention to promote infiltration, and provide treatment for storm water runoff.

[24] Eutrophication is an increase in the concentration of chemical nutrients in an ecosystem to an extent that increases the primary productivity of the ecosystem.

Source: AECOM May 2010

Figure 3.6-1
Proposed Wetland Areas

While the project design features described above would reduce water quality impacts, pesticides or herbicides which are currently being applied around the project site could continue to be used during the operation of the proposed project. Thus, the use of pesticides or herbicides would impact the quality of storm water runoff eventually entering the Lake. As such, the proposed project could potentially violate water quality standards and degrade water quality in the Lake.

Hydrodynamic separators and constructed wetlands are proposed as the key BMPs to be implemented to treat the flow from the storm drain system before the pollutants enter the Lake. In addition, Lake water will be recirculated through the wetlands at the inlet and additional edge treatment wetlands to increase treatment ability to meet anticipated TMDL requirements.

During operations, the proposed project would be subject to the requirement of the IPM previously mentioned. Implementation of mitigation and applicable procedures outlined in the IPM are required to reduce water quality impacts. Accordingly, the use of chemicals for landscaping purposes would be limited and applications would be prohibited during rain storms or when rain storms are predicted as specified in mitigation measure HYDRO-A provided below. With implementation of mitigation, operational impacts on water quality would be less than significant.

HYDRO-2 *Implementation of the proposed project would not alter drainage pattern of the site which could potentially result in flooding on- or off-site. Further, construction and operation of the proposed project would not increase the amount of runoff, potentially exceeding the capacity of the existing storm drain system or providing substantial additional sources of polluted runoff. The impact would be less than significant.*

Construction

As noted in Chapter 2.0, Project Description, an approximately four-foot-tall by six-foot-wide submerged partition berm would be constructed near the southern portion of the Lake (with an east-west orientation), to comply with DSOD standards. The berm would subdivide the Lake into two basins. Construction activities would occur in the north basin first to ensure flood protection during this phase of the proposed project. After construction activities are completed in the north basin, the south basin would be excavated, prior to the installation of the Lake edging and liner. Soil disturbance during construction would increase the potential for wind and water erosion at the project site. During construction, grading and other site preparation activities would create additional exposed earth and, if not controlled, surface water can move greater quantities of sediment to local drainages and flood control facilities, such as the project site. As described in HYDRO-1 above, the construction contractor would develop and implement a SWPPP. This plan is part of the NPDES permit for discharge of storm water associated with construction activities. Incorporation of BMPs in the SWPPP would reduce the potential for soil erosion and release of other pollutants into the Lake during construction. The City would be required to develop a Wet Weather Erosion Control Plan for construction activities that would occur during the rainy season. These measures would minimize the amount of runoff and associated sediments leaving the construction

site by containing runoff and sediments on-site. Compliance with existing regulations would ensure that the proposed project would not increase the amount of surface runoff during construction such that it would exceed the capacity of the existing storm drain system. Further, compliance with existing NPDES regulations during construction would ensure that the proposed project would not alter existing drainage such that it results in substantial erosion, siltation, or flooding on- or off-site. The impact would be less than significant, and no mitigation measures are required.

Operation

As previously described, two main systems convey storm drain flows to the Lake: one largely beneath Glendale Boulevard (west side) and one beneath Echo Park Avenue (east side). The tributary watershed areas and corresponding storm water flows were found to be nearly equal for these two storm drain systems. Based on a hydraulic analysis prepared for the project, it was estimated that the maximum pipe capacity of the east side system is approximately 50 cubic feet per second (cfs), and the maximum pipe capacity of the west side system is approximately 250 cfs before flows spill over into the Lake.[25]

With the proposed project, the Lake would retain its important function in the Los Angeles drainage system as a storage volume for high storm flows and protect against flooding. The Glendale Boulevard storm drain system would continue to function as currently operated with high storm flows diverted temporarily into the Lake; however, low and dry weather flows would be pumped from the Glendale Boulevard system to the Echo Park Avenue system so that it would flow into the Lake.

The Echo Park Avenue system also currently allows higher storm flows to discharge into the Lake, with overflows into the Lake occurring more frequently than every two years. For the proposed project, the Echo Park Avenue system would be modified so that flows less than 13 cfs would be treated via the hydrodynamic separators and wetlands system in the northeast part of the Lake. Flows greater than 13 cfs would bypass the Lake utilizing the proposed modified bypass system on the eastern side of the Lake. The capacity of the bypass line is 50 cfs, so flows above 50 cfs in this system are temporarily detained in the Lake.[26]

Because the proposed project would not result in increased flow to the storm drain system as compared to existing conditions, the impact would be less than significant.

Currently, on the Park site some storm water runoff drains by sheet flow to vegetated areas where it percolates into the ground. Some surface runoff adjacent to the Lake also drains into the Lake depending on the topography and if any landscaping or other features impede the flow. Drainage patterns within the project site would be modified by the proposed project to minimize surface flows into the Lake to the extent practical. Overall, the proposed project would result in less surface runoff because no new

[25] Black & Veatch. Echo Park Lake Rehabilitation Project Final Pre-design Report Volume 2 (Appendix H). July 2009.
[26] Ibid.

impervious areas would be constructed and existing asphalt pathways would be replaced with pervious materials. The impact from site runoff would be less than significant, and no mitigation is required.

HYDRO-3 *The proposed project site would not place structures within the 100-year flood zone, potentially impeding or redirecting flow. The impact would be less than significant.*

As discussed in Chapter 2.0, Project Description of this EIR, the proposed project would not construct any new buildings or structures in the Lake other than the proposed outlet facility and partition berm. The Lake is located within a 100-year flood zone and it is designed to protect against flooding.[27] The remainder of the project site, consisting of open recreational space, is located outside of the 100-year flood zone. The existing outlet structure at the south end of the Lake would be replaced with a new structure, an approximately 10-foot by 10-foot concrete box that would extend approximately 12 feet in depth. It would include a weir to maintain the Lake level. The structure would have a 24-inch diameter pipe that would discharge to the existing outlet vault. During construction of the proposed outlet structure and installation of the Lake liner, high storm flows that are normally diverted temporarily into the Lake would be redirected to the Glendale Boulevard and Echo Park Avenue storm drain systems. The construction activities would be short-term and no structures would impede flow to the existing storm drain systems. While the proposed project would redirect flow during the construction activities in the Lake, the existing storm drain systems are designed to meet the capacity of the project site and surrounding area. As such, after construction activities in the Lake are completed, the proposed project would not redirect or impede the flow of floodwaters within a 100-year flood zone. In order to comply with DSOD standards, an approximately 4-foot-tall and 6-foot-wide partition berm would be constructed near the midpoint of the Lake with an east-west orientation to limit the volume of water that is bearing on the existing dam at the southern end of the Lake to less than 50 acre-feet (the lower threshold of DSOD jurisdiction). The impacts would be less than significant, and no mitigation measures are required.

3.6.4 MITIGATION MEASURES

HYDRO-A Biological or non-chemical means of controlling exotics and pests shall be utilized over pesticides where feasible. Should chemical pesticides or herbicides be required, less-persistent compounds shall be used in accordance with manufacturers' recommendations and general standards of use. Application of chemicals shall not occur immediately before and during rain storms or within the 24-hour period in which rain is forecast to occur.

3.6.5 SIGNIFICANCE AFTER MITIGATION

Impacts to hydrology and water quality would be less than significant following the implementation of the above mitigation measure. All other impacts would be less than significant.

[27] Federal Emergency Management Agency (FEMA). Flood Insurance Rate Map No. 06037C1610F.

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3.7 NOISE

This section evaluates noise and vibration impacts associated with the implementation of the proposed project based on the results of a technical noise study prepared for the proposed project (Appendix B). The noise and vibration analysis in this section assesses existing noise and vibration conditions at the project site and its vicinity, as well as short-term construction and long-term operational noise and vibration impacts associated with the proposed project.

3.7.1 ENVIRONMENTAL SETTING

NOISE CHARACTERISTICS AND EFFECTS

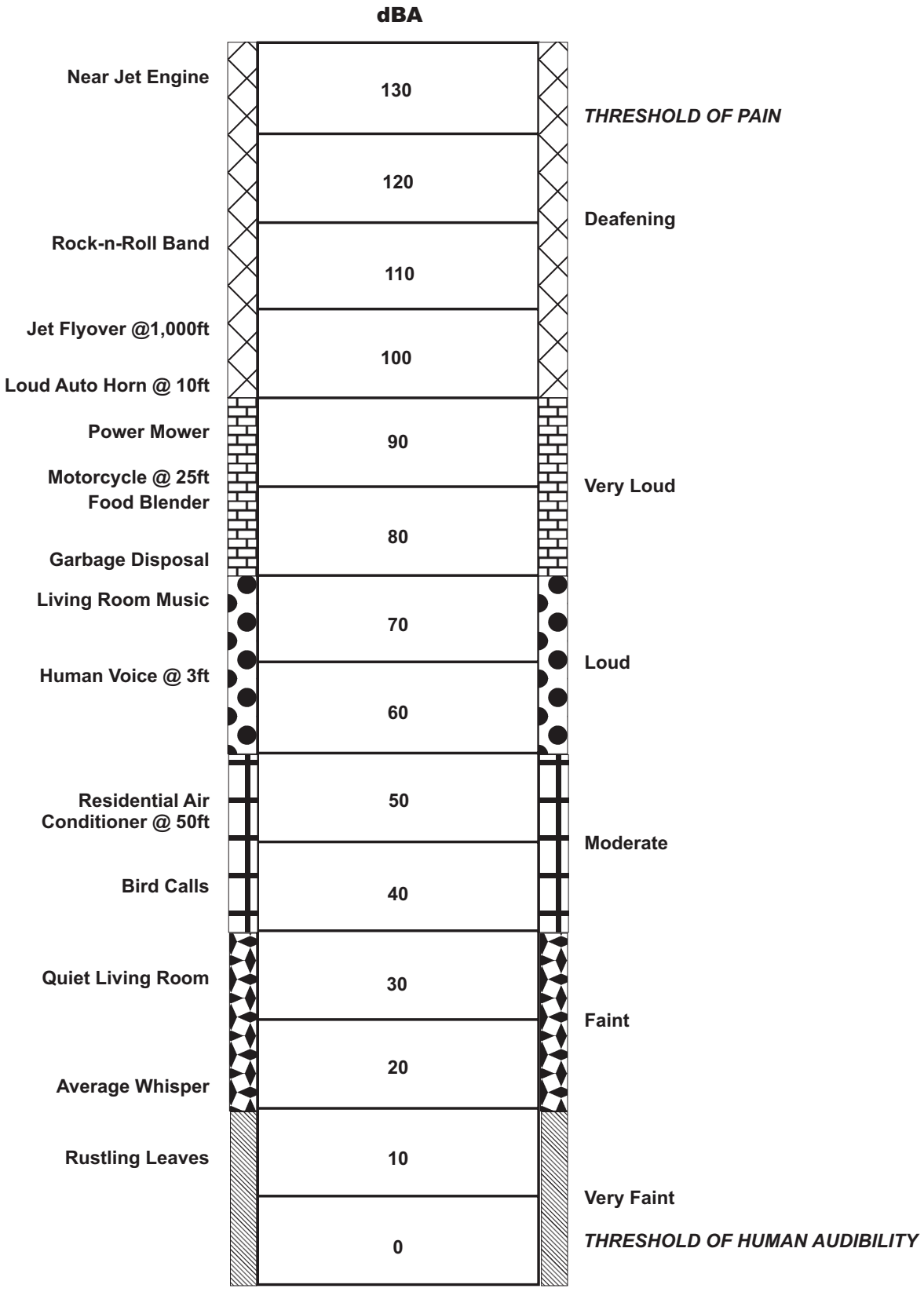
Sound is technically described in terms of the loudness (amplitude) and frequency (pitch) of the sound. The standard unit of measurement for sound is the decibel (dB). The human ear is not equally sensitive to sound at all frequencies. The "A-weighted scale," abbreviated dBA, reflects the normal hearing sensitivity range of the human ear. On this scale, the range of human hearing extends from approximately 3 to 140 dBA. Figure 3.7-1 provides examples of A-weighted noise levels from common sounds.

Noise Definitions

This noise analysis discusses sound levels in terms of Community Noise Equivalent Level (CNEL), Equivalent Noise Level (L_{eq}), and Day-Night Sound Level (L_{dn}).

Community Noise Equivalent Level. CNEL is an average sound level during a 24-hour period. CNEL is a noise measurement scale, which accounts for noise source, distance, single event duration, single event occurrence, frequency, and time of day. Human reaction to sound between 7:00 p.m. and 10:00 p.m. is as if the sound were actually 5 dBA higher than if it occurred from 7:00 a.m. to 7:00 p.m. From 10:00 p.m. to 7:00 a.m., humans perceive sound as if it were 10 dBA higher due to the lower background level. Hence, the CNEL is obtained by adding an additional 5 dBA to sound levels in the evening from 7:00 p.m. to 10:00 p.m., and 10 dBA to sound levels in the night before 7:00 a.m. and after 10:00 p.m. Because CNEL accounts for human sensitivity to sound, the CNEL 24-hour figure is always a higher number than the actual 24-hour average.

Equivalent Noise Level. L_{eq} is the average noise level on an energy basis for any specific time period. The L_{eq} for one hour is the energy average noise level during the hour. The average noise level is based on the energy content (acoustic energy) of the sound. L_{eq} can be thought of as the level of a continuous noise which has the same energy content as the fluctuating noise level. The equivalent noise level is expressed in units of dBA.



Source: Terry A. Hayes Associates, LLC 2010

NORTH

Figure 3.7-1
A-Weighted Decibel Scale

Day-Night Sound Level. L_{dn} is a 24-hour L_{eq} with an adjustment to reflect the greater sensitivity of most people to nighttime noise. The adjustment is a 10-dBA penalty for all sound that occurs during the nighttime hours of 10:00 p.m. and 7:00 a.m. The effect of the penalty is that in the calculation of L_{dn}, any event that occurs during the nighttime hours is equivalent to 10 of the same event during the daytime hours.

Effects of Noise

Noise is generally defined as unwanted sound. The degree to which noise can impact the human environment ranges from levels that interfere with speech and sleep (annoyance and nuisance) to levels that cause adverse health effects (hearing loss and psychological effects). Human response to noise is subjective and can vary greatly from person to person. Factors that influence individual response include the intensity, frequency, and pattern of noise, the amount of background noise present before the intruding noise, and the nature of work or human activity that is exposed to the noise source.

Audible Noise Changes

Studies have shown that the smallest perceptible change in sound level for a person with normal hearing sensitivity is approximately 3 dBA. A change of at least 5 dBA would be noticeable and would likely evoke a community reaction. A 10-dBA increase is subjectively heard as a doubling in loudness and would cause a community response.

Noise levels decrease as the distance from the noise source to the receiver increases. Noise generated by a stationary noise source, or "point source," would decrease by approximately 6 dBA over hard surfaces (e.g., reflective surfaces such as parking lots or smooth bodies of water) and 7.5 dBA over soft surfaces (e.g., absorptive surfaces such as soft dirt, grass, or scattered bushes and trees) for each doubling of the distance. For example, if a noise source produces a noise level of 89 dBA at a reference distance of 50 feet, then the noise level would be 83 dBA at a distance of 100 feet from the noise source, 77 dBA at a distance of 200 feet, and so on. Noise generated by a mobile source would decrease by approximately 3 dBA over hard surfaces and 4.5 dBA over soft surfaces for each doubling of the distance.

Generally, noise is most audible when traveling by direct line-of-sight.[1] Barriers, such as walls, berms, or buildings that break the line-of-sight between the source and the receiver greatly reduce noise levels from the source since sound can only reach the receiver by bending over the top of the barrier (diffraction). Sound barriers can reduce sound levels by up to 20 dBA. However, if a barrier is not high or long enough to break the line-of-sight from the source to the receiver, its effectiveness is greatly reduced.

[1] Line-of-sight is an unobstructed visual path between the noise source and the noise receptor.

VIBRATION CHARACTERISTICS AND EFFECTS

Characteristics of Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration can be a serious concern, causing buildings to shake and rumbling sounds to be heard. In contrast to noise, vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of vibration are trains, buses on rough roads, and construction activities, such as blasting, pile driving, and heavy earth-moving equipment.

Vibration Definitions

There are several different methods that are used to quantify vibration. The peak particle velocity is defined as the maximum instantaneous peak of the vibration signal. The peak particle velocity is most frequently used to describe vibration impacts to buildings and is usually measured in inches per second. The root mean square amplitude is most frequently used to describe the effect of vibration on the human body. The root mean square amplitude is defined as the average of the squared amplitude of the signal. Vibration decibel notation (Vdb) is commonly used to measure root mean square. The decibel notation acts to compress the range of numbers required to describe vibration.[2]

Effects of Vibration

High levels of vibration may cause physical personal injury or damage to buildings. However, ground-borne vibration levels rarely affect human health. Instead, most people consider ground-borne vibration to be an annoyance that may affect concentration or disturb sleep. In addition, high levels of ground-borne vibration may damage fragile buildings or interfere with equipment that is highly sensitive (e.g., electron microscopes).

To counter the effects of ground-borne vibration, the Federal Railway Administration and the Federal Transit Administration (FTA) have published guidance relative to vibration impacts. According to the FTA, fragile buildings can be exposed to ground-borne vibration levels of 0.5 inches per second peak particle velocity without experiencing structural damage.[3] Table 3.7-1 shows FTA thresholds for vibration annoyance.

[2] Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, May 2006.
[3] Federal Railway Administration, High-Speed Ground Transportation Noise and Vibration Impact Assessment, October 2005.

TABLE 3.7-1 FEDERAL TRANSIT ADMINISTRATION VIBRATION IMPACT CRITERIA

Land Use Category	Vibration Impact Level for Frequent Events (VdB) [1]	Vibration Impact Level for Occasional Events (VdB) [2]	Vibration Impact Level for Infrequent Events (VdB) [3]
Category 1: Buildings where low ambient vibration is essential for interior operations	65	65	65
Category 2: Residences and buildings where people normally sleep	72	75	80
Category 3: Institutional land uses with primarily daytime uses	75	78	83

[1] Frequent events are defined as more than 70 vibration events of the same source per day.
[2] Occasional events are defined as between 30 and 70 vibration events of the same source per day.
[3] Infrequent events are defined as fewer than 30 vibration events of the same source per day.
Source: Terry A. Hayes Associates, LLC 2008.

Perceptible Vibration Changes

In contrast to noise, ground-borne vibration is not a phenomenon that most people experience every day. The background vibration velocity level in residential areas is usually 50 root mean square or lower, well below the threshold of perception for humans, which is around 65 root mean square.[4] Most perceptible indoor vibration is caused by sources within buildings, such as the operation of mechanical equipment, movement of people, or slamming of doors. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If the roadway is smooth, the vibration from traffic is rarely perceptible.

EXISTING ENVIRONMENTAL SETTING

The existing noise environment of the vicinity of Echo Park is characterized by vehicular traffic and noises typical to a dense urban area (e.g., sirens). Vehicular traffic is the primary source of noise in the vicinity of the project site. Sound measurements were taken using a SoundPro DL Sound Level Meter between 10:30 a.m. and 12:30 p.m. on October 29, 2009 to determine existing ambient daytime noise levels in the project vicinity. These readings were used to establish existing ambient noise conditions and to provide a baseline for evaluating construction and operational noise impacts. Noise monitoring locations are shown in Figure 3.7-2. As shown in Table 3.7-2, the existing ambient sound levels range between 64.8 and 73.0 dBA Leq.

[4] Federal Transit Administration, *Transit Noise and Vibration Impact Assessment,* May 2006.

LEGEND:

Project Site

Noise Monitoring Locations

1. Angelus Temple
2. Single- and Multi-Family Residences
3. Saint Athanasius Episcopal Church and Single- and Multi-Family Residences
4. Echo Park Recreation Center (Tennis Courts and Baseball Diamond)

N

0 345 690 FEET

APPROX. SCALE

Source: Terry A. Hayes Associates, LLC 2010

Figure 3.7-2

Noise Monitoring Locations

TABLE 3.7-2 EXISTING NOISE LEVELS

Key to Figure 3.7-2	Noise Monitoring Location	Distant from Project Site (feet)	Sound Level (dBA, Leq)
1	Angelus Temple	70	69.7
2	Echo Park Recreation Center	430	66.4
3	919 Glendale Boulevard (Multi-Family Residence)	70	73
4	Saint Athanasius Episcopal Church	70	64.8

Source: Terry A. Hayes Associates, LLC 2010

Existing Vibration Environment

Similar to the environmental setting for noise, the existing vibration environment is dominated by traffic from nearby roadways. There are not any stationary sources of vibration located near the project site. Heavy-duty trucks can generate ground-borne vibrations that vary depending on vehicle type, weight, and pavement conditions. Based on field observations, vibration levels from adjacent roadways are not typically perceptible at the project site.

SENSITIVE RECEPTORS

Noise- and vibration-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas would each be considered noise- and vibration-sensitive and may warrant unique measures for protection from intruding noise. As shown in Figure 3.7-3, sensitive receptors near the project site include the following:

- Single- and multi-family residences located approximately 70 feet west of the project site
- Single- and multi-family residences located approximately 70 feet east of the project site
- Single- and multi-family residences located approximately 70 feet north of the project site
- Angelus Temple located approximately 70 feet north of the project site
- Saint Athanasius Episcopal Church located approximately 70 feet east of the project site
- Echo Park Recreation Center located approximately 95 feet south of the project site
- Echo Park Child Care Center located approximately 550 feet southeast of the project site

LEGEND:

Project Site

Sensitive Receptors

1. Angelus Temple
2. Single- and Multi-Family Residences
3. Saint Athanasius Episcopal Church
4. Echo Park Recreation Center
5. Echo Park Child Care Center

N

APPROX. SCALE

0 345 690 FEET

Source: Terry A. Hayes Associates, LLC 2010

Figure 3.7-3
Sensitive Receptors

The above sensitive receptors represent the nearest sensitive receptors with the potential to be impacted by construction noise levels. Additional sensitive receptors are located in the surrounding community and may be impacted by the construction noise levels.

3.7.2 REGULATORY SETTING

FEDERAL

Federal Transit Administration Guidelines

Federal guidelines have been established for the assessment of ground-borne vibration. There are no adopted state or City of Los Angeles standards that address ground-borne vibration. Based on federal guidelines, the proposed project would result in a significant construction vibration impact if the proposed project would expose buildings to the FTA building damage threshold level of 0.3 inches per second.

STATE

State of California Noise Insulation Standards

Title 24 of the California Code of Regulations requires that residential structures, other than detached single-family dwellings, be designed to prevent the intrusion of exterior noise so that the interior CNEL with windows closed, attributable to exterior sources, would not exceed 45 dBA in any habitable room. The regulations also specify that acoustical studies must be prepared whenever a residential building or structure is proposed to be located near an existing or adopted transportation corridor and where the noise source creates an exterior CNEL (or L_{dn}) of 60 dBA or greater. Acoustical analysis must demonstrate that the residence has been designed to limit intruding noise to an interior CNEL (or L_{dn}) of at least 45 dBA.

LOCAL

City of Los Angeles

The City of Los Angeles has established policies and regulations concerning the generation and control of noise that could adversely affect its citizens and noise-sensitive land uses. Regarding construction, the Los Angeles Municipal Code (LAMC) indicates that no construction or repair work shall be performed between the hours of 9:00 p.m. and 7:00 a.m. the following day, since such activities would generate loud noises and disturb persons occupying sleeping quarters in any adjacent dwelling, hotel, apartment, or other place of residence.[5] No person, other than an individual homeowner engaged in the repair or construction of his/her single-family dwelling, shall perform any construction or repair work of any kind or perform such work within 500 feet of land so occupied before 8:00 a.m. or after 6:00 p.m. on any Saturday or on a federal holiday, or at any time on any Sunday. Under certain conditions, the City may grant a waiver to allow limited construction activities to occur outside of the limits described above.

[5] LAMC. Chapter IV, Article 1, Section 41.40, January 29, 1984 and Chapter XI, Article 2, Section 112.04, August 8, 1996.

The LAMC also specifies the maximum noise level of powered equipment or powered hand tools.[6] Any powered equipment or hand tool that produces a maximum noise level exceeding 75 dBA at a distance of 50 feet is prohibited. However, this noise limitation does not apply where compliance is technically infeasible. Technically infeasible means the above noise limitation cannot be met despite the use of mufflers, shields, sound barriers and/or any other noise reduction device or techniques during the operation of equipment.

The City of Los Angeles has published significance thresholds to be used in noise analyses.[7] The significance thresholds for construction noise are further discussed below. Operational noise thresholds are not discussed, as the project would not generate any new noise-generating land uses.

Construction Phase Significance Criteria

Construction noise levels are based on information obtained from the *L.A. CEQA Thresholds Guide*.[8] The noise level during the construction period at each receptor location was calculated by (1) making a distance adjustment to the construction source sound level and (2) logarithmically adding the adjusted construction noise source level to the ambient noise level. Vibration levels were estimated based on information provided by the FTA.[9] The City of Los Angeles thresholds are discussed in the section below titled *Thresholds of Significance*.

3.7.3 Environmental Impacts

Thresholds of Significance

As part of the Initial Study (see Appendix A), it was determined that the proposed project would not expose persons to excessive noise from public or private airports. Accordingly, these issues are not further analyzed in the EIR.

Pursuant to the CEQA Guidelines, the proposed project would have a significant noise effect if it would:

- Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Expose persons to or generate excessive ground-borne vibration or ground-borne noise levels;
- Create a substantial permanent increase in ambient noise levels in the vicinity of the project above levels without the project; or

[6] LAMC, Chapter XI, Article 2, Section 112.05, August 8, 1996.
[7] City of Los Angeles. *L.A. CEQA Thresholds Guide*, 2006.
[8] Ibid.
[9] Federal Transit Authority. Transit Noise and Vibration Impact Assessment, May 2006.

- Create a substantial temporary or periodic increase in ambient noise levels in the vicinity of the project, in excess of noise levels existing without the project.

Based on the City of Los Angeles *L.A. CEQA Threshold Guide*, the proposed project would result in significant construction noise impacts if:

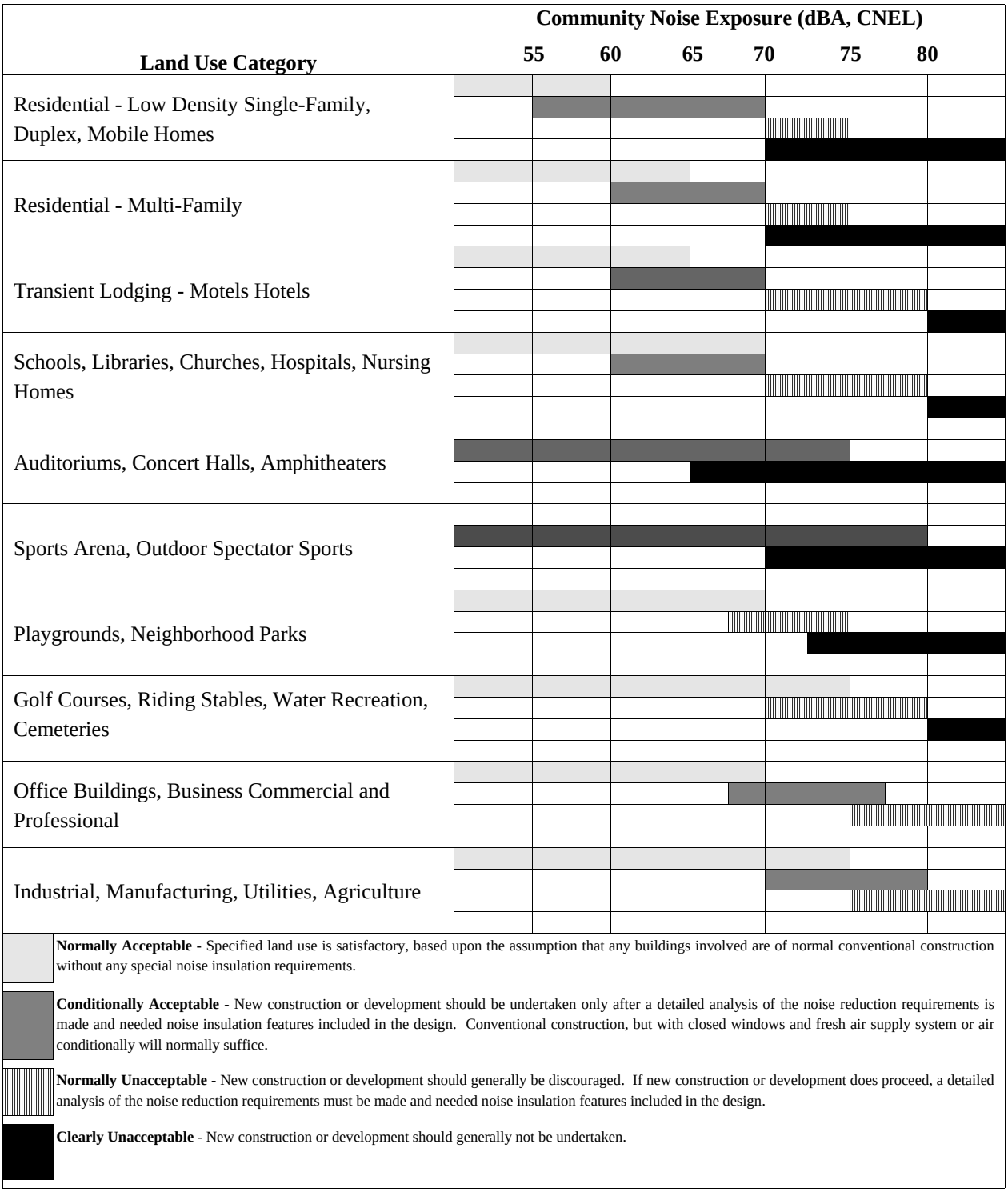
- The proposed project generates a mobile noise level increase that causes the ambient noise level measured at the property line of the affected land uses to increase by 3 decibels CNEL to or within the "normally unacceptable" or "clearly unacceptable" categories, as show in Table 3.7-3, or any 5-dBA or more increase in noise level;

- Construction activities lasting more than one day would exceed existing ambient noise levels by 10 dBA or more at a noise-sensitive land use;

- Construction activities lasting more than ten days in a three-month period would exceed existing ambient noise levels by 5 dBA or more at a noise-sensitive land use; and/or

- Construction activities would exceed the ambient noise level by 5 dBA at a noise-sensitive land use between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, before 8:00 a.m. or after 6:00 p.m. on Saturday, or anytime on Sunday.

TABLE 3.7-3 LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS



Source: California Office of Noise Control, Department of Health Services 1975.

IMPACT ANALYSIS

NOISE-1 *Construction of the proposed project would result in a substantial temporary increase in ambient noise levels in the vicinity of the project site. Mitigation measures are required.*

Construction of the proposed project would result in temporary increases in ambient noise levels in the project area on an intermittent basis. The increase in noise would occur during the approximate 26-month construction schedule. Noise levels would fluctuate depending on the construction activity, equipment type and duration of use, distance between the noise source and sensitive receptor, and presence or absence of noise attenuation barriers.

Construction activities typically require the use of numerous pieces of noise-generating equipment. Typical noise levels from various types of equipment that may be used during the proposed project construction are listed in Table 3.7-4. The table shows noise levels at distances of 50 and 100 feet from the construction noise source.

TABLE 3.7-4 MAXIMUM NOISE LEVELS OF COMMON CONSTRUCTION EQUIPMENT/MACHINES

Noise Source	Noise Level (dBA)	
	50 Feet /a/	100 Feet /a/
Front Loader	80	74
Trucks	89	83
Cranes (derrick)	88	82
Jackhammers	90	84
Generators	77	71
Back Hoe	84	78
Tractor	88	82
Scraper/Grader	87	81
Paver	87	81
Impact Pile Driving	101	95
Auger Drilling	77	71

/a/ Assumes a 6-dBA drop-off rate for noise generated by a "point source" and traveling over hard surfaces. Actual measured noise levels of the equipment listed in this table were taken at distances of ten and 30 feet from the noise source.
Source**:** City of Los Angeles, *L.A. CEQA Thresholds Guide*, 2006.

The noise levels shown in Table 3.7-5 take into account the likelihood that more than one piece of construction equipment would be in operation at the same time and lists the typical overall noise levels that would be expected for each phase of construction. The highest noise levels are expected to occur during the grading/excavation and finishing phases of construction. A typical piece of noisy equipment is assumed to be active for 40 percent of the eight-hour workday (consistent with the United States Environmental Protection Agency studies of construction noise), generating a noise level of 89 dBA L_{eq} at a reference distance of 50 feet.

TABLE 3.7-5 OUTDOOR CONSTRUCTION NOISE LEVELS

Construction Phase	Noise Level At 50 Feet (dBA)
Ground Clearing	84
Grading/Excavation	89
Foundations	78
Structural	85
Finishing	89

Source**:** City of Los Angeles, *L.A. CEQA Thresholds Guide*, 2006.

On-Site Construction Activities

Table 3.7-6 presents the unmitigated estimated noise levels at sensitive receptors during construction activity. Noise level increases would range from approximately 1.7 to 21.3 dBA, L_{eq}. The highest construction-related noise increase would occur at a single- and multi-family residence east of the project site and at Saint Athanasius Episcopal Church. Noise levels would exceed the 5-dBA significance threshold based on the City of Los Angeles *L.A. CEQA Threshold Guide*. Construction activity would result in a significant noise impact without mitigation. Implementation of mitigation measures NOISE-A through NOISE-D is required to reduce on-site construction noise at nearby noise-sensitive land uses. However, as shown in Table 3.7-7, a significant and unavoidable impact would remain after mitigation.

TABLE 3.7-6 ON-SITE CONSTRUCTION NOISE IMPACT (UNMITIGATED)

Sensitive Receptor	Distance (feet) /a/	Maximum Construction Noise Level (dBA) /b/	Existing Ambient (dBA, L_{eq}) /c/	New Ambient (dBA, L_{eq}) /d/	Increase
Single- and Multi-family residences east of the project site	70	86.1	64.8	86.1	21.3
Single- and Multi-family residences west of the project site	70	86.1	73.0	86.3	13.3
Single- and Multi-family residences north of the project site	70	86.1	69.7	86.2	16.5
Angelus Temple	70	86.1	69.7	86.2	16.5
Saint Athanasius Episcopal Church	70	86.1	64.8	86.1	21.3
Echo Park Recreation Center	95	78.4	66.4	78.7	12.3
Echo Park Child Care Center	550	63.2	66.4	68.1	1.7

/a/ Distance of noise source from receptor.
/b/ Construction noise source's sound level at receptor location with distance and building adjustment.
/c/ Pre-construction activity ambient sound level at receptor location.
/d/ New sound level at receptor location during the construction period, including noise from construction activity.
/e/ An incremental noise level increase of 5 dBA or more would result in a significant impact.
Source: Terry A. Hayes Associates LLC 2010

TABLE 3.7-7 CONSTRUCTION NOISE IMPACT (MITIGATED)

Sensitive Receptor	Distance (feet) /a/	Maximum Construction Noise Level (dBA) /b/	Existing Ambient (dBA, L_{eq}) /c/	New Ambient (dBA, L_{eq}) /d/	Increase
Single- and Multi-family residences east of the project site	70	71.1	64.8	72.0	**7.2**
Single- and Multi-family residences west of the project site	70	71.1	73.0	75.2	2.2
Single- and Multi-family residences north of the project site	70	71.1	69.7	73.5	3.8
Angelus Temple	70	71.1	69.7	73.5	3.8
Saint Athanasius Episcopal Church	70	71.1	64.8	72.0	**7.2**
Echo Park Recreation Center	95	63.4	66.4	68.2	1.8
Echo Park Child Care Center	550	48.2	66.4	66.5	0.1

/a/ Distance of noise source from receptor.
/b/ Construction noise source's sound level at receptor location, with distance and building adjustment.
/c/ Pre-construction activity ambient sound level at receptor location.
/d/ New sound level at receptor location during the construction period, including noise from construction activity.
/e/ An incremental noise level increase of 5 dBA or more would result in a significant impact.
Source: Terry A. Hayes Associates LLC 2010

Off-Site Construction Mobile Activities

Proposed project construction activity would include a substantial number of haul trucks that would generate offsite noise along the haul routes. It was assumed that up to 85 delivery/haul trucks and 40 construction worker vehicles would be traveling to and from the project site on a daily bases.[10] For a 10-hour construction workday, it is assumed that up to 14 delivery/haul trucks per hour would be traveling on the proposed haul route.

The haul truck route travels along Glendale Boulevard, Echo Park Avenue, Park Avenue, and Bellevue Avenue, all which are segments adjacent to the project site. The baseline (2013) mobile noise level along these segments ranges from 60.2 to 71.4 dBA L_{eq}. A haul truck noise analysis was completed using the Federal Highway Administration (FHWA) RD-77-108 noise calculation formulas. Table 3.7-8 shows that construction-related truck and worker vehicle travel would increase noise levels up to 3.4 dBA at Park Avenue between Glendale Boulevard and Echo Park Avenue. The new mobile noise level would be approximately 63.6 dBA L_{eq}, which, in accordance with Table 3.7-3, is still an acceptable noise level for residences and churches. Construction-related mobile noise levels would not increase ambient noise levels measured at the property line of nearby sensitive receptors by 3 decibels L_{eq} to or within the "normally unacceptable" or "clearly unacceptable" categories. Construction-related truck and worker vehicle travel would result in a less-than-significant noise impact. No mitigation measures are required for off-site construction mobile noise.

TABLE 3.7-8 OFF-SITE PROJECT CONSTRUCTION MOBILE NOISE IMPACT (UNMITIGATED)

Roadway Segment	Nearest Sensitive Receptor	Distance (feet)	Estimated dBA, L_{eq}		
			Baseline (2013)	Project Construction	Construction Impact
Glendale Boulevard between Park and Bellevue Avenues	Single-Family Residences	30	71.4	71.8	0.4
Echo Park Avenue between Reservoir Street and Bellevue Avenue	Single- and Multi-Family Residences, St. Athanasius Episcopal Church	30	65.8	67.4	1.6
Park Avenue between Glendale Boulevard and Echo Park Avenue	Single- and Multi-Family Residences, Angelus Temple	40	60.2	63.6	3.4

Source: Terry A. Hayes Associates LLC 2010

[10] Assumes 40 construction workers per day with an average vehicle ridership of 1.

NOISE-2 *The proposed project would not expose persons to noise levels in excess of City standards during project operation.*

The proposed project would rehabilitate the existing Park including the Lake, and would not develop any additional noise-generating land uses. In addition, operation of the proposed project is not anticipated to generate any additional vehicle trips. After rehabilitation activities are completed, the Park would operate in a similar capacity as the existing facilities. It is not anticipated that operational noise would increase after the Park has reopened to the public, as no trips would be generated as a result of these improvements. Operational noise levels would result in a less than significant noise impact. No mitigation measures are required.

NOISE-3 *Construction of the proposed project would not expose people to excessive ground-borne vibration.*

As shown in Table 3.7-9, use of heavy equipment (e.g., a large bulldozer) generates vibration levels of 0.089 inches per second at a distance of 25 feet. The nearest residential structures to the project site would be approximately 70 feet from occasional heavy equipment activity and could experience vibration levels of 0.019 inches per second. Vibration levels at these receptors would not exceed the potential building damage threshold of 0.3 inches per second. Construction phase ground-borne vibration impacts would be less than significant. No mitigation measures are required.

TABLE 3.7-9 VIBRATION VELOCITIES FOR CONSTRUCTION EQUIPMENT

Equipment	PPV at 25 feet (Inches /Second) /a/
Large Bulldozer	0.089
Loaded Trucks	0.076

/a/ Fragile buildings can be exposed to ground-borne vibration levels of 0.5 inches per second without experiencing structural damage.

Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, May 2006.

NOISE-4 *Operation of the proposed project would not expose people to excessive ground-borne vibration.*

Operation of the proposed project would not include significant stationary sources of ground-borne vibration, such as heavy equipment operations. In addition, operation of the proposed project is not anticipated to generate any additional vehicle trips, and therefore, no new sources of mobile vibration. Thus, operational ground-borne vibration would result in a less-than-significant impact. No mitigation measures are required.

3.7.4 MITIGATION MEASURES

NOISE-A All construction equipment shall be equipped with residential-grade mufflers and other suitable noise attenuation devices.

NOISE-B Grading and construction contractors shall use quieter equipment, such as rubber-tired equipment rather than metal-tracked equipment.

NOISE-C All residential units located within 500 feet of the construction site shall be sent a notice regarding the construction schedule of the proposed project. A sign, legible at a distance of 50 feet, shall also be posted at the construction site. All notices and the signs shall indicate the dates and duration of construction activities, as well as provide a telephone number where residents can inquire about the construction process and register complaints.

NOISE-D A "noise disturbance coordinator" provided by the City shall be established. The disturbance coordinator shall be responsible for responding to any local complaints about construction noise. The disturbance coordinator shall determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and shall be required to implement reasonable measures to resolve the complaint. All notices that are sent to residential units within 500 feet of the construction site and all signs posted at the construction site shall list the telephone number for the disturbance coordinator.

3.7.5 SIGNIFICANCE AFTER MITIGATION

With implementation of mitigation, measures NOISE-A through NOISE-D, typical construction noise levels at sensitive land uses adjacent to the project site would be reduced. Mitigation measure NOISE-A would reduce noise levels by approximately 15 dBA. Mitigation measures NOISE-B through NOISE-D would assist in attenuating construction noise levels. Table 3.7-7 shows mitigated construction noise levels. Mitigated construction noise levels would still exceed the 5-dBA significance threshold at a single- and multi-family residence east of the project site and at Saint Athanasius Episcopal Church. Construction activity would result in a significant and unavoidable impact.

3.8 RECREATION

The purpose of this section is to identify the recreation areas near and within the project site and to determine if they would be impacted during construction and operation of the proposed project.

3.8.1 ENVIRONMENTAL SETTING

The project site is located at 751 Echo Park Avenue within the Echo Park/Silver Lake community of the City of Los Angeles and is bound by Park Avenue on the north, Echo Park Avenue on the east, Bellevue Avenue on the south, and Glendale Boulevard on the west. The project site is also located within the Los Angeles River Watershed. US Highway 101 (US 101, Hollywood Freeway) travels in an east-west direction in this area of Los Angeles, and is located approximately 0.05 mile (250 feet) south of the project site. State Route 110 (SR 110, Pasadena Freeway) travels in a north-south direction and is located approximately 0.8 mile east of the project site. The project site includes a 24-acre portion of Echo Park (Park), an open-space recreational facility. The Lake occupies 14.14 acres and is surrounded by 10 acres of open recreational space.

Key features and activities in the Park include a footbridge, boathouse, the lotus bed, man-made island, paddle boating, catch-and-release fishing, a fountain, model boating, jogging, and walking path around the perimeter. Additional recreational facilities associated with the Park, including a playground, swimming pool, and childcare center, are located south of the project site (not a part of the project site), on the south side of Bellevue Avenue. The Park contains numerous palm trees and other trees, shrubs, and open grassy areas. The project site is surrounded by commercial, public facility, and multi-family residential uses. The Park is operated and maintained by the City of Los Angeles Department of Recreation and Parks (RAP).

There are also a number of recreational opportunities adjacent to the project site. As shown in Table 3.8-1, there are five parks within a one-mile radius of the project site.

TABLE 3.8-1 PARKS WITHIN ONE-MILE OF THE PROJECT SITE

Name	Distance from Project Site (miles)	Direction from Project Site	Amenities
Lake Street Park (227 North Lake Street)	0.6	West	• Tree-House Themed • Universally Accessible Playground
Everett Park (one block north of Sunset)	0.6	East	• Pocket Park
Vista Hermosa Park	1.0	Southeast	• This facility is part of the Santa Monica Mountains Conservancy - Mountains Recreation and Conservation Authority.
Bishop Canyon (929 Academy Road)	1.0	Northeast	• Barbecue Pits • Baseball Diamond (Unlighted) • Children's Play Area • Picnic Tables

Name	Distance from Project Site (miles)	Direction from Project Site	Amenities
			• Restroom(s) • Landscaped Rolling Hills • Large Grass Area • Lookout Points • Walking Trail
Tommy Lasorda Field of Dreams (90039)	1.0	North	• Baseball Field

Source: City of Los Angeles, Department of Recreation and Parks. *Facility Locator*. Available at: http://www.laparks.org/dos/parks/parks.htm. Accessed: January 2010.

REGULATORY SETTING

The City of Los Angeles Municipal Code and General Plan

The City of Los Angeles General Plan designates the project site as an open space land use.[1] The project site is zoned Open Space (OS-1XL), which allows for the development of parks, recreational facilities, natural resource preserves for the managed production of resources, marine and ecological preserves, public water supply reservoirs, water conservation areas and sanitary landfill sites that have received certificates of closure in compliance with federal and state regulations.[2]

The City of Los Angeles General Plan Open Space Element provides a guide to the City and the public regarding the identification, preservation, conservation, and acquisition of open space in the City. An objective of this Element is to identify unique natural features, scenic areas and historical sites which are desirable for preservation. General policies presented in this Element include preserving cultural and historical monuments located within open space lands, and providing or developing open space areas to serve the needs as appropriate to their location, size, and intended use to the communities in which they are located, as well as the City and region as a whole.[3]

Silver Lake-Echo Park-Elysian Valley Community Plan Area

The project site is located within the Silver Lake-Echo Park-Elysian Valley Community Plan Area in the central area of the City of Los Angeles. The Silver Lake-Echo Park-Elysian Valley Community Plan Area is located north of Downtown Los Angeles and is generally separated from Downtown Los Angeles by Chinatown. This plan institutes zone changes and recommends design guidelines to better harmonize these incompatible uses and their viability. Furthermore, the Plan intends to address possible pressures on future development in this area as enhancement of the Los Angeles River and the continuously changing needs of industry alter its demand on space and land and potentially force encroachment of other uses in

[1] City of Los Angeles, Zone Information and Map Access System (ZIMAS). Available: http://zimas.lacity.org/. Accessed: October 22, 2009.
[2] City of Los Angeles, Zone Information and Map Access System (ZIMAS). Available: http://zimas.lacity.org/. And City of Los Angeles Municipal Code, Chapter I (Planning and Zoning Code). Available: http://www.amlegal.com/nxt/gateway.dll?f=templates&fn=default.htm&vid=amlegal:lapz_ca. Accessed: October 22, 2009.
[3] City of Los Angeles Department of City Planning. Open Space Element of the General Plan of the City of Los Angeles. June 1973.

Elysian Valley. The Plan acknowledges the need to preserve existing parks and open space for park/open space uses and for public enjoyment.

3.8.2 ENVIRONMENTAL ANALYSIS

THRESHOLDS OF SIGNIFICANCE

Pursuant to the CEQA Guidelines, the proposed project would have a significant effect on recreation if it would:

- Increased the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or
- Includes recreational facilities or requires the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

IMPACT ANALYSIS

REC-1: *The proposed project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.*

Construction

The estimated duration of the construction of the proposed project is 26 months, from January 2011 through February 2013. It is anticipated that the project site would be fenced off and closed to the public during the construction phase. As such, the recreational uses associated with the Lake and surrounding parkland within the project site would not be available for public use during this time. However, the project area provides additional recreational facilities associated with Echo Park that are not a part of the project site including the Echo Park Recreation Center (1632 Bellevue Avenue), the Echo Park Shallow Pool (1632 Bellevue Avenue), and the Echo Park Shallow Pool Deep Pool (1419 Colton Street). The Echo Park Recreation Center is operated by RAP and includes indoor basketball courts, a community room, gymnasium, and indoor pool. In addition, various community sports programs and classes are offered at the recreation center. Located directly south of the US 101 is an additional five-acre portion of the Park that is not a part of the project site. This five-acre area includes six tennis courts with lighting, a baseball field with lighting, and the Echo Park Childcare Center (515 Laveta Terrace) and playground. Activities associated with these facilities would not be disrupted by the proposed project. These existing recreational facilities would maintain service to current users and would not be impacted by construction of the proposed project.

Other amenities currently located within the project site, such as catch-and-release fishing, paddle-boating, radio-controlled model boating, picnic areas, jogging, and walking paths, would be disrupted during the construction of the proposed project. However, these impacts are temporary and would resume

once construction ceases. In addition, there are five parks within a one-mile radius of the project site that would provide comparable amenities for public use during the project construction period (see Table 3.8-1). As such, the proposed project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. Therefore, the proposed project would result in less-than-significant construction impacts related to increased use and physical deterioration of parks.

Operation

The proposed project would implement in-Lake improvements; vegetation, habitat and park improvements; and parkland structural best management practices at the Lake. These are not anticipated to be the type of improvements that would alter the operations of the Park by causing a significant increase in users. Once construction is completed, the type of recreational features at the Lake would be nearly identical to the existing conditions. However, the existing storm water overflow structure along the western edge of the Lake would be modified to create an overlook area including railings, steps, benches, and interpretive signage related to the wetlands and lotus. In addition, a new boardwalk area with the similar features would be constructed along the Lake edge within the northeastern lobe of the Lake. Additional interpretive signage would be provided at approximately five other locations near the Lake edge, as well as on the man-made island near the footbridge landing. As such, the proposed project would not include recreational features in addition to those that currently exist in the Park, which would result in (added) a substantial increase in the number of Park users. Also, the proposed project would not result in the construction of new residences or facilitate the development of residences, and therefore, would not result in increased population. The proposed project would not increase the use of existing recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. Therefore, the proposed project would result in less-than-significant operational impacts that could cause an increased use and physical deterioration of parks.

REC-2: *The proposed project does not include recreational facilities or require the construction or expansion of recreational facilities.*

The proposed project would implement in-Lake improvements; vegetation, habitat and park improvements; and parkland structural best management practices at the Lake. The proposed project would not result in the creation of any new recreational facilities or expansion of existing recreation facilities, and would not cause an increase in demand on parks and recreational facilities. Amenities provided at the project site such as catch-and-release fishing, paddle boating, radio-controlled model boating, picnic areas, jogging, and walking paths, would be disrupted during the construction of the proposed project. However, these impacts are temporary and existing park use would resume once construction ceases. Activities associated with other Echo Park facilities (i.e. the Echo Park Recreation Center; the Echo Park Shallow Pool; and the Echo Park Shallow Pool Deep Pool) would not be disrupted. The operation of the Park and Lake would not be altered from existing conditions with the implementation of the proposed project. Therefore, neither the construction nor operation of the proposed

project would result in an increase in the demand for parks or other recreational facilities in the project area. No additional recreational facilities, with the exception of the walking paths and viewing platforms, would be constructed as part of the proposed project. Further, the proposed project would not result in the need for new or expanded recreational facilities. Therefore, the proposed project would result in less-than-significant impacts related to the construction or expansion of recreational facilities.

3.8.3 MITIGATION MEASURES

Impacts to recreation would be less than significant and no mitigation measures are required.

3.8.4 SIGNIFICANCE AFTER MITIGATION

No significant impacts related to recreation have been identified and no mitigation proposed; therefore, impacts related to recreation would be less than significant without mitigation.

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3.9 TRANSPORTATION AND TRAFFIC

This section summarizes the traffic study prepared by Fehr and Peers. A complete copy of the traffic study is included in Appendix F of this EIR. The scope of work for the traffic study was developed in conjunction with City of Los Angeles Department of Transportation staff. The base assumptions, technical methodologies, and geographic coverage of the traffic study were all identified as part of the study approach. In addition, this analysis utilizes detailed proposed project construction information related to the duration and truck trips associated with various construction activities. The study, which analyzes the potential project-generated traffic impacts on the street system, assumes completion of the proposed project in 2013. As discussed in Chapter 2.0, Project Description, the proposed project would not result in any operational changes that would increase the number of park visitors. The potential impacts of the proposed project are, therefore, determined for 2013 conditions and include an analysis of the following traffic scenarios:

- **Existing Conditions (Year 2009):** This analysis of existing weekday morning and evening peak hour traffic conditions provided a basis for the assessment of future traffic conditions. The existing conditions analysis included a description of key project area streets and highways, traffic volumes, current intersection and roadway operating conditions, and public transit service in the project area.

- **Cumulative Base (Year 2013) Conditions:** This scenario projected the future traffic growth and intersection operating conditions that could be expected from regional growth and known "related projects" in the vicinity of the project site by year 2013. These analyses provided the "baseline" conditions against which project impacts were evaluated.

- **Cumulative Plus Project (Year 2013) Conditions:** This analysis identified the temporary incremental impacts of the proposed project on future traffic operating conditions by adding the construction-related traffic expected to be generated by the proposed project to the cumulative base traffic forecasts.

3.9.1 ENVIRONMENTAL SETTING

The project site is located at 751 Echo Park Avenue within the Echo Park/Silver Lake community of the City of Los Angeles. The project site is bound by Park Avenue on the north, Echo Park Avenue on the east, Bellevue Avenue on the south, and Glendale Boulevard on the west. The project site is also located within the Los Angeles River Watershed. The Hollywood Freeway (US 101) is oriented in an east-west direction in this area of Los Angeles, and is located approximately 0.05 mile (250 feet) south of the project site. The Pasadena Freeway (SR 110) is oriented in a north-south direction and is located approximately 0.8 mile east of the project site. The project site includes a 24-acre portion of Echo Park (Park) which is an open-space recreational facility. The Lake occupies 14.14 acres and is surrounded by 10 acres of open recreational space. A two-acre portion of the Park is located on the south side of

Bellevue Avenue and a five-acre portion of the Park is located further south, on the south side of US 101. These seven acres are not a part of the project site.

EXISTING HIGHWAY AND STREET SYSTEM

Primary regional access to the project site is provided by US Highway 101 (US 101, Hollywood Freeway), State Route 2 (SR 2, Glendale Freeway), State Route 110 (SR 110, Pasadena Freeway), and Interstate 5 (I-5, Golden State Freeway). The US 101 runs in the east/west direction just south of the project site; the SR 2 runs in the north/south direction, beginning approximately 1.5 miles north of the project site; the SR 110 runs in the north/south direction approximately one mile east of the project site; and the I-5 runs north/south approximately three miles north of the project site. The following is a brief description of the major streets serving the project site:

- **Glendale Boulevard:** Glendale Boulevard is a Major Highway Class II arterial running north/south in the study area. North of the project site, Glendale Boulevard joins SR 2, and to the south provides regional access to the US 101. Just west of the project site, Glendale Boulevard provides two lanes in each direction. On-street parking is generally permitted on a time-limited basis on both sides of the street outside of the peak hours.

- **Alvarado Street:** Alvarado Street is a Major Highway Class II arterial that runs north/south and intersects Glendale Boulevard to the north of the project area. On-street parking is permitted on a time-limited basis on both sides of the street outside of the peak hours.

- **Sunset Boulevard:** Sunset Boulevard is a four-lane Major Highway Class II arterial that runs east/west just north of the project site. On-street metered parking is available on a time-limited basis on both sides of the street.

- **Echo Park Avenue:** Echo Park Avenue is a north/south Collector Street that provides one through lane per direction in the vicinity of the project site. On-street parking is available on both sides of the street within the project area.

- **Park Avenue:** Park Avenue is a Collector Street that runs east/west immediately north of the project site, with one through lane per direction. Between Glendale Boulevard and Sunset Boulevard, metered parking is available on the time-limited basis on both sides of the street. East of Glendale Boulevard, unmetered parking is generally allowed on both sides of the street.

- **Bellevue Avenue:** Bellevue Avenue is a Collector Street that runs east/west immediately south of the project site with one lane eastbound and two lanes westbound. Unmetered on-street parking is available on both sides of the street within the project area.

- **Temple Street:** In the project area, Temple Street is a Secondary Highway running in an east/west direction and provides two through lanes per direction. Unmetered on-street parking is generally permitted on a time-limited basis on both sides of the street outside of the peak hours.

- **Lemoyne Street:** Lemoyne Street is a two-lane local street that runs north/south between Park Avenue and Sunset Boulevard, just north of the project site. Unmetered on-street parking is permitted on a time-limited basis on both sides of the street.

- **Logan Street:** Logan Street is a two-lane local street that runs north/south between Park Avenue and Sunset Boulevard just north of the project site. Unmetered on-street parking is permitted on a time-limited basis on both sides of the street.

EXISTING PUBLIC TRANSIT SERVICE

Public transit services operating in the project area are operated by the Los Angeles County Metropolitan Transportation Authority (Metro) system and LADOT's Downtown Area Shuttle (DASH). Bus routes and their frequencies during the weekday morning (7:00 – 9:00 AM) and weekday afternoon (4:00 – 6:00 PM) peak periods are detailed as follows:

- **Metro Line 92:** This line is a local north/south line that travels from downtown Los Angeles to Burbank via Glenoaks Boulevard, Brand Boulevard, and Glendale Boulevard. Adjacent to the project site, this line travels along Glendale Boulevard and Bellevue Avenue with average morning and evening peak hour headways between 15 and 20 minutes.

- **Metro Line 200:** This line is a local north/south line that travels from Exposition Park to Echo Park via Figueroa Street, Hoover Street, and Alvarado Street. In the vicinity of the project site, this line travels briefly along Sunset Boulevard (between Logan Street and Echo Park Avenue) with average morning and evening peak hour headways between five and seven minutes.

- **Metro Line 603:** This line travels north/south from downtown Los Angeles to Glendale Galleria via Hoover Street, Rampart Boulevard, Alvarado Street, and San Fernando Road. In the vicinity of the project site, this line travels briefly along Sunset Boulevard and Glendale Boulevard with average morning and evening peak hour headways of 10 minutes.

- **LADOT DASH:** The Pico Union/Echo Park (PUEP) DASH Line runs north/south from the Grand Avenue Metro Blue Line Station to Echo Park via Union Avenue, 6th Street, and Echo Park Avenue. In the study area, this line runs along Echo Park Avenue, just east of the project site, with peak period headways of approximately 10 minutes. Northbound and southbound stops are located adjacent to the project site.

EXISTING TRAFFIC VOLUMES AND LEVELS OF SERVICE

The following discussion presents the existing peak hour turning movement traffic volumes for each of the intersections analyzed in the traffic study, describes the methodology used to assess the traffic conditions at each intersection, and analyzes the resulting operating conditions at each intersection studied, indicating volume-to-capacity (V/C) ratios, or delay, and level of service (LOS).

Level of Service Methodology

In accordance with LADOT procedures, the "Critical Movement Analysis-Planning" (Transportation Research Board, 1980) method of intersection capacity analysis was used to determine the intersection V/C ratio and corresponding LOS for the turning movements and intersection characteristics at the five signalized study intersections. The Computer Assisted Level of Service Calculations and Database (CALCADB) software developed by LADOT was used to implement the Critical Movement Analysis (CMA) methodology. In accordance with LADOT practices, a 7 percent (0.07 V/C credit) increase in capacity was assumed on major and secondary street segments to reflect the benefits of the existing Automated Traffic Surveillance and Control (ATSAC) system. Additionally, all study intersections are assumed to operate under the Automated Traffic Control Systems (ATCS). In accordance with standard LADOT procedures, an additional capacity of 3 percent (0.03 V/C credit) was applied to reflect the benefits of ATCS at these intersections. The ranges of V/C ratios and corresponding LOS for signalized intersections are included in Table 3.9-1.

TABLE 3.9-1 LEVEL OF SERVICE DEFINITIONS FOR SIGNALIZED INTERSECTIONS

Level of Service	Volume/Capacity Ratio (V/C)	Definition
A	< 0.600	EXCELLENT. No vehicle waits longer than one red light, and no approach phase is fully used.
B	> 0.600 < 0.700	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	> 0.700 < 0.800	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	> 0.800 < 0.900	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	> 0.900 < 1.000	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.

Level of Service	Volume/Capacity Ratio (V/C)	Definition
F	> 1.000	Tremendous delays with continuously increasing FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches.

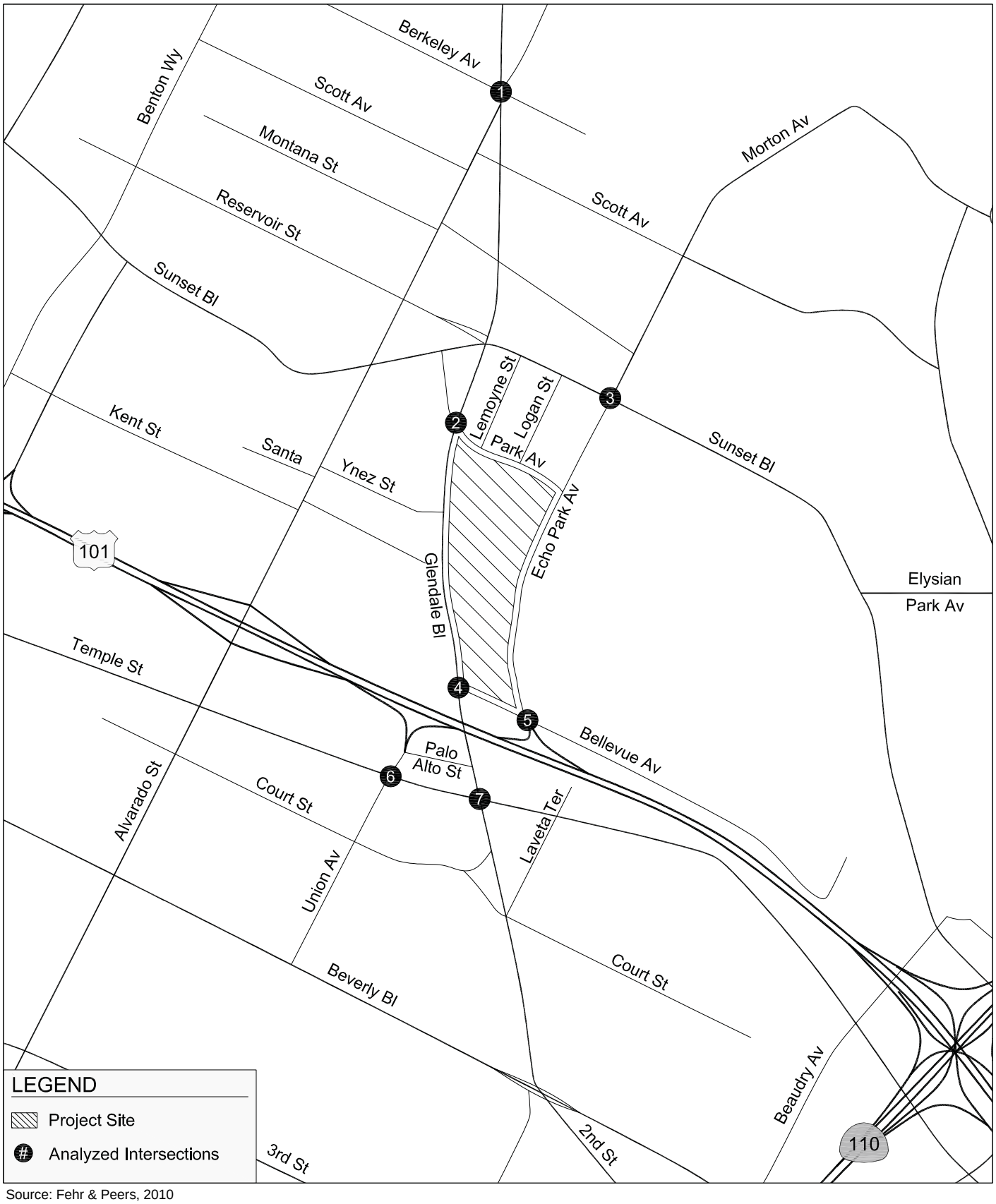
Source: Transportation Research Board, *Transportation Research Circular No. 212, Interim Materials on Highway Capacity*, 1980.

Existing Levels of Service

The study examined seven intersections in the vicinity of the project site for each of the above traffic scenarios. The study locations are listed below and illustrated in Figure 3.9-1.

1. Alvarado Street/Glendale Boulevard and Berkeley Avenue
2. Glendale Boulevard and Park Avenue
3. Echo Park Avenue and Sunset Boulevard
4. Glendale Boulevard and Bellevue Avenue
5. Echo Park Avenue and Bellevue Avenue
6. Union Avenue and Temple Street
7. Glendale Boulevard and Temple Street

Detailed assessment of the existing operating conditions at the seven intersections, including the V/C ratio and corresponding LOS at each of the study intersections during the morning and evening peak hour can be found in Table 3.9-2. Two of the seven analyzed intersections (Glendale Boulevard/Alvarado Street and Berkeley Avenue and Glendale Boulevard and Temple Street) are currently operating at LOS E during one or both peak hours. The other five intersections are currently operating at LOS C or better.



Source: Fehr & Peers, 2010

Not to Scale

NORTH

Figure 3.9-1
Study Area and Analyzed Intersections

TABLE 3.9-2 EXISTING INTERSECTION LEVELS OF SERVICE

Intersection	Peak Hour	Existing (2009)	
		V/C	LOS
1. Glendale Blvd/Alvarado St & Berkeley Ave	morning	0.877	D
	evening	0.927	**E**
2. Glendale Blvd & Park Ave	morning	0.663	B
	evening	0.648	B
3. Echo Park Ave & Sunset Blvd	morning	0.645	B
	evening	0.735	C
4. Glendale Blvd & Bellevue Ave	morning	0.742	C
	evening	0.638	B
5. Echo Park Ave & Bellevue Ave	morning	0.444	A
	evening	0.456	A
6. Union Ave & Temple St	morning	0.507	A
	evening	0.54	A
7. Glendale Blvd & Temple St	morning	0.993	**E**
	evening	0.98	**E**

Source: Fehr & Peers. *Traffic Study for the Echo Park Lake Rehabilitation Project.* April 2010.

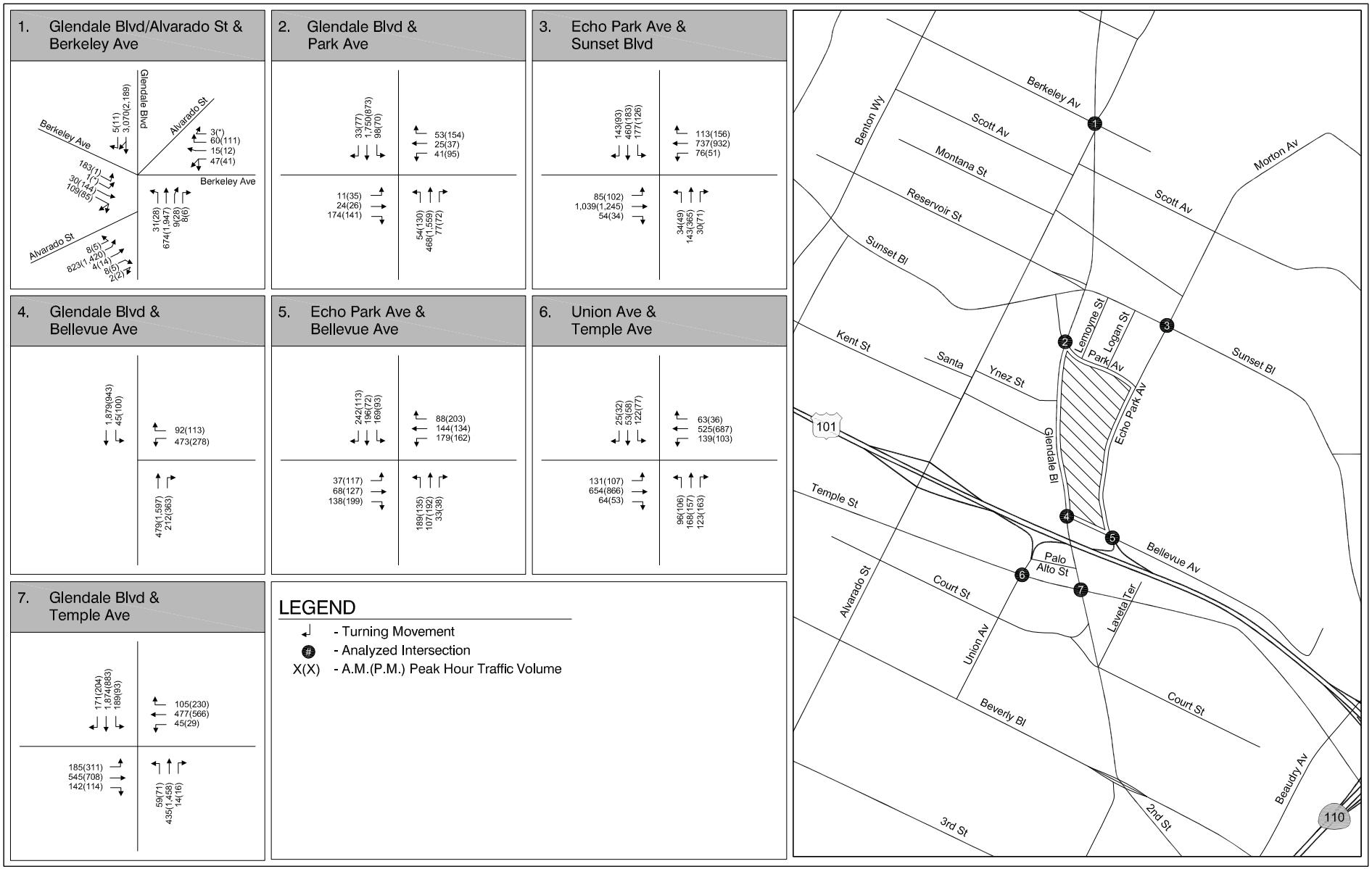
Existing Traffic Volumes

Existing traffic volumes at the seven study intersections were collected during the morning and evening peak periods (from 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m., respectively) in November 2009. Existing peak hour volumes are illustrated in Figure 3.9-2.

LOS ANGELES COUNTY CONGESTION MANAGEMENT PROGRAM

The Congestion Management Program (CMP) was created statewide because of Proposition 111 and has been implemented locally by Metro. The criteria for determining the study area for CMP arterial monitoring intersections and for freeway monitoring locations are:

- All CMP arterial monitoring intersections where the proposed project will add 50 or more trips during either the AM or PM weekday peak hours of adjacent street traffic.
- All CMP mainline freeway monitoring locations where the proposed project will add 150 or more trips, in either direction, during either the AM or PM weekday peak hours.



Source: Fehr & Peers, 2010

Not to Scale

NORTH

Figure 3.9-2
Existing (2009) Peak Hour Traffic Volume

The CMP for Los Angeles County requires that the traffic impact of individual development projects of potentially regional significance be analyzed. A specific system of arterial roadways and all freeways comprises the CMP system. A total of 164 intersections are identified for monitoring on the system in Los Angeles County. In addition, all freeway segments in Los Angeles County, including on- and off-ramps, are included as mainline freeway segment monitoring locations.

The CMP arterial monitoring intersection nearest to the project site is Alvarado Street & Sunset Boulevard. The mainline freeway monitoring location nearest to the project site is US 101 south of Santa Monica Boulevard.

3.9.2 ENVIRONMENTAL IMPACTS

THRESHOLDS OF SIGNIFICANCE

As part of the Initial Study (see Appendix A), it was determined that the proposed project would not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks; increase hazards due to a design feature; result in inadequate emergency access; or conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks). Accordingly, these issues are not further analyzed in detail in the EIR. Impact summaries are provided in Section 4.2, Impact Overview of this EIR.

Pursuant to the CEQA Guidelines, the proposed project would have a significant effect on transportation and traffic if it would:

- exceed the capacity of the existing circulation system, based on an applicable measure of effectiveness (as designated in a general plan policy, ordinance, etc.), taking into account all relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit; or

- conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.

For the purposes of this analysis, the methodologies and the criteria to calculate V/C ratios for intersections used by LADOT to identify potential traffic impacts during operation were also applied to construction activities. During project construction, however, LADOT considers such impacts as adverse, but not significant since, while they introduce inconvenience for vehicular traffic, those impacts are only temporary. Where determinations of adverse, but not significant impacts are identified, motorists would experience inconveniences that range in intensity from slight to substantial.

A temporary adverse impact would occur if the proposed project would permanently increase the V/C ratio of applicable intersections beyond the limits established by the City of Los Angeles, including the

V/C ratio along CMP designated roads. The City has established operational traffic impact criteria for the assessment of potential impacts of a project on the local street system after completion and during operation. Those operational standards indicate that a project is considered to have a temporary adverse traffic impact if the increase in V/C ratio attributed to the project exceeds a specific threshold for each level of service. Construction period impacts are considered adverse but not significant. The City of Los Angeles has established the threshold criteria shown in Table 3.9-3 to determine if the proposed project would have a significant traffic impact:

TABLE 3.9-3 LOS ANGELES INTERSECTION LEVEL OF SERVICE THRESHOLD CRITERIA

Intersections		
Pre-Project		Project V/C Increase
LOS	V/C	
C	0.701 - 0.800	Equal to or greater than 0.040
D	0.801 - 0.900	Equal to or greater than 0.020
E/F	>0.901	Equal to or greater than 0.010

Source: Fehr & Peers. *Traffic Study for the Echo Park Lake Rehabilitation Project.* April 2010.

Using these criteria, a project would not have a temporary adverse impact at an analyzed intersection if it were operating at LOS A or B after the addition of project operational traffic. Also, a project would not have a temporary adverse impact on an analyzed intersection if it were operating at LOS C and the incremental change in the V/C ratio were less than 0.04, or if it were operating at LOS D and the incremental change in the V/C ratio were less than 0.02. If the location were operating at LOS E or F after the addition of project operational traffic and the incremental change in the V/C ratio were greater than or equal to 0.01, a project would be considered to have a temporary adverse impact.

IMPACT ANALYSIS

TRANS-1 *The proposed project would not cause an increase in traffic that would be substantial in relation to the existing traffic load and capacity of the street system taking into account all relevant components of the circulation system during construction activities with implementation of mitigation measures.*

A comprehensive data collection effort was undertaken to develop a detailed evaluation of existing transportation conditions in the project area. The assessment of existing conditions in the project area includes a description of the street and highway system, traffic volumes on these facilities, operating conditions of the selected intersections and public transit services. Due to the nature of the proposed project, no increase in trips is anticipated during the operational phase of the proposed project upon its completion. Peak hour traffic impacts for the proposed project were evaluated during the peak hours of the typical weekday morning (7:00 a.m. to 9:00 a.m.) and evening (4:00 p.m. to 6:00 p.m.) peak periods.

CUMULATIVE BASE (2013) TRAFFIC PROJECTIONS

The cumulative base traffic projections reflect growth in traffic from two primary sources: 1) ambient growth in the existing traffic volumes to reflect the effects of overall regional growth both in and outside of the project area, and 2) cumulative traffic generated by specific-related projects within, or in the vicinity of, the project area.

Ambient Traffic Growth. Ambient traffic growth is traffic growth that would occur in the study area due to general employment growth, housing growth, and growth in regional through trips in Southern California. Traffic volumes in the vicinity of the project area are assumed to increase at a rate of one percent per year. Future increases in background traffic volumes due to regional growth and development are expected to continue at this rate, at least through the year 2013. With the project construction schedule concluding in 2013, the existing 2009 traffic volumes were adjusted upward by four percent to reflect area wide regional growth.

Traffic Generation of Related Projects. Traffic expected to be generated by specific development projects within, or with the potential to affect, the project area was considered in addition to the ambient area wide traffic growth. For this study, related projects were identified by LADOT in October 2009. Directional splits were prepared for the related projects using standard trip generation rates from *Trip Generation, 7th Edition* (Institute of Transportation Engineers, 2003), relevant traffic studies and/or environmental impact reports for specific projects. Figure 3.9-3 displays the location of the related projects. The list of related projects included in this analysis, including trip generation estimates for each, is included in Table 3.9-4. The list of related projects would result in a total of 53,300 daily trips, 4,740 a.m. peak hour trips, and 7,209 p.m. peak hour trips.

Figure 3.9-3
Location of Related Projects

TABLE 3.9-4 RELATED PROJECTS TRIP GENERATION

Proj #	Project Name	Address			Description	Size	Units	Description	Daily	Morning Peak Hour			Evening Peak Hour		
										In	Out	Total	In	Out	Total
1	Hall of Justice	211	W	Temple St	Retrofit Hall of Justice Bldg: from 1630 to 1660 employees plus 1000 pkg spc struct	[a]		County Office	1,052	26	126	152	98	48	146
2	Blossom Plaza - Mixed use project	900	N	Broadway	Construct 223 unit condos, 22,008 SF retail, 175KSF restaurant, (9K sit-down & 6K fast-food), 7K SF cultural ctr, & 617 pkg spcs	223	du	Condominiums	2,823	84	78	162	123	61	184
						7.000	ksf	Cultural Center							
						22.008	ksf	Retail							
						175.000	ksf	Restaurant							
3	Piero II (Lorenzo Res Development)	1076	W	6th St	Construct 600 res units & 20K SF retail	600	du	Residential	3,005	40	194	234	247	121	368
						20.000	ksf	Retail							
4	Medical office addition	2100	W	3rd St	Construct 3-story 24,075 addition to existing 5-story 109,840 med. bldg.	24.075	du	Medical Office	870	47	13	60	24	66	90
5	Supermarket & Retail	500	N	Bunker Hill Av	Renovate existing fast food rest. w/ drive-thru & construct 17K SF supermarket & 4.2K SF retail space on vac. 38K SF site	17.000	ksf	Supermarket	1,924	37	23	60	96	93	189
						4.200	ksf	Retail							
6	LAUSD - Cen Reg Elem School #14	1018		Mohawk St	Construct 875 student elementary school (NWC of intersection)	275	st	Elementary School	910	152	125	277	0	0	0
7	Chinatown Gateway Project			Cesar E Chavez St / Broadway	Construct 280 apts & 22K SF retail	280	du	Apartments	2,665	30	122	152	161	86	247
						22.000	ksf	Retail							
8	Mixed-use	1234	W	3rd St	Construct 363-unit apts & 7740 SF retail	363	du	Apartments	1,691	23	90	113	92	49	141
						7.740	ksf	Retail							

Proj #	Project Name	Address			Description	Size	Units	Description	Daily	Morning Peak Hour			Evening Peak Hour		
9	Mixed-use development	2525	W	Wilshire Bl	Construct 118 condos & 3000 SF retail space	118	du	Condominiums	785	10	47	57	46	23	69
						3.000	ksf	Retail							
10	Mixed-use development	1027	W	Wilshire Bl	Construct 402 condos & 4728 SF retail space	402	du	Condominiums	1,498	19	94	113	91	45	136
						4.728	ksf	Retail							
11	Mixed-use development	1135	W	7th St	Construct 130 condos & 7037 SF retail	130	du	Condominiums	798	7	37	44	42	21	63
						7.037	ksf	Retail							
12	Grand Avenue Implementation Plan (mixed-use)	102	S	Grand Av	Construct 1648 condos, 412 apts, 449K SF retail, 275 hotel rms, 68K SF County Office	1,648	du	Condominiums	0	225	1,101	1,326	1,521	749	2,270
						412	du	Apartments							
						275	rm	Hotel							
						68.000	ksf	County Office							
13	Mixed-use	327	N	Fremont Av	Construct 600 apts & 30K SF retail	600	st	Apartments	3,568	42	170	212	231	124	355
						30.000	ksf	Retail							
14	Mixed-use	1855	N	Glendale Bl	Construct 65 condos	65	du	Condominiums	543	8	37	45	31	15	46
15	Mixed-use	1111	W	Wilshire Bl	Construct 420 condos & 40K SF retail	800	st	Elementary School	2,900	80	66	146	137	126	263
						40.000	ksf	Retail							
16	Condos	456	S	Witmer St	Construct 39 condos	39	du	Condominiums	162	2	10	12	9	5	14
17	Bunker Hill Mixed-Use	720	W	Cesar E Chavez Av	Construct 272 condos, 6431 SF retail & 8K SF restaurant	272	du	Condominiums	1,639	19	93	112	98	49	147
						6.431	ksf	Retail							
						8.000	ksf	Restaurant							
18	Witmer Project	1247	W	7th St	Construct 186 condos & 6.2K SF retail	186	du	Condominiums	1,486	2	11	13	46	22	68
						6.200	ksf	Retail							
19	Condos (TT67738)	855	N	Figueroa Terr	Construct 102 condos	102	du	Condominiums	598	8	37	45	36	17	53

Proj #	Project Name	Address			Description	Size	Units	Description	Daily	Morning Peak Hour			Evening Peak Hour		
20	MacArthur Park/Alvarado Metro Project	1901	W	7th St	Constrct Ph.1 - 90 apts & 15.5ksf retail; Ph.2 - 82 apts & 17.3ksf retail	132	du	High-Rise Condominiums	1,504	17	73	90	82	51	133
						73	du	Condominiums							
						46	du	Apartments							
						19.103	ksf	Retail							
21	Mixed-Use	3200	W	Beverly Bl	Construct 32 apts & 5870 SF Retail	24	du	Condominiums	426	3	14	17	24	12	36
						8.338	ksf	Retail							
22	Affordable apartments	431	S	Lucas Av	Construct 75 unit affordable housing (apts)	75	du	Affordable Housing	504	6	25	31	31	16	47
23	Apartments	715	N	Yale St	Construct 65 apartments	65	du	Apartments	437	7	27	34	26	14	40
24	Good Samaritan Mixed-Use Project	1136	W	6th St	Construct 725 apts & 39999 sf retail	725	du	Apartments	3,800	46	184	230	222	119	341
						39.999	ksf	Retail							
25	LAUSD CLAHS #11 HRD/PDC	1200	W	Colton St	Construct Human Resources Dept (25.5ksf office & exam facility 50 visitors) / Professional Development Ctr (conference facility 350 visitors)	25.500	ksf	Office & Exam Facility	653	81	11	92	16	79	95
26	Mixed-Use	1924	W	Temple St	Construct 132 hi-rise condos, 73 condos, 46 apts, 19103 sf retail	132	du	High-Rise Condominiums	1,350	12	52	64	64	39	103
						73	du	Condominiums							
						46	du	Apartments							
						19.103	ksf	Retail							
27	LA Dodger Stadium the Next 50 Years	1000	W	Elysian Park Av	Construct 23750 sf spec retail, 38490 sf qual rest, 35570 sf museum, & 138565 sf office	23.750	ksf	Specialty Retail	4,456	121	78	199	230	250	480
						38.490	ksf	Quality Restaurant							

Proj #	Project Name	Address			Description	Size	Units	Description	Daily	Morning Peak Hour			Evening Peak Hour		
						35.570	ksf	Museum							
						138.565	ksf	Office							
28	Office	1130	W	Wilshire Bl	Construct 86844 sf office	86.844	ksf	Office	530	91	12	103	14	69	83
29	Gas station with convenience store	1605	N	Glendale Bl	Demo gas sta. w/ conv. store & 8 fueling positions & construct new gas sta. w/ conv. store & 12 fueling positions	12	pu	Gas Station with Conv Store	651	20	20	40	27	27	54
						-8	pu	Gas Station with Conv Store							
30	Wilshire Hoover Shopping Center	2908	W	Wilshire Bl	Construct 156,000 sf shopping center	156.000	ksf	Shopping Center	4,331	46	29	75	198	215	413
31	Beverly + Lucas Project	1430	W	Beverly Bl	Construct 157 Apts	157	du	Apartments	867	13	53	66	52	28	80
32	Kawada Tower	250	S	Hill St	Construct 330 condos & 12ksf retail/restaurant	800	st	Elementary School	1,551	68	56	124	72	66	138
						12.000	ksf	Retail/Restaurant							
33	New medical office building (Good Samaritan Hospital)	1239	W	Wilshire Bl	Construct 56450 sf medical office building	56.450	ksf	Medical Office	2,040	111	29	140	57	153	210
34	Sunset Flats Mixed-Use	2225	W	Sunset Bl	65 residential condos, 15550 gsf retail & restaurant	65	du	Residential Condos	1,283	17	83	100	72	35	107
						15.550	ksf	Retail/Restaurant							
								TOTAL TRIPS	**53,300**	**1,520**	**3,220**	**4,740**	**4,316**	**2,893**	**7,209**

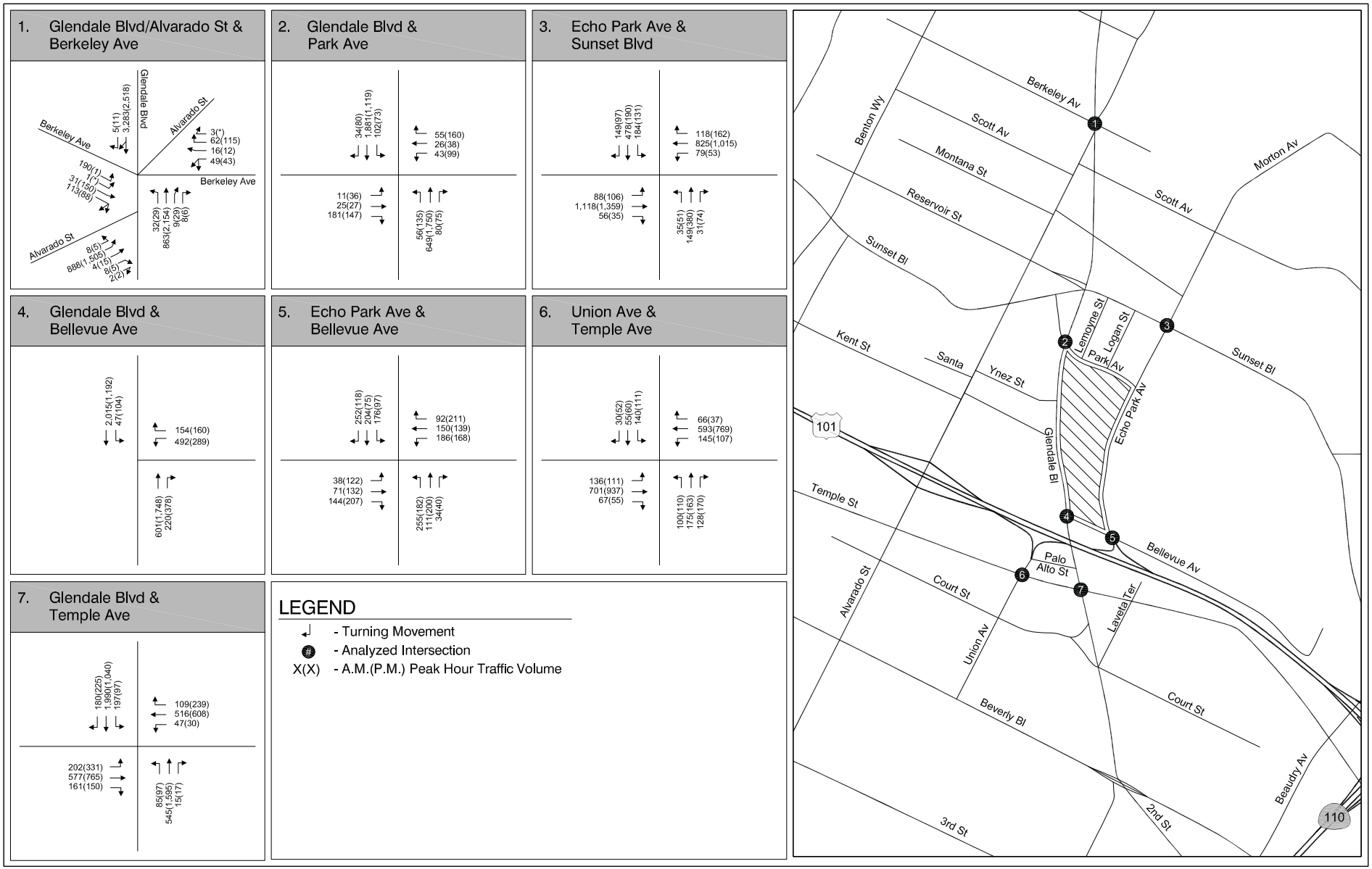
Source Data:
Data provided by LADOT December, 2009. Directional splits based on *Trip Generation, 7th Edition* (Institute of Transportation Engineers, 2003).
Note:
[a] Trip generation based on data provided by LADOT. No further information on trip generation by land use was provided.

The Cumulative Base (2013) Project, which are future conditions without project construction, show that two of the seven study intersections that would operate at poor levels of service in one or both of the analyzed peak hours are projected to continue operating at poor levels of service (i.e., LOS E or F). The intersections were identified to be Glendale Boulevard/Alvarado Street and Berkeley Avenue and Glendale Boulevard and Temple Street, which is projected to operate at LOS E in the morning peak hour and LOS F in the evening peak hour. The intersection of Glendale Boulevard and Temple Street is projected to operate at LOS F during the both peak hours. The Cumulative Base (2013) Project is illustrated in Figure 3.9-4.

CUMULATIVE PLUS (2013) PROJECT TRAFFIC PROJECTIONS

The Cumulative Plus (2013) Project projections identified the temporary incremental impacts of the proposed project on future traffic operating conditions by adding the construction-related traffic expected to be generated by the proposed project to the cumulative base traffic forecasts.

The analysis determined that the most intense constructing phases would occur during Phase D and Phase E (the phases with the highest level of construction traffic). The project would be constructed in phases, rather than all at once. Thus, the duration of the impact identified during Phase D (approximately eight weeks) would be less than the duration of the entire project construction. The temporary increase in traffic passenger car equivalents (PCEs) that would occur during Phase D of the project construction was assigned to the street system, as shown in Figure 3.9-5, and added to the cumulative base traffic projections. They include the projected temporary construction traffic and are the basis of the analysis of the project's traffic-related impacts described in the following section. The temporary increase in traffic for Phase E is shown in Figure 3.9-6.

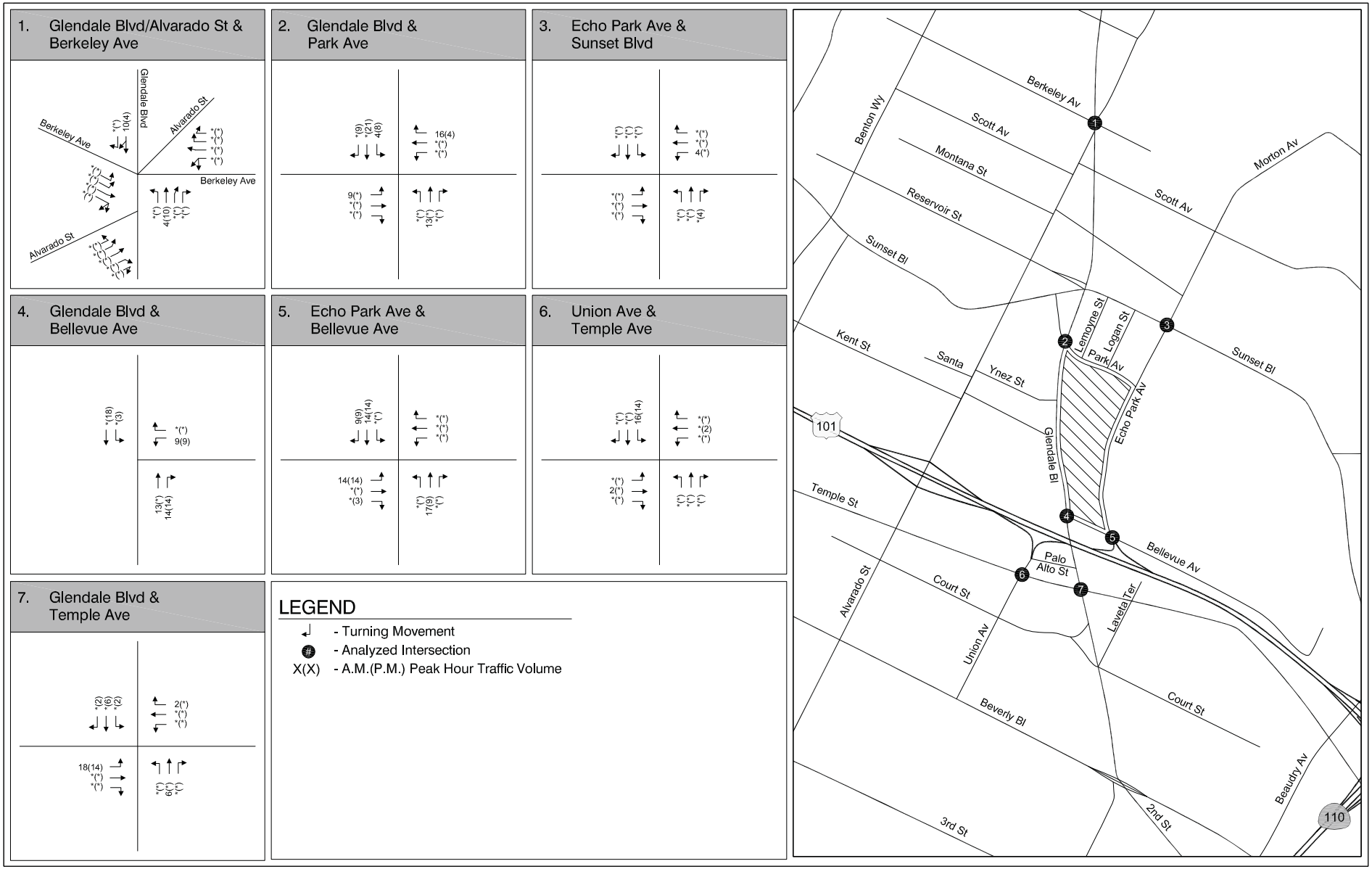


Source: Fehr & Peers, 2010

Not to Scale

NORTH

Figure 3.9-4
Cumulative Base (2013) Peak Hour Traffic Volumes



Source: Fehr & Peers, 2010

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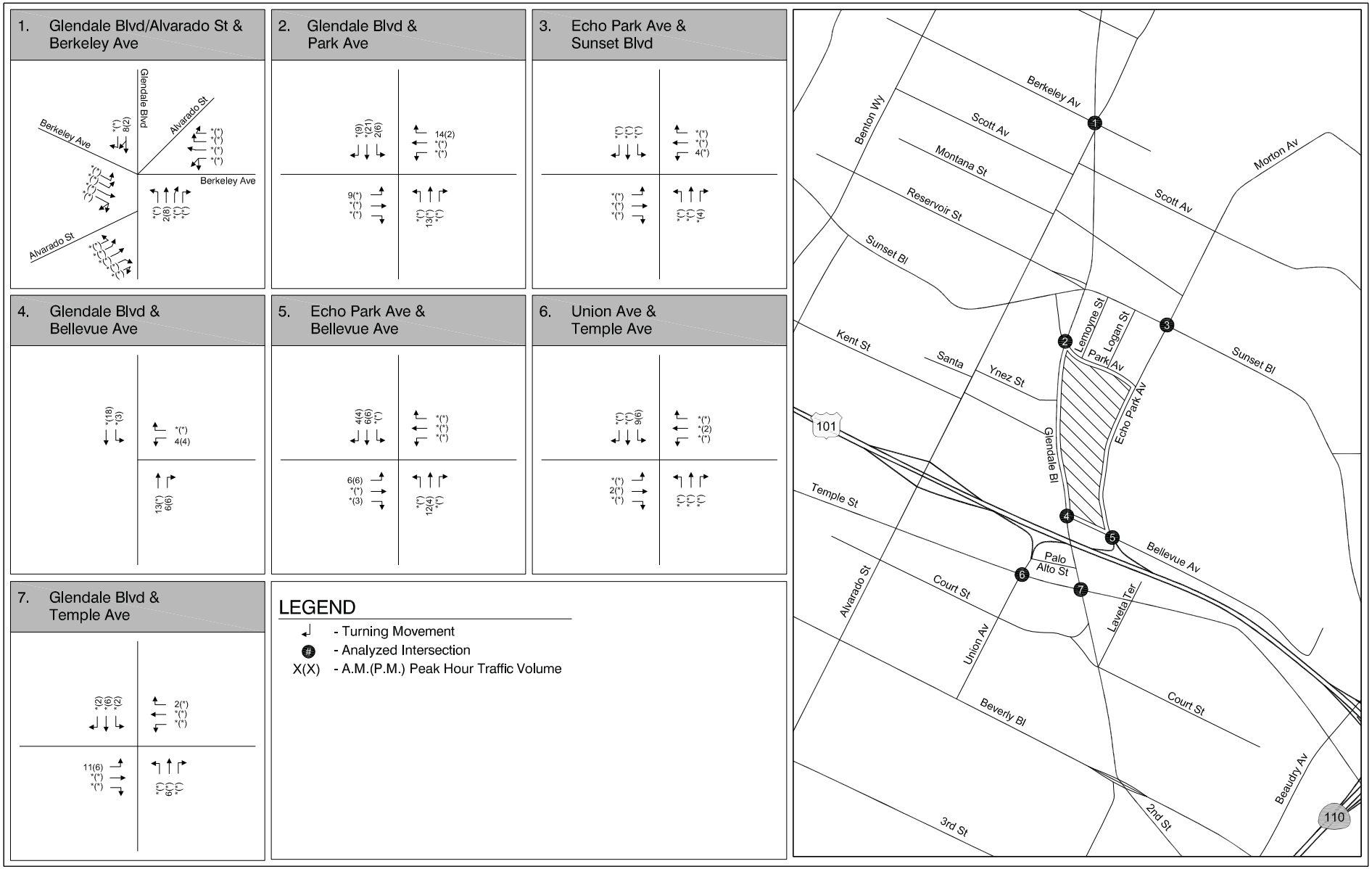
Figure 3.9-5
Phase D Project Only Peak Hour Traffic Volumes



Source: Fehr & Peers, 2010

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NORTH

Figure 3.9-6
Phase E Project Only Peak Hour Traffic Volumes

Construction Assumptions

Based on the construction information received from the proposed project design and engineering team, construction for the proposed project is assumed to occur in the following five phases as listed below. This phasing was created for purposes of the traffic analysis and as presented in Table 3.9-5.

Phase A (29 weeks)
- Dry/Haul Lake Slime
- Tree/Shrub Removal
- Clear and Grub
- Wildlife Relocation
- Pathway Demolishing

Phase B (57 weeks)
- Regrade/Bentonite Mixing for Lake Liner
- Demolish/Disposal of Existing Lake Edge
- Lake Edge Wooden Boardwalk
- Lake Edge Retaining Walls
- Lake Edge Ripraps
- Lake Edge Vegetated Slope
- Lake Edge Overlook

Phase C (69 weeks)
- Install California Division of Safety of Dams (DSOD) Berm
- Place In-Lake Storm Drain Line
- Construct Wetland Edge/Ripraps
- Storm water best management practices (BMPs) Northeast Area Site Preparation and Installation
- Storm water BMPs Park Site Preparation and Installation
- Install of Piping System-Centralized Lake Circulation and Fountain Piping
- Construct Pump Stations and Outlet Structure

Phase D (8 weeks)
- Fill Wetland Foundation
- Pathway Repave
- Retaining Walls/Seat Walls
- Fencing and Railing
- Light Fixtures
- Other Park Amenities (Benches, Trash Receptacles, Drinking Fountains, etc.)

Phase E (15 weeks)
- Wetland Vegetation
- Mulch/Amendment
- Plants (Shrubs/Trees)
- Lotus Bed Restoration

TABLE 3.9-5 ESTIMATE OF LARGE TRUCK LOADS DURING CONSTRUCTION

Phase		Events:	Exported Soil (CY)	Imported Soil (CY)	Imported Concrete Mix (CY)	Disposed Material (CY)	Imported Materials	Unit	Estimated Truck Loads	Anticipated Duration (weeks)	Truck Load/Day
In-Lake Improvement	A	Drying/Hauling Lake Slime	22,253			90			2,234	29	15
	C	Install DOSD Berm		4,297	102		496	CY	492	28	4
	C	Replace In-lake Storm Drain Line (6'x2' RCB)			65		7	TRK	14	8	0
	C	Construct Wetland Edge/Riprap		500			20	TRK	70	9	2
	D	Fill Wetland Foundation		28,800					2,880	8	72
	E	Wetland Vegetation		1,450			8,800	SF	146	15	2
	B	Regrading/Bentonite Mixing for Lake Liner				710	1,766	CY	248	57	1
	B	Demolish/Disposal Ex. Lake Edge	347				28	CY	38	57	0
	B	Lake Edge Wooden Boardwalk	347	28	157		2,100	SF	74		0
	B	Lake Edge Retain Walls	7,661	4,635	1,749				1,424		5
	B	Lake Edge Ripraps	1,824	102			3,628	CY	374		1
	B	Lake Edge Vegetated Slope	467	389					86		0
	B	Lake Edge Overlook	130	8	52				20		0
Stormwater BMPs	C	Stormwater BMPs NE Area Site Preparation & Installation	105	100		140	20	TRK	37	32	0

Phase		Events:	Exported Soil (CY)	Imported Soil (CY)	Imported Concrete Mix (CY)	Disposed Material (CY)	Imported Materials	Unit	Estimated Truck Loads	Anticipated Duration (weeks)	Truck Load/Day
	C	Stormwater BMPs Park Site Preparation & Installation	200	160		100	2	TRK	25	8	1
	C	Installation of Piping System-centralized Lake Circulation & Fountain Piping	145	5	64		20	TRK	42	69	0
	C	Construct Pump Stations & Outlet Structure	193	416			5,086	SF	70	31	0
Park Improvement	A	Tree/Shrub Removal				306			15	2	2
	A	Clear & grub				1,222			61	2	6
	A	Wildlife Relocation							7	1	1
	A	Pathway Demolish				1,000			50	2	5
	D	Pathway Repave					2,500	CY	125	3	8
	E	Mulch/amendment					2,600	CY	125	1	25
	E	Plants (shrubs/trees)							36	1	7
	D	Retaining Walls / seat walls					200	CY	25	2	3
	D	Fencing and Railing							4	2	0
	D	Light Fixtures				25	46	EA	7	1	1
	E	Lotus Bed Restoration		2,500			300		126	15	2
	D	Other Park Amenity (Bench, Trash Receptacle, Drinking Fountain etc.)				40	55	EA	4	1	1

Phase	Events:	Exported Soil (CY)	Imported Soil (CY)	Imported Concrete Mix (CY)	Disposed Material (CY)	Imported Materials	Unit	Estimated Truck Loads	Anticipated Duration (weeks)	Truck Load/Day
Total:										
Phase A Maximum Truckloads			A	**29**						
Phase B Maximum Truckloads			B	**8**						
Phase C Maximum Truckloads			C	**7**						
Phase D Maximum Truckloads			D	**85**						
Phase E Maximum Truckloads			E	**36**						

Source: Black & Veatch, December 2009
NOTES:
CY = cubic yard
SF = square feet
TRK = truck
EA = each

Assume typical capacity per truck load (20' L x 6' W x 4.5' H)
Assume truck load for ready-mix concrete:
Assume truck load for dirt/soil:
Assumes improvements in adjacent Park areas can be accomplished concurrently with the In-Lake improvements.

The above tasks and the estimated truck loads and durations per task per phase are shown in Table 3.9-5. The analysis determined that the two most intense phases of construction would occur during Phase D and Phase E. Based on the information presented in Table 3.9-5, construction activities for Phase D are anticipated to last up to eight weeks and require up to 85 truckloads per day. Construction activities for Phase E are anticipated to last up to 15 weeks and require up to 36 truck loads per day.

Project Trip Generation

Future LOS calculations include the additional project-generated trips that would be necessary during the construction period. Because the proposed project would only affect traffic operations in the project site vicinity during the construction phase, the impacts are considered to be adverse but not significant. The overall construction schedule is approximately two years. The proposed project would be constructed in phases of construction activity, rather than all at once, and the duration of the impacts identified would be less than the duration of the entire project. The year 2013 cumulative plus project peak hour traffic volumes were analyzed to project future operating conditions at the study intersections and to identify specific traffic impacts resulting from the addition of project-generated traffic for construction during Phases D and E.

The information from Table 3.9-5 was used to estimate trip generation for the proposed project. It was assumed that approximately 20 to 40 workers would be required for each phase of construction. A conservative assumption of 40 workers, arriving and departing within the morning and evening peak hours, for Phases D and E was used. For the purposes of this analysis, each truck load was assumed to make two trips per day (one inbound and one outbound) and was factored into the analysis as approximately 2.5 PCEs (since truck trips create a greater impact on traffic operations than automobiles). Although construction truck trips may or may not occur during the peak hours, it was assumed that approximately one-quarter of truck trips would occur during the a.m. and p.m. peak hours to provide a conservative analysis. That is, the estimated daily truck trips were assumed to occur evenly over the work day.

Project Traffic Distribution

The geographic distribution of the traffic generated by the proposed project depends on several factors, including the geographic distribution of population from which the construction workers are drawn, the locations of the construction material suppliers and soil disposal sites, and the location of the project site in relation to the surrounding street and regional freeway system. The generalized regional trip distribution applied in this analysis for construction worker trips is approximately:

- 25 percent to and from the north via the SR 2 and US 101 Freeways
- 15 percent to and from the south via city streets
- 15 percent to and from the east via city streets
- 10 percent to and from the south and east via the US 101 Freeway
- 20 percent to and from the west via city streets
- 5 percent to and from the west via the US 101 Freeway

The generalized regional trip distribution applied in the analysis for construction truck trips is approximately:

- 25 percent to and from the north via the US 101 Freeway
- 25 percent to and from the south via the US 101 Freeway
- 25 percent to and from the east via the SR 2 and US 101 Freeways
- 25 percent to and from the west via the US 101 Freeway

Although the location of construction material suppliers and deposition sites for excavated materials are currently unknown, it is assumed that all truck deliveries would travel on the regional freeway networks and connect to the construction sites from the adjacent freeway ramps on US 101 and SR-2. The majority of truck trips, those transporting soil from the site, were assumed to utilize US 101, while other truck trips were assumed to utilize both US 101 and SR-2. Most of the construction workers would travel on the regional freeway network, while some portion of them would arrive from the local street network. The traffic expected to be generated by the proposed project construction given concurrent construction activities, as shown in Table 3.9-6, was assigned to the street network based on the application of the generalized trip distribution.

Project Traffic Assignment

Based on information provided by the project design and engineering team, it was assumed that all workers would park in the commercial parking lots along Glendale Boulevard north of Park Avenue. Construction truck trips for all phases were assumed to access the project site from the east via Echo Park Avenue. All construction truck trips exporting soil from the site (Phase A) would access the freeway via the U.S. 101. Truck trips in the analyzed construction phases (Phases D and E) were assumed to utilize both SR 2 and U.S. 101 to reach/depart the project site.

The City of Los Angeles allows major and secondary arterials to be used as truck routes. The City's policy is to allow trucks to travel in a "reasonable fashion" to and from a work site, including over collector and local streets. The City of Los Angeles reviews each haul-route permit for specific application of its general guidelines. Potential haul routes in the City of Los Angeles for construction of the proposed project include segments of Echo Park Avenue, Bellevue Avenue, Park Avenue, Glendale Boulevard, and Temple Street. While the City of Los Angeles Municipal Code (LAMC) prohibits the use of certain segments of specific streets by vehicles over 6,000 gross weight (LAMC Section 80.36.1), none of the local streets in the vicinity of the project site have weight limitations or restrictions that would preclude their use by truck traffic.

Table 3.9-6 ESTIMATED CONSTRUCTION TRIPS (PASSENGER CAR EQUIVALENTS)

Phase[1]	Daily Worker Trips[2]	Daily Truck Trips[3]	Daily Total Construction Trips[3]	Worker Trips[2]				Truck Trips[3]				Total Trips [3]			
				Morning Pk Hr		Evening Pk Hr		Morning Pk Hr		Evening Pk Hr		Morning Pk Hr		Evening Pk Hr	
				In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Phase A Construction	80	145	225	40	0	0	40	9	9	9	9	49	9	9	49
Phase B Construction	80	40	120	40	0	0	40	3	3	3	3	43	3	3	43
Phase C Construction	80	35	115	40	0	0	40	3	3	3	3	43	3	3	43
Phase D Construction	80	425	505	40	0	0	40	27	27	27	27	67	27	27	67
Phase E Construction	80	180	260	40	0	0	40	12	12	12	12	52	12	12	52

Source: Fehr & Peers. *Traffic Study for the Echo Park Lake Rehabilitation Project.* April 2010.
NOTES:
[1] Phased construction to occur sequentially, not concurrently.
[2] For each phase of this project, between 20 to 40 workers would be required to complete construction. This study assumes 40 construction workers per phase.
[3] Information in this table based on estimates taken from Table 3.9-5. Daily truck trips are assumed to occur evenly over an 8-hour work day (12.5% per peak hour). To provide a worst-case analysis, it was assumed that truck trips would occur during the morning and evening peak hours. Truck trips have been converted to Passenger Car Equivalent (PCE) trips using a PCE factor of 2.5 to 1. Thus, one truck trip is equivalent to 2.5 passenger car trips.

As shown in Table 3.9-7, the analysis determined that, five of the seven study intersections are projected to operate at LOS D or better during all analyzed peak hours during construction, using CMA methodology. The intersection of Glendale Boulevard/Alvarado Street and Berkeley Avenue is projected to operate at LOS E in the morning peak hour and LOS F in the evening peak hour. The intersection of Glendale Boulevard and Temple Street is projected to operate at LOS F during the both morning and evening peak hours.

According to the City of Los Angeles' intersection traffic impact significance criteria, the proposed project during construction Phase D would have a temporary adverse impact at Glendale Boulevard and Temple Street during at least both of the analyzed peak hours. Under Phase D, it is assumed that the proposed project would generate approximately 505 daily trips (80 worker trips and 425 PCE truck trips). During the morning peak hour, the proposed project would generate approximately 40 inbound worker trips and 54 PCE truck trips (27 inbound, 27 outbound). During the evening peak hour, the proposed project would generate approximately 40 outbound worker trips and 54 PCE truck trips (27 inbound, 27 outbound). According to the City of Los Angeles' impact criteria, the proposed project during construction Phase D would adversely impact Glendale Boulevard and Temple Street for both morning and evening peak hours.

According to the City of Los Angeles' intersection traffic impact significance criteria, the proposed project during construction Phase E would not result in temporary adverse impacts at any of the seven study intersections. Under Phase E, it is assumed that the proposed project would generate approximately 260 daily trips (80 worker trips and 180 PCE truck trips). During the morning peak hour, the proposed project would generate approximately 40 inbound worker trips and 24 PCE truck trips (12 inbound, 12 outbound). During the evening peak hour, the proposed project would generate approximately 40 outbound worker trips and 24 PCE truck trips (12 inbound, 12 outbound). According to the City of Los Angeles' intersection traffic impact significance criteria described above, the proposed project would not result in temporary adverse impacts at any of the seven study intersections. Therefore, the impact would be less than significant.

Since the construction trips occurring under Phases A through C would be lower than those of construction Phase E, it is assumed that construction activities during under Phases A through C would not result in temporary adverse impacts at any of the seven study intersections.

The traffic impact analysis represents a conservative scenario in that it assumes that both construction workers and truck trips would occur during the peak traffic hours on the surrounding streets (7:00 to 9:00 AM and 4:00 to 6:00 PM). With this assumption, a potentially adverse impact was identified during the most intense phase of project construction (Phase D, for up to eight weeks) at one study intersection during both the morning and the evening peak hours. As such, TRANS-A has been provided to minimize the construction-related traffic impacts during Phase D. Implementation of TRANS-A would result in a less than significant impact.

Table 3.9-7 Future (2013) Intersection Levels of Service

Intersection	Peak Hour	Cumulative Base		Cumulative Plus Project (Phase D)				Cumulative Plus Project (Phase E)			
		V/C	LOS	V/C	LOS	Project Increase in V/C	Adverse Project Impact?	V/C	LOS	Project Increase in V/C	Adverse Project Impact?
1. Glendale Blvd/Alvarado St & Berkeley Ave	morning	0.939	**E**	0.941	E	0.002	NO	0.941	E	0.002	NO
	evening	1.007	**F**	1.009	F	0.002	NO	1.008	F	0.001	NO
2. Glendale Blvd & Park Ave	morning	0.714	C	0.714	C	0.000	NO	0.714	C	0.000	NO
	evening	0.721	C	0.727	C	0.006	NO	0.725	C	0.004	NO
3. Echo Park Ave & Sunset Blvd	morning	0.686	B	0.689	B	0.003	NO	0.689	B	0.003	NO
	evening	0.79	C	0.793	C	0.003	NO	0.793	C	0.003	NO
4. Glendale Blvd & Bellevue Ave	morning	0.798	C	0.801	D	0.003	NO	0.799	C	0.001	NO
	evening	0.698	B	0.704	C	0.006	NO	0.701	C	0.003	NO
5. Echo Park Ave & Bellevue Ave	morning	0.487	A	0.499	A	0.012	NO	0.494	A	0.007	NO
	evening	0.479	A	0.494	A	0.015	NO	0.487	A	0.008	NO
6. Union Ave & Temple St	morning	0.548	A	0.559	A	0.011	NO	0.555	A	0.007	NO
	evening	0.598	A	0.607	B	0.009	NO	0.602	B	0.004	NO
7. Glendale Blvd & Temple St	morning	1.082	**F**	1.096	**F**	0.014	**YES**	1.091	**F**	0.009	NO
	evening	1.064	**F**	1.075	**F**	0.011	**YES**	1.069	**F**	0.005	NO

Source: Fehr & Peers. *Traffic Study for the Echo Park Lake Rehabilitation Project.* April 2010.

Construction of the proposed project is also anticipated to result in temporary adverse traffic impacts in the immediate vicinity of the project site, leading to localized congestion. Because the impacts would be of limited duration, however, they are considered adverse, but not significant by LADOT criteria. However, feasible mitigation measures have been identified to reduce the temporary adverse impacts associated with construction-period activity at and in the vicinity of the project site. Mitigation measures TRANS-B through TRANS-G would fully mitigate the temporary project traffic impacts for all construction phases. As such, the proposed project with implementation of mitigation measures would be less than significant.

TRANS-2 *The proposed project would not conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.*

The CMP arterial monitoring intersection nearest to the project site is Alvarado Street and Sunset Boulevard. Based on the project trip generation estimates and a review of the project traffic volumes shown for the most intense phase of construction (Phase D), the proposed project is not expected to add more than 50 vehicles per hour (vph) at any CMP monitoring intersections during the peak hours. As a result, no further CMP arterial monitoring analysis is required. The mainline freeway monitoring location nearest to the project site is U.S. 101 south of Santa Monica Boulevard. Based on the incremental project trip generation estimates for Phase D and the project trip assignment, the proposed project would not add sufficient new traffic to exceed the freeway analysis criteria at this location. Because total estimated project-related traffic in any direction during either weekday peak hour is projected to be below the minimum criterion of 150 vph, the impact would be less than significant.

In addition, CMP transit impacts were evaluated. The trip generation estimates used in this study include both worker trips and truck trips during each construction phase of the proposed project. It was conservatively assumed that each worker would travel alone to and from the work site and a maximum of 40 workers would be needed during each construction phase of the project. By converting the vehicle trips to person trips by multiplying by a 1.4 average and assuming 10 percent transit (per CMP guidelines), it is estimated that the project could potentially add up to six new transit person trips in both the morning and the evening peak hours. As previously discussed, the proposed project site is served by several established public transit routes providing connectivity to public transit services throughout the surrounding area, potentially distributing project transit trips across multiple routes. Given the magnitude of the estimated increase in project-related trips, as well as the temporary nature of any increase, no significant impacts on the regional transit system would occur.

3.9.3 MITIGATION MEASURES

TRANS-A In order to minimize impacts during construction Phase D, truck trips shall be scheduled outside the morning and evening peak hours.

TRANS-B A construction traffic management plan shall be prepared and submitted to LADOT for review and approval prior to the start of any construction work. This plan shall include such elements as the designation of haul routes for construction-related trucks, the location of access to the construction site, any driveway turning movement restrictions, temporary traffic control devices or flagmen, travel-time restrictions for construction-related traffic to avoid peak travel periods on selected roadways, and designated staging and parking areas for workers and equipment.

TRANS-C A site-specific construction work site traffic control plan shall be prepared for each construction phase and submitted to LADOT for review and approval prior to the start of any construction work. This plan shall include such elements as the location of any lane closures, restricted hours during which lane closures (if any) would not be allowed, local traffic detours (if any), protective devices and traffic controls (such as barricades, cones, flagmen, lights, warning beacons, temporary traffic signals, warning signs), access limitations for abutting properties (if any), and provisions to maintain emergency access through construction work areas.

TRANS-D Signage shall be provided indicating alternative pedestrian and bicycle access routes where existing facilities would be affected. This shall include the sidewalks and pedestrian pathways around the perimeter of the project site.

TRANS-E Advanced notice shall be provided of planned construction activities to any affected residents, businesses, and property owners in the vicinity of the construction site.

TRANS-F Coordination with emergency service providers (police, fire, ambulance, and paramedic services) shall occur to provide advance notice of on-going construction activity and construction hours.

TRANS-G Coordination with public transit providers (Metro, LADOT DASH) shall occur to provide advance notice of on-going construction, construction hours and, where necessary, to identify sites for temporary bus stops within a reasonable walking distance of any displaced bus stops. It may be necessary or desirable to temporarily relocate the southbound Pico Union/Echo Park DASH stop adjacent to the project site from the east side of Echo Park Avenue.

3.9.4 SIGNIFICANCE AFTER MITIGATION

With the implementation of mitigation measures TRANS-A through TRANS-G, the construction traffic impacts associated with the proposed project would be less than significant.

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4.0 IMPACT OVERVIEW

This chapter provides an overview of the environmental effects of the proposed project, including significant unavoidable adverse impacts, impacts not found to be significant, cumulative impacts, significant irreversible environmental changes, and growth-inducing impacts. Cross-references are made throughout this chapter to other chapters of the EIR where more detailed discussions of the impacts of the proposed project can be found.

4.1 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

This section is prepared in accordance with Section 15126.2(b) of the CEQA Guidelines, which requires the discussion of any significant environmental effects that cannot be avoided if a project is implemented. These include impacts that can be mitigated, but cannot be reduced to a less than significant level. An analysis of environmental impacts caused by the proposed project has been conducted and is contained in this EIR. Ten issue areas were analyzed in detail in Chapter 3.0, including Greenhouse Gases within Chapter 3.2, Air Quality. According to the environmental impact analysis presented in Chapter 3.0, the proposed project would result in significant unavoidable adverse impacts connected to visual character with the proposed solar lighting option (Chapter 3.1, Aesthetics), regional construction air quality emissions for NO_X (Chapter 3.2, Air Quality), daily construction air quality emissions for $PM_{2.5}$ and PM_{10} (Chapter 3.2, Air Quality), historical resources related to the proposed solar lighting option (Chapter 3.4, Cultural Resources), and on-site construction noise (Chapter 3.7, Noise).

As discussed in Chapter 3.1, Aesthetics, with the solar lighting option, the proposed project would represent a substantial visual change on the project site. The final design, types, and colors of the solar light poles and fixtures would be in coordination with the appropriate City departments, City committees/commissions, and with the local residents through on-going project meetings. Specifically, the solar lighting option would be required to be approved by the City of Los Angeles Cultural Heritage Commission during the project approval process. It is anticipated that the project review and approval process may potentially minimize or reduce the visual intrusion of the solar lighting option. However, it is not certain whether the project review and approval process would in fact result in a solar lighting design that is more consistent with the visual character of the Park. No feasible mitigation measures are available to reduce this significant impact. As such, the impact would be significant and unavoidable.

As discussed in Chapter 3.4, Cultural Resources, with the solar lighting option would represent a new addition to the Park that would not be compatible with the massing, scale, and architectural features of the Park. As such, the solar lighting option would not act to protect the historic landscape of the Park and may not fully conform to the Secretary of the Interior's *Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*. This impact is considered to be significant. The final design, types, and colors of the proposed lighting would be in coordination with the appropriate City departments, City committees/commissions, and with the local residents through on-going project meetings. Specifically, the solar lighting option would be required to be approved by the City of Los Angeles Cultural Heritage Commission during the project approval process. It is anticipated

that the project review and approval process may potentially minimize or reduce the impact of the solar lighting option. However, it is not certain whether the project review and approval process would in fact result in a solar lighting design that is more consistent with the historic landscape of the Park. No feasible mitigation measures are available to reduce this significant impact. As such, the impact would be significant and unavoidable.

As discussed in Chapter 3.2, regional construction emissions would exceed the SCAQMD regional thresholds for NO_X. The short-term construction air quality impact would be significant. The BOE would be required to implement mitigation measures AIR-A through AIR-D in order to reduce NO_x emissions produced during construction. However, even with the implementation of these mitigation measures, NO_x levels would still exceed the SCAQMD regional emissions thresholds for NO_X. As such, the impact would remain significant and unavoidable.

As discussed in Chapter 3.2, daily construction emissions would exceed the SCAQMD localized significance thresholds for $PM_{2.5}$ and PM_{10}. The BOE would be required to implement mitigation measures AIR-A through AIR-D in order to reduce daily $PM_{2.5}$ and PM_{10} emissions produced during construction. However, even with implementation of these mitigation measures, $PM_{2.5}$ and PM_{10} emission levels would still exceed the SCAQMD daily emissions thresholds. The impact would remain significant and unavoidable.

As discussed in Chapter 3.7, the highest construction-related noise increase would occur at a single- and multi-family residence at east of the project site and at Saint Athanasius Episcopal Church. Noise levels would exceed the 5-dBA significance threshold established by the City of Los Angeles *L.A. CEQA Threshold Guide* at noise-sensitive land uses. Construction activity would result in a significant noise impact without mitigation. Implementation of mitigation measures NOISE-A through NOISE-D is required to reduce on-site construction noise at nearby noise-sensitive land uses. However, a significant and unavoidable impact would remain after mitigation.

4.2 EFFECTS NOT FOUND TO BE SIGNIFICANT

Section 15128 of the CEQA Guidelines requires the identification of impacts of a project that were determined not to be significant and that were not discussed in detail in an impact chapter of the EIR. These issues were eliminated from further review during the Initial Study process (see Appendix A). Therefore, the following section presents a brief discussion of environmental issues that were not found to be significant for the proposed project, including agricultural and forest resources, geology and soils, land use and planning, mineral resources, population and housing, public services, and utilities and service systems.

4.2.1 AGRICULTURAL AND FOREST RESOURCES

The project site is designated as an open space land use by the City of Los Angeles.[1] The project site is zoned Open Space (OS-1XL), which allows for the development of parks, recreational facilities, natural resource preserves for the managed production of resources, marine and ecological preserves, public water supply reservoirs, water conservation areas and sanitary landfill sites that have received certificates of closure in compliance with federal and state regulations.[2] Further, no agricultural activities presently occur on-site. The site is not classified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. There are no Williamson Act contracts applicable to the project site. In addition, no land on or near the project site is zoned for or contains forest or timberland uses. Thus, the proposed project would not convert farmland or forest resources to non-agricultural uses.

4.2.2 GEOLOGY AND SOILS

As with most of Southern California, the project site is located in a seismically active region. The project site is not located within a fault rupture zone, within a State of California Earthquake Fault Zone (formerly known as an Alquist-Priolo Special Study Zone). There are no active faults that traverse the project site and the potential for surface rupture is considered low. However, several potentially active faults are located in the vicinity of the proposed project. The closest fault is the Hollywood fault, located approximately 2.6 miles northwest of the site. Applicable building code requirements would be implemented. As part of building code (applicable California Building Code Seismic Design Criteria) and BOE Standard Project Specifications, construction measures are prescribed that enable safe and efficient project implementation within areas subject to seismic movement. In accordance with standard practices, site-specific geotechnical and geological investigations that focus on these potential hazards are performed as part of project design studies and applicable recommendations incorporated. Therefore, the proposed project would result in less than significant impacts related to fault rupture.

The entire project site is located in an area mapped as potentially liquefiable. Applicable building code requirements would be implemented. As part of building code (applicable California Building Code Seismic Design Criteria) and BOE Standard Project Specifications, construction measures are prescribed that enable safe and efficient project implementation within areas subject to seismic movement. In accordance with standard practices, site-specific geotechnical and geological investigations that focus on these potential hazards are performed as part of project design studies and applicable recommendations incorporated. Additionally, no habitable structures would be constructed as part of this project. Therefore, the proposed project would result in less than significant impacts related to liquefaction.

The project site is generally designated as being in a hillside area. However, no known landslide areas are identified on the project site. Additionally, the hillsides near the project site are highly developed with

[1] City of Los Angeles, Zone Information and Map Access System (ZIMAS) at http://zimas.lacity.org/
[2] City of Los Angeles, ZIMAS at http://zimas.lacity.org/ and City of Los Angeles Municipal Code, Chapter I (Planning and Zoning Code) at http://www.amlegal.com/nxt/gateway.dll?f=templates&fn=default.htm&vid=amlegal:lapz_ca

structures and landslides are not considered to be a potential hazard at the project site. Therefore, the proposed project would result in less than significant impacts related to landslides.

The project site is not located in a high wind area. Construction of the proposed project would result in ground surface disruption activities, such as site excavation, sediment removal and drying. These activities could result in the potential for erosion to occur at the project site. However, soil exposure would be temporary and short-term in nature and applicable Department of Building and Safety erosion control techniques would limit potential erosion. Therefore, the proposed project would result in less than significant impacts related to erosion or loss of topsoil.

In accordance with standard practice, a geotechnical evaluation will be conducted which would prescribe methods, techniques, and specifications for: site preparation, treatment of undocumented fill and/or alluvial soils, fill placement on sloping ground, fill characteristics, fill placement and compactions, temporary excavations, permanent slopes, treatment of expansive soils, and treatment of corrosive soils. Design and construction of the proposed project would conform to recommendations in the geotechnical evaluation.

Bentonite would be added to the Lake bed during construction, which may potentially affect the expansiveness of the Lake bed soil. However, the proposed project would not construct any buildings on this soil. The proposed project would construct a berm on the Lake bed in compliance with DSOD requirements. This would not result in a substantial risk to life or property. Compliance with approved best management practices would prevent any effects related to expansive soils. Therefore, the proposed project would result in less than significant impacts related to expansive soils.

No septic tanks or alternative wastewater disposal systems are proposed or needed with the proposed project. The installation of hydrodynamic separators would assist in removing the debris that may be present in storm water runoff flowing into the Lake. However, the soil of the Lake bed and edge are anticipated to be capable of supporting this element of the proposed project. Therefore, the proposed project would result in no impacts related to inadequate soil support for the use of septic tanks or alternative wastewater disposal systems.

4.2.3 LAND USE AND PLANNING

The proposed project involves below ground or surface level improvements within an existing City park. The project site is surrounded primarily by multi-family residential land uses. However, no large structures or buildings would be constructed by the proposed project that would potentially physically divide the community. The land use of the project site would remain open space with the implementation of the proposed project. Therefore, the proposed project would result in no impacts related to the division of an established community.

The existing General Plan land use designation and the zoning designation for the project site is open space. The proposed project would not alter the land use of the project site. The proposed project would

not conflict with any applicable land use plans. Therefore, the proposed project would result in no impacts related to land use plans.

No habitat conservation plan or natural community conservation plan exists for the project site. Therefore, the proposed project would result in no impacts related to conflicts with habitat conservation or natural community conservation plans.

4.2.4 MINERAL RESOURCES

There are no known mineral deposits of economic importance underlying the project site. Development of the proposed project would not result in the loss of availability of any known mineral resources.

4.2.5 POPULATION AND HOUSING

The proposed project would not promote population growth either directly or indirectly, since it consists of infrastructure and water quality upgrades to meet regulatory requirements in conformance with the needs projected in the adopted community and general plans. Therefore, the proposed project would result in no impacts related to inducing population growth in the project area.

The project site currently consists of open space and recreational facilities. No housing is located on the project site. The proposed project would not displace any existing housing units. Therefore, the proposed project would result in no impacts related to housing displacement and replacement.

4.2.6 PUBLIC SERVICES

The Los Angeles Fire Department Station No. 20 is located approximately 0.2 mile northwest of the project site at 2144 West Sunset Boulevard. The proposed project would not require additional fire protection or emergency response services beyond what is currently provided. In compliance with BOE Standard Project Specifications, construction activities would comply with applicable Fire Code requirements. The nearest local fire responders would be notified, as appropriate, during construction so as to coordinate emergency response routing during the construction phase. Therefore, the proposed project would result in less than significant impacts related to fire protection.

The Los Angeles Police Department Rampart Community Police Station is located approximately one mile south of the project site at 1401 West 6th Street. The proposed project would not require additional police protection beyond what is currently provided. In compliance with BOE Standard Project Specifications, construction activities would comply with applicable Municipal Code requirements. The nearest local police station would be notified, as appropriate, during construction so as to coordinate emergency response routing during the construction phase. Therefore, the proposed project would result in less than significant impacts related to police protection.

The proposed project is not a growth-inducing project, either directly or indirectly, and would therefore not increase the demand for schools in the area. Therefore, the proposed project would result in no impacts related to schools.

4.2.7 UTILITIES AND SERVICE SYSTEMS

The Hyperion Treatment Plant is located on a 144-acre site adjacent to the Santa Monica Bay, southwest of the Los Angeles International Airport. The drainage area served by this wastewater treatment plant is approximately 328,000 acres. Sewage from five major interceptor sewer systems is received and treated at this plant. Minimal amounts of wastewater are anticipated to be generated by the proposed project. It is anticipated that the Hyperion Treatment Plant and associated sewer system would have the capacity to accommodate the proposed project. No changes in the demands on the plant and sewer system are anticipated. Therefore, the proposed project would result in less than significant impacts related to wastewater treatment.

The proposed project includes improvements that would result in the use of storm water and would not result in the need to construct new storm water drainage facilities or expansion of facilities off-site. Therefore, the proposed project would result in less than significant impacts related to storm water drainage facilities.

The City of Los Angeles Department of Water and Power provides potable water to the project area and vicinity. Other than temporary construction water use, the proposed project would not include new water uses. An objective of the proposed project is to use storm water and in an effort to reduce the amount of municipal potable water used to fill the Lake. Therefore, the proposed project would result in less than significant impacts related to water supplies.

Excavated materials and debris would be disposed of at local landfills. The Chiquita Canyon Sanitary Landfill has a remaining capacity of 35,800,000 cubic yards (as of 2003) and is scheduled to cease operations in November of 2019. The Puente Hills Landfill has a remaining capacity of 49,348,500 cubic yards (as of 2006) and is scheduled to cease operations in October of 2013. The soil on the project site is not known to be contaminated and some would be suitable for backfill. Unsuitable soil and soil that could not be used at other construction sites would be disposed at these landfills, where some of the soil may be suitable for use as needed daily cover.

During operation, trash and debris collected from the Park would be nominal in volume and similar to existing conditions. In addition, it is expected that a nominal amount of trash would be removed from the hydrodynamic separators during operation. Existing landfills have sufficient capacity to accommodate this small amount of solid waste from the proposed project. Therefore, the proposed project would result in less than significant impacts related to solid waste disposal.

4.3 CUMULATIVE IMPACTS

According to Section 15355 of the CEQA Guidelines, cumulative impacts refer to:

> "Two or more individual effects which, when considered together are considerable or which compound or increase other environmental effects. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time."

Section 15130(a) of the CEQA Guidelines states that:

> "An EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable.... When the combined cumulative impact associated with the project's incremental effect and the effects of other projects is not significant, the EIR shall briefly indicate why the cumulative impact is not significant and is not discussed in further detail in the EIR.... An EIR may determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable and thus is not significant. A project's contribution is less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact."

According to Section 15130 (b)(1)(A) of the CEQA Guidelines, a list of past, present, and probable future projects producing related or cumulative impacts may be used as the basis of the cumulative impacts analysis. The "list" approach was used for the cumulative impacts discussion in this EIR. The scale or geographic scope of related projects varies for each impact category. For instance, cumulative geology and soils or aesthetics impacts are considered localized, while cumulative traffic and transportation and air quality impacts are considered regional. Table 3.9-4 presented in Chapter 3.9, Transportation and Traffic includes all of the approved, under construction, or proposed development projects in the vicinity of the project site. The list of development projects is derived from lists provided by the City of Los Angeles.

AESTHETICS

The related projects located within the vicinity of the proposed project include various retail/mixed-use, office, commercial, and residential projects that are currently under construction, approved but not built, or proposed for development. This development would occur in an area that has already been impacted by urban development. The construction phase of the proposed project would represent a temporary change to the visual character of the project site and area. Because the proposed project would rehabilitate an existing recreational area including a lake, the proposed project would represent a

substantial, though positive change on the landscape. The rehabilitation of the project site would be aesthetically consistent with the visual character of the existing project site and area. Therefore, the proposed project, in conjunction with the related projects, would not have a cumulative aesthetic impact.

AIR QUALITY

Cumulative air quality impacts are considered on a regional basis. As such, emissions thresholds in Table 3.2-3 are used in the analysis of the cumulative air quality impacts.

Construction. The related projects include the development of hundreds of thousands of square feet of commercial and residential uses, a number that is many times greater than the proposed project, which would not include the construction of any substantial amount of building square footage. The impacts from the proposed project would be generated by the emissions from construction trucks traveling to and from the project site. As the proposed project results in a regionally significant impact during the construction phase relative to NO_X, PM_{10}, and $PM_{2.5}$, it is anticipated that the related projects would also result in significant regional impacts during construction. While SCAQMD-required mitigation measures would reduce air quality impacts, it is forecasted that the construction of the related projects, in addition to the proposed project, would result in a regionally significant NO_X, impact during the construction phase. The related projects would be required to implement similar mitigation measures and comply with SCAQMD Rule 403. It is unusual for localized construction emissions to result in a significant cumulative impact because the impact is dependent on simultaneous construction of multiple projects in close proximity to each other. On-site construction and diesel truck activity would generate the majority of proposed project-related localized emissions. It is unlikely that construction activity associated with a related project would occur within 1,500 feet of the project site during the relatively brief construction phase. The proposed project would not result in a significant localized construction impact and, as such, cumulative localized emissions would be less than significant.

Operations. The SCAQMD's approach for assessing cumulative operational impacts is based on the Air Quality Management Plan forecasts of attainment of ambient air quality standards in accordance with the requirements of the federal and state Clean Air Act. The SCAQMD has set forth regional significance thresholds designed to assist in the attainment of ambient air quality thresholds per the State Implementation Plan. The proposed project would not alter the operations of the project site and, therefore, would not result in a significant VOC, $PM_{2.5}$, $PM_{10,}$ NO_X, or CO impact during operations. Therefore, the proposed project would result in a less than significant regional cumulative operations impact.

GREENHOUSE GASES

Various gases in the Earth's atmosphere, classified as atmospheric greenhouse gases (GHGs), play a critical role in determining the Earth's surface temperature. Solar radiation enters the Earth's atmosphere from space, and a portion of the radiation is absorbed by the Earth's surface. The Earth emits this radiation back into space, but the properties of the radiation have changed from high-frequency solar

radiation, to lower-frequency infrared radiation. GHGs, which are transparent to solar radiation, are effective in absorbing infrared radiation. This radiation that would have otherwise escaped back into space is now "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. Without the Greenhouse Effect, Earth would not be able to support life.

Prominent GHGs contributing to the Greenhouse Effect include carbon dioxide (CO_2), methane (CH_4), ozone (O_3), water vapor, nitrous oxide (N_2O), and chlorofluorocarbons (CFCs). Human-caused emissions of these GHGs in excess of natural ambient concentrations are considered to be responsible for an enhancement of the Greenhouse Effect, which have led to a trend of unnatural warming of the Earth's climate, known as global warming or global climate change. Emissions of GHGs contributing to global climate change have been attributed in large part to human activities associated with industrial/manufacturing, utility, transportation, residential, and agricultural sectors. Emissions of CO_2 are byproducts of fossil fuel combustion. Methane, a highly potent GHG, results from off-gassing associated with agricultural practices and landfills. Processes that absorb CO_2, often referred to as sinks, include uptake by vegetation and dissolution into the ocean.

Carbon dioxide-equivalent (CO_2e) is a value used to account for different GHGs having different potential to retain infrared radiation in the atmosphere and contribute to the Greenhouse Effect. This is known as the Global Warming Potential of a GHG, and is dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. For example, in the "Calculation Referenced," of the General Reporting Protocol of the California Climate Action Registry, one ton of CH_4 has the same contribution to the Greenhouse Effect as approximately 21 tons of CO_2. Therefore, CH_4 is a much more potent GHG than CO_2. Expressing emissions in carbon-dioxide equivalents takes the Greenhouse Effect contribution of all GHG emissions and converts them to a single unit equivalent to the effect if all emissions were CO_2.

As discussed in Chapter 3.2, Air Quality, an increase in the generation and emission of GHGs is not itself an adverse environmental effect. Climate change is a global problem, and GHGs are global pollutants, unlike criteria air pollutants and TACs, which are pollutants of regional and local concerns, respectively. The scientific community generally agrees that global warming will lead to adverse climate change effects around the globe and that the phenomenon is anthropogenic, i.e., caused by humans. Thus, it is the increased accumulation of GHGs in the atmosphere that may result in global climate change that causes adverse environmental effects.

In 2004, California produced 492 million gross metric tons of CO_2 gases. In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation. Fossil fuel consumption in the transportation sector was the single largest source of California's GHG emissions in 2004, accounting for 40.7 percent of total GHG emissions in the state. This category was followed by the electric power sector (including both in-state and out-of-state sources) (22.2 percent) and the industrial sector (20.5 percent).

Various local and statewide initiatives to reduce the state's contribution to GHG emissions have raised awareness that, even though the various contributors to and consequences of global climate change are

not yet fully understood, global climate change is under way and there is a real potential for severe adverse environmental, social, and economic effects over the long term. Because every nation is an emitter of GHGs, and therefore makes an incremental cumulative contribution to global climate change, cooperation on a global scale will be required to reduce the rate of GHG emissions to a level that can help slow or stop human-caused increases in average global temperatures and associated changes in climatic conditions.

On September 27, 2006, Governor Arnold Schwarzenegger signed Assembly Bill 32, which requires the CARB to monitor and reduce greenhouse gas emissions. Specifically, Assembly Bill 32 requires CARB to:

- Establish a statewide greenhouse gas emissions cap for 2020, based on 1990 emissions by January 1, 2008.
- Adopt mandatory reporting rules for significant sources of greenhouse gases by January 1, 2008.
- Adopt a plan by January 1, 2009 indicating how emission reductions will be achieved from significant greenhouse gas sources via regulations, market mechanisms and other actions.
- Adopt regulations by January 1, 2011 to achieve the maximum technologically feasible and cost-effective reductions in greenhouse gases, including provisions for using both market mechanisms, and alternative compliance mechanisms.
- Convene an Environmental Justice Advisory Committee and an Economic and Technology Advancement Advisory Committee to advise CARB.
- Ensure public notice and opportunity for comment for all CARB actions.
- Prior to imposing any mandates or authorizing market mechanisms, requires CARB to evaluate several factors, including but not limited to: impacts on California's economy, the environment, and public health; equity between regulated entities; electricity reliability, conformance with other environmental laws, and to ensure that the rules do not disproportionately impact low-income communities.
- Adopt a list of discrete, early action measures by July 1, 2007 that can be implemented before January 1, 2010 and adopt such measures.

As directed by Senate Bill 97, the Natural Resources Agency adopted amendments to the CEQA Guidelines for greenhouse gas emissions on December 30, 2009. The amendments became effective March 18, 2010. The CEQA Guideline amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents.

Construction

Short-term sources of proposed project-generated GHG emissions would be the off-road construction equipment and on-road vehicles used for site preparation, grading, and construction of the site facilities. Construction activity would generate approximately 7,022 tons of GHG emissions over the entire 26-month construction period and would cease on completion of construction.

Operations

Operational GHG emissions are not anticipated to change, as there will be no additional sources of mobile and stationary GHG emissions. In addition, a goal of the Lake rehabilitation project is to reduce water use at the project site through improvements to the Lake's infrastructure. California's water infrastructure uses energy to collect, move, and treat water; dispose of wastewater; and power the large pumps that move water throughout the State. California consumers also use energy to heat, cool, and pressurize the water they use in their homes and businesses. Together these water-related energy uses annually account for roughly 20 percent of the State's electricity consumption, one-third of non-power plant natural gas consumption, and about 88 million gallons of diesel fuel consumption. The California Energy Commission has reported that the energy intensity of the water use cycle in Southern California is 12,700 kilowatt-hours per million gallons. Permanently reducing the amount of municipal water required to maintain the water level of the Lake would reduce long-term GHG emissions. For these reasons, the impact of the proposed project on the cumulative effect of global climate change is not cumulatively considerable and considered to be less than significant.

BIOLOGICAL RESOURCES

Any potentially significant impacts of the related projects associated with special species, riparian habitats, protected wetlands, migratory wildlife, and local protection of biological resources, particularly during the construction phase, would be assessed on a project-by-project basis. In addition, the related projects are located in a highly urban environment that does not likely include substantial habitats for biological resources. The implementation of provided mitigation measures would reduce significant impacts related to biological resources. Therefore, less than significant impacts are anticipated.

CULTURAL RESOURCES

The cumulative project radius adequately captures the past, present, and probable future projects that would potentially contribute to cumulative cultural resource impacts. The proposed project would not result in cumulative impacts to historic resources in the area. Although the existing project site is a designated HCM, the project site is not located in a historic district. Thus, the construction of the proposed project in conjunction with other projects in the area would not create a cumulatively considerable impact to historic resources. No archaeological sites were discovered or are known to exist within the project site. As with the proposed project, all related projects in the vicinity would be required to comply with CEQA Section 15064.5. If resources are uncovered during construction activities, all

construction would cease until the find is analyzed. As such, the proposed project would not contribute to a significant cumulative impact to archaeological resources.

HAZARDS AND HAZARDOUS MATERIALS

Any potentially significant impacts of the related projects associated with the routine transport, use, or disposal of hazardous materials, particularly during the construction phase, would be assessed on a project-by-project basis. The implementation of provided mitigation measures would reduce significant impacts related to hazardous materials. Therefore, no cumulative impacts are anticipated.

HYDROLOGY AND WATER QUALITY

Any potentially significant impacts of the related projects associated with the violation of water quality standards, alteration of drainage patterns, water runoff, and flood hazards, would be assessed on a project-by-project basis. The implementation of provided mitigation measures would reduce significant impacts related to hydrology and water quality. The related projects in conjunction with the proposed project would not impact the hydrology and water quality of the watershed as each project would be required to comply with local and state standards. Therefore, less-than-significant cumulative impacts are anticipated.

NOISE

The related project closest to the project site is Los Angeles Unified School District Central Region Elementary School #14 located approximately 1,000 feet west of the project site. Residences between the school and the project site would potentially be exposed to cumulative construction noise. The cumulative noise level at one of these residences would be less than 60 dBA when accounting for distance and building attenuation. The ambient noise level in this neighborhood is approximately 65 dBA Leq. Construction noise would not increase ambient noise levels by more than 5 dBA, and the proposed project would not contribute to a cumulatively considerable impact.

RECREATION

It is not anticipated that the related projects would add recreational or open space to the project area. However, many of the related projects would include residential uses and other uses that would increase the demand for parks in the area. The proposed project includes the rehabilitation of the lake and surrounding parkland. The proposed project would not include any residential or other uses that would increase demand on the Park or other parks in the area. Therefore, less than significant cumulative impacts are anticipated.

TRANSPORTATION AND TRAFFIC

As discussed in Chapter 3.9, Transportation and Traffic, the future traffic conditions take into account a total of 34 related projects within the City of Los Angeles in the project site vicinity (see Table 3.9-4) as

potentially affecting traffic circulation through the study area. The related projects list takes into account all projects currently approved, under construction, or pending approval. With implementation of mitigation measures TRANS-A through TRANS-G, implementation of the proposed project, combined with the related projects and background traffic growth of the project site, would result in a less than significant impact at the intersection of Glendale Boulevard and Temple Street. In addition, the traffic impacts related to the proposed project would occur only during the construction phase as the proposed project would not alter the operation of the project site. Therefore, less than significant cumulative impacts are anticipated.

4.4 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

Public Resources Code section 21100(b)(2)(B) and Section 15126.2(c) of the CEQA Guidelines require that an EIR analyze the extent to which the proposed project's primary and secondary effects would impact the environment and commit nonrenewable resources to uses that future generations will not be able to reverse.

The construction of the proposed project would result in the use of nonrenewable resources, including fossil fuels, natural gas, and water and building materials, such as concrete. However, the operation of the proposed project would not be altered from existing conditions. The proposed project would be designed to incorporate energy and water efficiency features in accordance with Title 24 standards. The proposed project is not anticipated to consume substantial amounts of energy in a wasteful manner, and it would not result in significant impacts from consumption of utilities. No irreversible environmental changes would result from the proposed project as impacts would primarily occur during the temporary construction phase. In addition, any impacts occurring during the operations would not be considered significant.

4.5 GROWTH-INDUCING IMPACTS

According to Section 15126.2 (d) of the CEQA Guidelines, growth-inducing impacts of the proposed project shall be discussed in the EIR. Growth-inducing impacts are those effects of the proposed project that might foster economic or population growth or the construction of new housing, either directly or indirectly, in the surrounding environment. According to CEQA, increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects.

Induced growth is any growth that exceeds planned growth and results from new development that would not have taken place without the implementation of the proposed project. Typically, the growth-inducing potential of a project would be considered significant if it results in growth or population concentration that exceeds those assumptions included in pertinent master plans, land use plans, or projections made by regional planning authorities. However, the creation of growth-inducing potential does not automatically lead to growth, whether it would be below or in exceedance of a projected level.

4.0 Impact Overview

The environmental effects of induced growth are secondary or indirect impacts of the proposed project. Secondary effects of growth could result in significant, adverse environmental impacts, which could include increased demand on community or public services, increased traffic and noise, degradation of air and water quality, and conversion of agricultural land and open space to developed uses.

As discussed in Chapter 2.0, Project Description, the proposed project would include the rehabilitation of an existing lake and surrounding parkland. The proposed project would not include the construction of any substantial buildings, residential uses, or other uses that would result in an increase in the population of the project area. The improvements to be implemented under the proposed project are not anticipated to result in an increased demand on the Park. Therefore, the proposed project would not result in any significant growth-inducing impacts in the project area.

5.0 ALTERNATIVES

CEQA requires that an EIR objectively evaluate a "reasonable" range of alternatives. According to the CEQA Guidelines Section 15126.6(a), "an EIR shall describe a range of reasonable alternatives to the proposed project, or to the location of the proposed project, which would feasibly attain most of the basic objectives of the proposed project, but would avoid or substantially lessen any of the significant effects of the proposed project, and evaluate the comparative merits of the alternatives." The CEQA Guidelines also state that an EIR need not consider every conceivable alternative nor consider alternatives that are infeasible. Under CEQA, the factors that can determine feasibility are site suitability, economic limitations, availability of infrastructure, General Plan consistency, other plan or regulatory limitations, and jurisdictional boundaries. An EIR need not consider an alternative whose effects cannot be reasonably ascertained and whose implementation is remote and speculative.

The alternatives analysis must also include a comparative evaluation of the No Project Alternative per Section 15126.6(e) of the CEQA Guidelines. Through comparison of the alternatives, the advantages and disadvantages of each alternative compared with the proposed project can be weighed and analyzed. The No Project Alternative is described below.

5.1 PROJECT OBJECTIVES

The primary objectives of the proposed project include the following:

- Improve the water quality in the Lake and contribute to water quality improvement in the Los Angeles River Watershed.
- Reduce the use of municipal potable water required to maintain the water level of the Lake.
- Comply with the Regional Water Quality Control Board's intent to restore the existing and potential beneficial water quality uses in the Lake. The existing beneficial uses include non-contact water recreation (REC-2) and wildlife habitat (WILD). The potential beneficial uses include municipal and domestic water supply (MUN), warm freshwater habitat (WARM), and wetland habitat (WET).
- Assist the City in meeting the current and future total maximum daily load (TMDL) requirements.
- Implement multi-purpose solutions at the Lake, consistent with the Proposition O objectives of water supply, water quality, flood protection, water conservation, and recreation.

5.2 ALTERNATIVES CONSIDERED BUT ELIMINATED

Section 15126.6(c) of the CEQA Guidelines requires that an EIR identify any alternatives that were considered by the lead agency, but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination. Among factors that may be used to eliminate alternatives from detailed consideration in the EIR are: (1) failure to meet most of the basic project objectives, (2) infeasibility, and (3) inability to avoid significant environmental impacts.

5.2.1 ALTERNATIVE SITES

Section 15126.6(f)(2) of the CEQA Guidelines requires that an EIR consider alternative locations to the project site. Locating the proposed project on an alternative site would not accomplish the basic project objectives, which are site-specific to the project site. Constructing a new lake at an alternative site or implementing the proposed project at another existing lake within the City would not implement the Regional Water Quality Control Board's regulations at the Lake or seek to improve the currently poor water quality in the Lake. In addition, constructing a new lake at an alternative site would increase the amount of municipal water used in the City and would not directly assist the City in meeting TMDL requirements. Implementing the proposed project at an alternative site would not implement solutions at the Lake consistent with Proposition O objectives. The proposed project and the project objectives are site-specific with the basic premise being the improvement of the existing Echo Park site at its specific location. This alternative would not meet any of the objectives of the proposed project and was eliminated from consideration.

5.2.2 INCREASED FLOOD RISK ALTERNATIVE

The operational components of the Increased Flood Risk Alternative would be similar to those of the proposed project as described in Chapter 2.0, Project Description. This alternative would differ from the proposed project only in the process of its construction. The construction activities would include draining the entire Lake to remove the existing Lake bottom and the sediment that may have accumulated within the Lake. A majority of the removed sediment would require drying, handling and hauling by trucks from the project site to a specified disposal facility. However, any existing soil or sediment that is determined to be useable would be re-used within the Lake bed. The Lake bed would be lined with bentonite-enhanced clay. The existing soil within the Lake bed includes some natural soft and moist clay. The bentonite would be transported from the specified commercial facility to the project site by truck and then mixed with the existing soil within the Lake bed using low-bearing pressure tracked vehicles. It is anticipated that the majority of staging and storage for the Lake bed improvements would occur within the Lake bed itself. It is anticipated that the Lake bed improvements would occur concurrently along with the improvements to the adjacent Park. This would ultimately depend on the amount of available staging space within or near the Park.

Similar to the proposed project, this alternative would include construction staging and laydown areas located adjacent to the north end of the Lake, which is a relatively flat area that currently includes the

RAP maintenance yard and is accessible to Park Avenue. Another potential staging and laydown area exists within the maintenance yard parking lot of the Park in addition to potential off-site locations would be determined prior to construction. Temporary site offices during the construction phase may be located on-site. In addition, construction worker parking is anticipated to be located off-site at a site to be determined, but within two blocks or within walking distance of the project site. Unlike the proposed project which includes two construction truck access points, ingress and egress of construction trucks under this alternative would be located only along the east side of the project site along Echo Park Avenue with a maximum of 170 truck loads (85 in and 85 out) per day anticipated. Any truck staging required would be located along Echo Park Avenue, north of Bellevue Avenue, or if feasible, within the project site itself.

The Increased Flood Risk Alternative would not include construction processes that would reduce the risk of flooding during potential storm events as the proposed project does. During the operational phase, this alternative would meet all of the project objectives. However, the Lake is located within a 100-year flood zone.[1] This alternative would not implement the flood protection solutions during construction that would be consistent with Proposition O objectives. For these reasons, the Increased Flood Risk Alternative was eliminated from further consideration.

5.2.3 REDUCED WETLANDS ALTERNATIVE

The Reduced Wetlands Alternative would include a reduced area of constructed wetlands within the Lake and would require the construction of a mechanical treatment plant structure. The water in the Lake would initially be treated by the constructed wetlands located within the northeastern lobe of the Lake. No wetlands would be constructed along the Lake edge or at the southern section of the Lake. Primary water treatment would occur through the mechanical treatment system, which would necessitate a new structure to be constructed requiring approximately 0.5 acre of land. As a result, a large section of the project site would be dedicated to the mechanical treatment system and structure, or potentially, adjacent properties would need to be impacted due to space requirements. The treatment of water through the mechanical treatment system would not remove pollutants as effectively as the proposed project. The mechanical treatment system would not treat nitrogen without an upgrade to the system at a significant cost and would require a waiver for the water quality objective related to reducing concentrations of nitrogen. In addition, the mechanical treatment system would require chemical addition in order to remove phosphorus, copper, and lead, followed by micro-filtration and disinfection. The Reduced Wetlands Alternative would reduce potential cultural resources and aesthetic effects by reducing the amount of wetlands that are visible at the Lake water surface, which results in more visible open water. This alternative would also reduce the amount of municipal water used and would generally implement multi-purpose solutions at the Lake consistent with Proposition O objectives. However, the Reduced Wetlands Alternative would not as effectively treat water and, therefore, would not as effectively improve water quality, implement the Regional Water Quality Control Board's regulations, and assist in meeting

[1] Federal Emergency Management Agency (FEMA). Flood Insurance Rate Map No. 06037C1610F.

TMDL requirements. The Reduced Wetland Alternative would meet only two of the five project objectives and was eliminated from consideration.

5.2.4 ALTERNATE WETLANDS LOCATION ALTERNATIVE

The Alternate Wetlands Location Alternative would include installing the constructed wetlands in an expanded area adjacent to the existing Lake, not within the existing Lake footprint. Because the constructed wetlands located adjacent to the Lake would have to be connected to the Lake in order to improve the Lake's water quality, this alternative may result in a substantial change to the footprint of the Lake. In addition, the placement of the wetlands outside of and expanding the existing Lake edge, would result in a possible change to the other amenities located adjacent to the Lake, such as the pathway and grassy areas. It is not anticipated that this alternative would result in the demolition of any existing buildings or the permanent removal of any existing cultural features of the Park. However, a large section of the project site would be dedicated to this wetland area. The Alternate Wetlands Location Alternative would reduce potential cultural resources and aesthetic effects by reducing the amount of wetlands that are visible at the Lake's water surface, which results in more visible areas of open water. However, this alternative would result in new aesthetic and cultural impacts related to the substantial changes proposed to the footprint of the Lake. Similar to the proposed project, this alternative would improve the water quality of the Lake, reduce the amount of municipal water used and would generally implement multi-purpose solutions at the Lake consistent with Proposition O objectives. As such, the Alternate Wetlands Location Alternative would meet all of the five project objectives. However, this alternative would likely result in significant and unavoidable aesthetic and cultural resources impacts due to the alteration of the footprint of the Lake, and possibly other Park features. Therefore, the Alternate Wetlands Location Alternative was eliminated from further consideration.

5.2.5 OPEN WATER CONSTRUCTION ALTERNATIVE

The operational components of the Open Water Construction Alternative would be similar to those of the proposed project as described in Chapter 2.0, Project Description. Based on the concerns raised by the Audubon Society regarding habitat availability during the migratory bird season, an alternative was proposed that would involve phasing the construction of the project and retaining an area of open water as a potential avian or bird habitat in the northeastern lobe of the Lake, encompassing the man-made island, during the first phase of construction. This would require the installation of an engineered berm and delaying major demolition work on the outlets and inlets within this portion of the Lake. An additional year would be required to complete construction if it is phased to retain a potential avian habitat. Additional concerns relate to the potential disturbance of birds during the nesting and migratory season from construction noise and dust. An analysis was conducted in April 2010 by a qualified biologist, which concluded that some bird species would be sensitive to construction noise and dust, and would avoid the construction site even with the retention of the potential avian habitat. In addition, other bird species would be adapted to the urban environment of the project area, would not be as sensitive to construction noise and dust, and may visit the project site during construction if it is phased to retain potential avian habitat.

The Open Water Construction Alternative would retain Lake water within the northeastern lobe of the Lake in order to provide a potential avian habitat during construction. However, this alternative would require an additional two years of construction activities as compared to the proposed project (50 months compared to 26 months). As a result, this alternative would increase the duration of time that the aquatic habitat within the Lake would be unavailable to visiting, resident, and nesting birds. In addition, the prolonged construction phase required with this alternative would result in a longer duration of overall community disturbance to existing residences surrounding the project site, construction impacts related to traffic, air quality, and noise, as well as temporary habitat loss to all fish and wildlife species that utilize the Park. This also increases the likelihood that species with high site fidelity, such as the great blue herons, would not return to nest at the Park. The Fish and Game Fishing in the City program would be suspended for an additional two years and other native species that forage over the Lake, such as bats, would be affected for a longer period of time. In addition, this alternative would not provide a means of maintaining the water quality of the retained water, which may potentially be detrimental to certain species, however the extent is unknown. The Open Water Construction Alternative would meet all of the project objectives during the operational phase, as this alternative would construct all of the components included with the proposed project. However, during construction this alternative would not meet the water quality objectives of the project and would result in prolonged construction impacts. For all the reasons stated above, the Open Water Construction Alternative was eliminated from further consideration.

5.2.6 SUBMERGED AQUATIC VEGETATION ALTERNATIVE

The Submerged Aquatic Vegetation Alternative would utilize submerged aquatic vegetation beneath the Lake water surface, instead of the constructed emergent vegetation wetlands included under the proposed project. Under this alternative, only submerged plants would be included in the design to improve the water quality of the Lake. As a result, all areas of the Lake, except the lotus bed area, would maintain the open water visual quality, as with existing conditions. The aquatic vegetation would be submerged approximately one to two feet beneath the water surface and would not normally extend above the water surface. The plants would be visible when looking through the water column from above.

Although this alternative would potentially reduce aesthetic and cultural impacts due to the reduced vegetation visible above the water surface, the use of submerged aquatic vegetation for the purpose of improving water quality is an emerging technology. Unlike constructed wetlands with emergent vegetation, submerged aquatic vegetation wetlands are not widely used in California. In wetlands, submerged vegetation does not compete well with emergent vegetation except in deeper clear lake areas. For shallow constructed wetlands the emergent vegetation has to be removed regularly or may grow above the water surface. Currently, there is minimal data on the performance of submerged vegetation in removing pollutants and far fewer species that have been studied. The lack of extensive experience and study would likely add to the risk of failure in implementing this alternative.

This alternative would require additional maintenance as compared to the proposed project in that harvest and maintenance would be conducted under water and all harvested plant materials would be wet. Additional maintenance would likely be required in order to keep the submerged vegetation beneath the

water surface and to keep invasive emergent vegetation from becoming dominant. Submerged aquatic vegetation can grow over time eventually becoming visible above the water surface. Thinning or harvesting the submerged vegetation would require lowering the water level. As a result of vegetation being submerged under this alternative, no new wildlife habitat would be provided.

Sunlight penetration through the water must take place in order for the submerged aquatic vegetation to grow and be effective. It is unknown if sufficient sunlight at the project site would penetrate through the water considering the many trees that would provide shade over the Lake, as well as the varying angle and duration of sunlight.

As previously mentioned, according to research, submerged aquatic vegetation can grow over time eventually becoming visible above the water surface. Various species of algae and other vegetation can develop with the submerged aquatic vegetation, potentially resulting in a change in the color of the Lake and further reducing sunlight penetration. In addition, turbid water conditions in the Lake may limit sunlight penetration.

It is uncertain the degree to which the Submerged Aquatic Vegetation Alternative would improve the water quality of the Lake due to the lack of definitive documentation of this technology in California. For all the reasons stated above, the Submerged Aquatic Vegetation Alternative was eliminated from further consideration.

5.3 ALTERNATIVES CARRIED FORWARD FOR DETAILED ANALYSIS

Three alternatives have been carried forward for detailed analysis in this EIR, including the "No Project" alternative as required by CEQA. Based on the environmental analysis conducted for the proposed project, significant impacts requiring mitigation have been identified regarding Biological Resources, Cultural Resources, Hazards and Hazardous Materials, Hydrology and Water Quality, and Transportation and Traffic. The EIR identifies less than significant impacts for Aesthetics, Greenhouse Gases, and Recreation. Significant and unavoidable impacts were identified for Air Quality and Noise.

The alternatives carried forward for detailed analysis in this section include:

- No Project Alternative
- Mechanical Treatment Alternative
- Wetlands Reconfiguration Alternative

5.3.1 OVERVIEW OF ALTERNATIVES AND IMPACTS

The table at the end of this chapter provides a comparison of the impacts of the alternatives to the proposed project. In accordance with the CEQA Guidelines Section 15126.6(d), each alternative was evaluated in sufficient detail to determine whether the overall environmental impacts would be less,

similar, or greater than the corresponding impacts of the proposed project. However, the alternatives are not analyzed at the same level of detail as the proposed project. A discussion of each alternative is provided below.

5.3.2 NO PROJECT ALTERNATIVE

According to the CEQA Guidelines Section 15126.6(e)(3)(b), the No Project Alternative is defined as the "circumstance under which the proposed project does not proceed." The impacts of the No Project Alternative shall be analyzed "by projecting what would reasonably be expected to occur in the foreseeable future if the proposed project were not approved, based on current plans and consistent with available infrastructure and community services." The purpose of describing and analyzing the No Project Alternative is "to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project." Under the No Project Alternative, the proposed in-Lake improvements, wetland treatment areas, water recirculation and fountain systems, Park improvements and the partition berm would not be constructed on the project site. Because these improvements would not be implemented, the water quality of the Lake would not be improved and the Lake would continue to be included on the 303(d) list for impaired water bodies. Under the No Project Alternative, the Lake and Park would continue to operate as under existing conditions. The historic lotus bed would continue to be severely degraded, and the Lake would continue to be on the DSOD list of non-complying lakes and dams. Future environmental conditions would be unchanged from those that currently exist, which are described in the environmental setting sections of Chapter 3.0. The No Project Alternative would not meet any of the project objectives.

Construction impacts associated with aesthetics, air quality, biological resources, cultural resources, hazards and hazardous materials, noise, recreation, and transportation and traffic would be avoided with the No Project Alternative because no construction activities would occur on the project site under the No Project Alternative. The existing use of the project site would continue to function and operate as with existing conditions. As with existing conditions, maintenance activities would occur as needed to maintain the existing project site. The project site would not be closed, fenced, and visually altered as a construction site, contributing to temporary aesthetic and recreation impacts. There would be no temporary traffic impacts related to the truck trips required for the transport of materials to and from the project site. No construction air quality and noise impacts would occur due to on-site construction activities because no construction activities would occur. In addition, the temporary impacts to biological resources from the removal of water, aquatic species, trees, and other landscaping on the project site would not occur. There would be no change to cultural resources because no changes to the character-defining features of the Park would occur under this alternative. Further, the potential for uncovering previously unknown archaeological or paleontological resources would be avoided because grading would not take place on the project site. No hazards or hazardous materials would be encountered due to the lack of grading activities.

Operational impacts would be avoided because no changes to the project site would occur under the No Project Alternative. As the proposed project would not alter the operations of the project site, the No Project Alternative would have similar impacts as the proposed project during the operational phase. The number of vehicles trips to and from the project site would not be expected to change because the same uses would be operating at the project site. Thus, similar to the proposed project, no increase in mobile emissions or vehicular noise would be expected to occur. No potential permanent changes to cultural resources would occur because the project site would not be altered. Under the No Project Alternative, the water quality of the Lake would not be improved and would likely violate the anticipated water quality regulations, the use of municipal water would not be reduced, and the objectives of Proposition O would not be implemented. Further, the No Project Alternative would not achieve any of the objectives of the proposed project.

Under this alternative, the Lake water quality would likely violate the anticipated water quality regulations as no improvements would be made to the Lake to improve the water quality.

5.3.3 MECHANICAL TREATMENT ALTERNATIVE

Under the Mechanical Treatment Alternative, a mechanical treatment train would be constructed on the project site to treat storm water inflow and Lake water. This would replace the use of the constructed wetlands that are included under the proposed project. The treatment train would consist of an underground, fully-contained treatment system that would utilize rapid ballasted flocculation and would consist of a combination of mixing and settling tanks and chemical and sand feed hoppers. Placing the facility underground would minimize aesthetic concerns and enhance physical security, as compared to placing the facility above-ground. The treatment process would require a steady supply of expendable polymer and a power supply for the feed pumps. It would also require daily visits by a trained operator and periodic visits by a truck to replenish chemical supplies. The treatment process would recycle the sand and pump the settled solids to the nearest sanitary sewer. A mechanical flocculation treatment system would only be capable of dealing with phosphorous bound to micro particles in the storm water. Removal of nitrogen would require more advanced treatment utilizing membranes. However, this alternative would be designed to meet water quality objectives. Similar to the proposed project, the project site would be fenced and closed during the construction phase. The construction scenario would be similar to the proposed project. However, the construction of the underground mechanical treatment plant would require additional excavation and hauling activities as compared to the proposed project, likely resulting in increased construction truck trips. Except for the daily and periodic trips required, the operations of the project site after the completion of the Mechanical Treatment Alternative would be identical to the proposed project, which would not change operations from the existing condition. In addition, the lighting options considered with the proposed project are also assumed for this alternative.

AESTHETICS

As with the proposed project, the construction phase under the Mechanical Treatment Alternative would represent a temporary change in the visual environment of the project site. However, an additional

temporary visual change would occur under this alternative due to the excavation activities required for the construction of the underground mechanical treatment facility. Because of the fencing and closure of the project site during construction, as well as the relative uniqueness of the project's construction process (i.e., the draining and lining of a lake), the project site would not appear to be visually similar to other construction sites throughout the City or within nearby urban areas. Similar to the proposed project, the project site during the construction of this alternative may potentially stand out as a memorable or remarkable feature in the landscape due to its temporary degrade in the visual character and quality of the site and its surroundings. Also similar to the proposed project, the construction impact would be temporary in nature. During the operational phase of the Mechanical Treatment Alternative, the visual change would be less than with the proposed project because this alternative would not include 4.2 acres of constructed wetlands at the Lake water surface. However, this alternative would consider a solar lighting option, similar to the proposed project, which would result in a significant and unavoidable visual contrast and intrusion as discussed in Chapter 3.1, Aesthetics. As such, the Mechanical Treatment Alternative would likely result in a significant and unavoidable impact on the visual character of the project site and surroundings. This impact would be less than the proposed project due to the lack of constructed wetlands at the water surface.

AIR QUALITY

The Mechanical Treatment Alternative would require additional excavation activities as compared to the proposed project. These additional excavation activities would be required for the construction of the underground mechanical treatment facility. As a result, the amount of pollutant emissions during the entire Mechanical Treatment Alternative construction phase would be greater than the amount of pollutants emitted during the entire proposed project construction phase. The daily construction intensity (e.g., construction equipment hours) assumed for the Mechanical Treatment Alternative would also be greater than the daily construction intensity assumed for the proposed project. With the implementation of mitigation measures, the proposed project would result in a less than significant impact related to VOC, CO, $PM_{2.5}$, and PM_{10} emissions, but a significant and unavoidable impact related to NO_X emissions. Accordingly, the Mechanical Treatment Alternative daily regional construction emissions of VOC, NO_X, CO, $PM_{2.5}$, and PM_{10} would be greater than the emissions calculated for the proposed project and would result in a greater regional construction air quality impact as compared to the proposed project.

Localized $PM_{2.5}$ and PM_{10} construction emissions were calculated based on the amount of acres to be disturbed per day. The size of the project site would not change under the Mechanical Treatment Alternative. However, the acres of land graded or disturbed per day may potentially be greater than that analyzed for the proposed project due to the additional excavation activities required for the construction of the underground mechanical treatment facility. This would result in fugitive dust emissions that are potentially greater than with the proposed project, which would exceed the SCAQMD localized significance thresholds for PM_{10} and $PM_{2.5}$ with implementation of mitigation.

Similar to the proposed project, the Mechanical Treatment Alternative would not generate any additional traffic trips because the operation of the project site would not change from existing conditions. The

required daily visits by a trained operator and periodic visits by a truck to replenish chemical supplies to the mechanical treatment facility would be considered nominal. Therefore, regional emissions associated with this alternative would not exceed the SCAQMD operational significance thresholds. Therefore, the Mechanical Treatment Alternative would result in a less than significant impact on operational phase regional air quality emissions.

Mobile source emissions associated with the construction truck trips of the Mechanical Treatment Alternative would result in greater localized CO emissions as compared to the proposed project. This is due to the additional truck trips associated with the hauling of materials from the excavated area related to the construction of the underground mechanical treatment facility. Maximum project-related one- and eight-hour CO concentrations for the proposed project were estimated to be 3 ppm, and 2.7 ppm to 2.8 ppm, respectively. These concentrations are well below the state one- and eight-hour standards of 20 ppm and 9.0 ppm, respectively. The increased amount of daily construction truck trips associated with the Mechanical Treatment Alternative would increase the CO concentrations estimated for the proposed project. Therefore, the Mechanical Treatment Alternative would result in greater impacts related to localized CO emissions during construction.

The Mechanical Treatment Alternative would result in increased exposure concentrations to diesel particulate matter generated during the construction phase. This is due to the additional trucks required for excavation activities during the construction phase of the Mechanical Treatment Alternative. For the proposed project, the maximum off-site annual concentration would be 0.85 micrograms per cubic meter. This results in a carcinogenic risk of 2.2 persons in one million, which is less than the 10 persons in one million significance threshold. Although, the Mechanical Treatment Alternative would include additional construction truck trips, it is not anticipated that this alternative would result in a carcinogenic risk of 10 or more persons in one million. Therefore, similar to the proposed project, the Mechanical Treatment Alternative would result in less than significant impacts related to construction-related diesel emissions.

Similar to the proposed project, the Mechanical Treatment Alternative would involve the removal of sediment and other materials from the Lake bed. Once these materials are removed, they would be required to be piled in the staging areas established on the project site and dried for a period of approximately one to two months. During the drying activities, various odors may be emitted from the sediment piles due to decomposition of organic materials temporarily impacting the sensitive receptors in the project area. The Lake has an aeration and circulation system that would assist in minimizing the potential for excessive amounts of organic material in the sediment. Any odor created by the Mechanical Treatment Alternative would be temporary in nature. Therefore, the Mechanical Treatment Alternative would result in less than significant impacts related to odors.

The Mechanical Treatment Alternative would generate a slightly greater amount of GHG emissions as compared to the proposed project because the number of construction truck trips would be increased due to the excavation and hauling activities required for the construction of the underground mechanical treatment facility Similar to the proposed project, the Mechanical Treatment Alternative would permanently reduce the amount of municipal water required to maintain the water level of the Lake and

would reduced water-related energy uses. As such, long-term GHG emissions would be reduced. The construction of the Mechanical Treatment Alternative would be in compliance with the applicable adopted plans, policies and regulations adopted by CARB. Therefore, the Mechanical Treatment Alternative would result in a less than significant impact related to greenhouse gases.

BIOLOGICAL RESOURCES

Under the Mechanical Treatment Alternative, impacts to biological resources would be similar to the proposed project. Similar to the proposed project, any sensitive animal species that exist in the trees of the Park would be temporarily impacted during construction, requiring the implementation of mitigation measures. The Wildlife Relocation Plan prepared for the proposed project would also be implemented with the construction of this alternative. Similar to the proposed project, potential indirect noise impacts may also occur to native migratory birds from short-term construction noise, including nesting great blue herons on the man-made island within the northeastern lobe of the Lake. As with the proposed project, the Mechanical Treatment Alternative would remove all aquatic species from the Lake and the blue herons would temporarily lose all year-round food supply. Although potential nesting habitat would still be present the following spring and with the four temporary ponds provided on the project site, while construction is presumably ongoing, the herons may still be deterred from nesting by the reduced amount of food resources and by construction activities. Similar to the proposed project, with the implementation of mitigation measures, the Mechanical Treatment Alternative would result in a less than significant impact related to special status species.

There are no sensitive natural vegetation communities at the Park. The native vegetation that was once present on the project site was completely removed with urbanization of the area. Similar to the proposed project, the Mechanical Treatment Alternative would result in less than significant impacts related to sensitive natural communities.

Areas of the project site under the jurisdiction and regulatory administration of CDFG include 14.14 acres of potential jurisdictional waters of the U.S. composed of unvegetated waters, as well as an additional 2.34 acres of non-USACE jurisdictional riparian habitat for a total area of approximately 16.48 acres of potential jurisdictional waters. Similar to the proposed project, the Mechanical Treatment Alternative is a restoration project that would result in a net ecological benefit including improved Lake water quality; however, all of these areas would be temporarily impacted by this alternative. Similar to the proposed project, with the implementation of mitigation measures, the Mechanical Treatment Alternative would result in a less than significant impact related to jurisdictional waters of the U.S.

Although the Park is not part of a major contiguous linkage between areas of open space, similar to the proposed project, direct impacts may occur to local wildlife movement corridors as a result of the Mechanical Treatment Alternative. Temporary loss of open water habitat would have a significant impact on local wildlife such as birds, fish, turtles, and other wildlife that utilize the Lake. Similar to the proposed project, with the implementation of mitigation measures, the Mechanical Treatment Alternative would result in a less than significant impact related to local wildlife.

Similar to the proposed project, the existing artificial wetlands in the Lake would be removed with the Mechanical Treatment Alternative. If migratory birds were found to be nesting in the artificial wetlands, temporary removal of the floating wetlands during the breeding season would constitute a significant impact to nesting waterfowl under the protection of the MBTA. Potential indirect noise impacts may also occur to native migratory birds from short-term construction noise, including nesting great blue herons on the man-made island in the northeastern lobe of the Lake. In addition, the Mechanical Treatment Alternative would ultimately remove the same amount of trees on the project site as with the proposed project, resulting in a temporary loss of habitat for migratory wildlife. However, approximately 86 new healthy trees would be planted at the project site, for an overall net growth of habitat. Similar to the proposed project, with the implementation of mitigation measures, the Mechanical Treatment Alternative would result in a less than significant impact related to migratory birds, migratory wildlife corridors, and wildlife nursery sites. Additionally, the impacts of the Mechanical Treatment Alternative related to the loss of trees protected by the City of Los Angeles, would be similar to the proposed project and would be reduced with the implementation of mitigation measures. However, the Mechanical Treatment Alternative would not include wetland habitats. As such, this alternative would result in a net loss in habitat when compared to the proposed project. Impacts would be greater than with the proposed project.

CULTURAL RESOURCES

Similar to the proposed project, the construction of the Mechanical Treatment Alternative would result in significant impacts to the historic resources and features of the Park without the consideration of design features and construction BMPs, as summarized in Chapter 2.0, Project Description, and without the implementation of mitigation measures.

A majority of the historic vegetation on the project site has been removed or has not survived. The northwestern lobe of the Lake formerly included a historic lotus bed that has diminished and failed to survive in recent years. The Mechanical Treatment Alternative would restore the lotus bed by planting new lotus plants of a similar species to those of the Park's historic period of significance. Many of the trees on the project site appear to remain from the historic period of significance and contribute to the historic views seen from the Park. Similar to the proposed project, the Mechanical Treatment Alternative would include the removal of numerous trees including a designated Heritage tree and several City street trees. Some of the trees to be removed have been identified as contributing to the Park's historic significance. Compliance with applicable RAP and other City policies would ensure that trees are removed and replaced properly. In addition, the project landscape plan would be implemented under this alternative, which outlines the protection, removal, and replacement of Park and City street trees. This landscape plan takes into consideration the importance of maintaining the Park's historic significance and would plant more trees than would be removed. Similar to the proposed project, with the implementation of mitigation measures, the Mechanical Treatment Alternative would result in less than significant impacts related to historic vegetation.

As with the proposed project, although construction activities may impact the paths and the Lake edge, the Mechanical Treatment Alternative would re-align paths to their historic configuration and enhance the

historic edging of the Lake. Any overlook or boardwalk constructed under the Mechanical Treatment Alternative would be placed in areas along the Lake edge where there are currently concrete structures (i.e., the storm water overflow area and the outfall structures/ramps). As with the proposed project, the addition of the overlook and boardwalk areas to the Lake edge under the Mechanical Treatment Alternative would not substantially change the Lake edge from existing conditions. In addition, the overlook and boardwalk areas would be an improvement as compared to the existing storm water overflow area and outfall structures/ramps.

In the Park's historic period of significance, the Lake was known for being characterized as an open body of water. Unlike the proposed project, under the Mechanical Treatment Alternative constructed wetland areas would not be installed within the Lake. To improve the currently poor water quality conditions within the Lake, this alternative would include an underground mechanical treatment facility on the project site. The Mechanical Treatment Alternative would remove all of the four existing constructed floating islands; therefore, improving the open water character of the center of the Lake. Under the Mechanical Treatment Alternative, the open water character of the Lake would be improved as compared to the proposed project, due to the lack of constructed wetlands within the Lake.

Similar to the proposed project, the boathouse, Lady of the Lake statue, and bronze bust sculpture of José Martí would be protected under the Mechanical Treatment Alternative. The boathouse and sculpture of José Martí would be protected in place, while the Lady of the Lake statue would be relocated to its original location at the current location of the pump station on the northern peninsula. The relocation of the Lady of the Lake statue and the preservation of the boathouse and José Martí sculpture would be in compliance with applicable requirements of the City of Los Angeles Department of Cultural Affairs, the City department that oversees the protection of such cultural resources. Also similar to the proposed project, the sloping topography at the peninsula, the flat topography at the island, and the bowl shape of the Lake bed would remain from the historic period of significance under the Mechanical Treatment Alternative. With the implementation of mitigation measures that follow the Secretary of the Interior's *Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*, both the proposed project and the Mechanical Treatment Alternative would result in less than significant impacts related to historic resources. However, with the addition of solar lighting with this alternative, similar to the proposed project, a significant and unavoidable impact would result for historic resources due to the loss of historic integrity.

No prehistoric or historic archaeological resources have been previously recorded within the limits of the project site. The survey conducted in associated with the proposed project failed to reveal any surface evidence of archaeological resources within the project site. However, the lack of surface evidence of archaeological materials does not preclude the possibility that subsurface archaeological materials may exist. The Mechanical Treatment Alternative would require additional excavation activities as compared to the proposed project due to the construction of the underground mechanical treatment facility. As such, with the implementation of mitigation measures, the Mechanical Treatment Alternative would result in less than significant impacts related to archaeological resources.

HAZARDS AND HAZARDOUS MATERIALS

As with the proposed project, under the Mechanical Treatment Alternative it is anticipated that contaminated soils that have been identified at the project site would be remediated in accordance with City, state, and federal regulations prior to being transported to a designated landfill. In addition, DTSC would be notified and a work plan created outlining the disposal and post-remedial sampling. Additional soils would be excavated under this alternative due to the construction of the underground mechanical treatment facility. With the implementation of mitigation measures, the Mechanical Treatment Alternative would result in less than significant impacts related to the routine transport, use, or disposal of hazardous materials during construction.

As no operational changes to the Park would occur under the Mechanical Treatment Alternative, the operation of the Park under this alternative would generally not differ from existing conditions. However, the water quality of the Lake would be improved by an underground mechanical treatment facility, which would require daily visits by a trained operator and periodic visits by a truck to replenish chemical supplies. As such, the transport, use, or disposal of significant quantities of hazardous materials, including, but not limited to oils, pesticides, or chemicals would be routinely required under this alternative. Any chemicals or pesticides related to the maintenance of the grass and landscaping at the project site would be stored in relatively small quantities in appropriate containers and handled in accordance with the manufacturer's instructions to protect the health and safety of Park employees and patrons. Similar to the proposed project, some new mechanical equipment would be introduced around the Lake (i.e., new pump station, hydrodynamic separator, etc.); however, these facilities would not introduce significant quantities of any hazardous materials to the Park. Similar to the proposed project, upon completion, the Mechanical Treatment Alternative would be consistent with the RWQCB's intent to restore the existing and potential beneficial water quality uses in the Lake. As such, the Mechanical Treatment Alternative would result in less than significant impacts related to the routine transport, use, or disposal of hazardous materials during operations.

HYDROLOGY AND WATER QUALITY

Similar to the proposed project, the Mechanical Treatment Alternative would result in less than significant impacts related to the violation of water quality standards. A primary objective of both the proposed project and the Mechanical Treatment Alternative is to improve the water quality of the Lake. The Mechanical Treatment Alternative would be required to develop a SWPPP and implement construction BMPs to outline the control of storm water pollution runoff and waste management during construction. This would reduce the potential for soil erosion and release of other pollutants into the Lake, during construction. The City would be required to develop a Wet Weather Erosion Control Plan for construction activities that would occur during the rainy season. These measures would minimize the amount of runoff and associated pollutants leaving the construction site by containing runoff on-site, containing sediments on-site, and minimizing the potential for storm water to come into contact with pollutants. Similar to the proposed project, compliance with existing regulations would ensure that the

Mechanical Treatment Alternative would not violate a water quality standard or otherwise substantially degrade water quality, resulting in a less than significant impact.

Similar to the proposed project, the Mechanical Treatment Alternative would include hydrodynamic separators, rain gardens, porous pavement systems, and an integrated irrigation system in order to improve the Lake water quality. In addition, an underground mechanical treatment facility would treat and improve the water quality of the Lake. The current use of pesticides or herbicides would continue with the Mechanical Treatment Alternative and impact the quality of storm water runoff eventually entering the Lake. As such, the Mechanical Treatment Alternative would violate water quality standards and potentially degrade water quality in the Lake. With the implementation of mitigation, the operational impacts of the Mechanical Treatment Alternative on water quality would be less than significant.

As with the proposed project, during the construction of the Mechanical Treatment Alternative, grading, excavation, and other site preparation would create additional exposed earth and, if not controlled, surface water can move greater quantities of sediment to local drainages and flood control facilities, such as Echo Park Lake. The development of a SWPPP and Wet Weather Erosion Control Plan would reduce the potential for soil erosion and release of other pollutants into the Lake during construction. Further, compliance with existing NPDES regulations during construction would ensure that the Mechanical Treatment Alternative would not alter existing drainage such that it would result in substantial erosion, siltation, or flooding on- or off-site, resulting in a less than significant impact.

The Mechanical Treatment Alternative would not result in an increased flow to the storm drain system as compared to existing conditions and would be designed to meet the required capacity of the drainage of the project site. Storm water runoff drains by sheet flow to vegetated areas where it percolates into the ground. Surface runoff adjacent to the Lake also drains into the Lake depending on the topography and if any landscaping or other features impede the flow. Drainage patterns within the project site would not be altered by the Mechanical Treatment Alternative. Similar to the proposed project, the Mechanical Treatment Alternative would result in less surface runoff because no new impervious areas would be constructed and existing asphalt pathways would be replaced with pervious materials, resulting in a less than significant impact.

The Lake is located within a 100-year flood zone and it is designed to protect against flooding. The remainder of the project site, consisting of the open recreational space, is located outside of the 100-year flood zone. Similar to the proposed project, the Mechanical Treatment Alternative would construct a new outlet structure and relocate the existing pumps station to the southern portion of the project site. These structures would be small and would not be located within the Lake bed. The construction activities would be short-term and no structures would impede flow to the existing storm drain systems. Similar to the proposed project, this alternative would be constructed by draining the Lake, and then dividing the Lake bed with the partition berm into a south and north cell. This construction process would ensure that a detention basin is available on the project site during construction in the event of a storm. As such, the Mechanical Treatment Alternative would result in less than significant impacts related to placing structures within the 100-year flood zone, potentially impeding or redirecting flow.

NOISE

The proposed project would result in a significant and unavoidable impact related to on-site construction noise and a less than significant impact related to ground-borne vibration. Construction activity associated with the Mechanical Treatment Alternative would generally result in similar noise and vibration levels compared to the proposed project because the construction scenario would be similar. The additional excavation activities required for the construction of the underground mechanical treatment facility may potentially increase noise levels related to construction trucks hauling excavated materials. Construction-related worker vehicle travel noise would be similar to the proposed project. Daily noise and vibration levels would also be similar as compared to the proposed project. Thus, the Mechanical Treatment Alternative would result in similar construction noise and vibration impacts.

The Mechanical Treatment Alternative would require daily visits by a trained operator and periodic visits by a truck to replenish chemical supplies. As such, this alternative would generate a nominal amount of daily traffic trips in addition to existing conditions. It is not anticipated that these trips would result in a noticeable or substantial increase in noise from mobile sources. As such, the Mechanical Treatment Alternative would result in less than significant impacts related to mobile noise.

RECREATION

As with the proposed project, the construction phase of the Mechanical Treatment Alternative would be temporary in nature. Similar to the proposed project, under this alternative the entire project site would be fenced and closed to the public for the duration of the 26-month-long construction phase. In addition, activities associated with other recreational facilities in the project area, including 36 water bodies within a 20-mile radius of the project site, would not be disrupted by the Mechanical Treatment Alternative. These other existing recreational facilities would maintain service to current users and would not be impacted by construction of the Mechanical Treatment Alternative. Construction impacts related to recreation would be similar to the proposed project. As such, the Mechanical Treatment Alternative would result in less than significant impacts related to the increased use and physical deterioration of parks.

Once the construction of the Mechanical Treatment Alternative is completed, the project site would not operate or contain major new recreational features different from the proposed project and existing conditions. As with the proposed project, the Mechanical Treatment Alternative would include the rehabilitation of an existing recreational facility and would not construct a new facility. The new overlook, boardwalk, interpretive signage, and other features are not anticipated to result in an increased use of the facility such that substantial physical deterioration of the facility would occur or be accelerated. Also, this alternative would not result in the construction of new residences or facilitate the development of residences and, therefore, would not result in increased population that would require the construction or expansion of recreational facilities. Similar to the proposed project, the Mechanical Treatment Alternative would result in less than significant operational impacts related to the physical deterioration and construction or expansion of recreational facilities.

TRANSPORTATION AND TRAFFIC

Similar to the proposed project, the Mechanical Treatment Alternative would not substantially alter the operation of the project site from existing conditions. However, this alternative would require daily visits by a trained operator and periodic visits by a truck to replenish chemical supplies. These additional traffic trips would be considered nominal and are not anticipated to result in an operational traffic impact. However, additional traffic trips would be generated during construction due to the additional trucks required to haul materials and soil from the project site due to the excavation that would occur as part of the construction of the underground mechanical treatment facility. For the most intense portion of the proposed project construction, the proposed project would generate approximately 505 daily trips (80 worker trips and 425 PCE truck trips). During the morning peak hour, the proposed project would generate approximately 40 inbound worker trips and 54 PCE truck trips (27 inbound, 27 outbound). During the evening peak hour, the proposed project would generate approximately 40 outbound worker trips and 54 PCE truck trips (27 inbound, 27 outbound). During the construction phase, the proposed project would result in temporary adverse impacts at the intersection of Glendale Boulevard and Temple Street, requiring mitigation. The Mechanical Treatment Alternative would result in a slight increase in construction truck trips as compared to the proposed project. However, this would not likely add an impact at an additional intersection or substantially increase the degree of impact at the intersection of Glendale Boulevard and Temple Street. The implementation of mitigation measures is anticipated to reduce potential construction traffic impacts under the Mechanical Treatment Alternative.

CONCLUSION

The Mechanical Treatment Alternative would develop a rehabilitated project site with a similar purpose as the proposed project. However, this alternative would include an underground mechanical treatment facility in lieu of the constructed wetlands that would be provided with the proposed project, in order to treat and improve the water quality of the Lake.

The construction phase for the Mechanical Treatment Alternative would be similar to the construction phase for the proposed project in regards to duration and process. However, the underground mechanical treatment facility would require excavation activities and truck hauling in addition to that assumed for the proposed project. Also, this alternative would require daily visits by a trained operator and periodic visits by a truck to replenish chemical supplies during the operational phase. Similar to the proposed project, the Mechanical Treatment Alternative would not construct any new buildings other than the small outlet structure and new pump station, which are uses that currently exist on the project site. Compared to the proposed project, the Mechanical Treatment Alternative would generally result in reduced impacts related to aesthetics and cultural resources; this alternative would have similar impacts to the proposed project related to operational air quality, biological resources, hydrology and water quality, and recreation. The Mechanical Treatment Alternative would have greater impacts than the proposed project related to construction air quality, hazards and hazardous materials, construction noise and vibration, operational noise and vibration, and transportation and traffic. Also, the Mechanical Treatment Alternative would meet all of the objectives of the proposed project.

5.3.4 WETLANDS RECONFIGURATION ALTERNATIVE

Under the Wetlands Reconfiguration Alternative, 8.5 acres of constructed wetlands would be provided within the Lake to treat and improve the water quality of the Lake. This alternative would be designed to meet water quality objectives. This alternative would include an additional 4.3 acres of constructed wetlands above the proposed project's 4.2 acres. Two wetlands reconfiguration options are included under this alternative. For Option 1, of the total 8.5 acres of constructed wetlands included under this alternative, 2.7 acres would be provided within the northeastern lobe of the Lake, encompassing the man-made island. The remaining 5.8 acres of wetlands would be located within the southern portion of the Lake and edge wetlands along the eastern and western shores.

Option 2 would involve placing 2.7 acres of constructed wetlands within the northeastern lobe of the Lake, encompassing the man-made island. In addition, 5.8 acres of wetlands would be placed in the center of the Lake to preserve the open water visual quality near the Lake shore. Although feasible, the recirculation of Lake water through this central Lake wetland would be complex in terms of arranging the distribution piping network and outlets. This central wetland configuration would also interfere with the use of the Lake for dragon boat races during the annual Lotus Festival.

Similar to the proposed project, the project site would be fenced and closed during the construction phase of the Wetlands Reconfiguration Alternative. The construction scenario would be similar to the proposed project. However, the installation of 4.3 additional acres of wetlands as compared to the proposed project would result in a slight increase construction truck trips. The operations of the project site after the completion of the Wetlands Reconfiguration Alternative would be similar to the proposed project, which would not change operations from existing conditions. In addition, the lighting options considered with the proposed project are also assumed for this alternative.

AESTHETICS

As with the proposed project, the construction phase of the Wetlands Reconfiguration Alternative would represent a temporary change in the visual environment of the project site. The temporary visual change would remain for a 26-month-long construction phase, similar to the proposed project. The project site would be fenced and closed to the public during the construction phase, reducing the direct exposure of the visual change to Park patrons. However, this temporary visual change would be visible to project area residents, patrons and employees of other uses in the project area, as well as passing motorists. Because of the fencing off the project site and the relative uniqueness of the construction process (i.e., the draining and lining of a lake) the site would not appear to be similar to other construction sites throughout the City and in nearby urban areas. Similar to the proposed project, the project site during construction may potentially stand out as a memorable or remarkable feature in the landscape due to its temporary change in the visual character and quality of the site and its surroundings. The construction impact would be temporary in nature, similar to the proposed project. During the operational phase, the visual impacts would be altered from the proposed project. This alternative would include 4.3 additional acres of constructed wetlands within the Lake as compared the proposed project. Under Option 1, which includes

installing the wetlands within the northeastern lobe, the southern portion of the Lake, and along the eastern and western edges, the Wetlands Reconfiguration Alternative would result in a greater visual change than the proposed project.

Under Option 2, which includes installing the wetlands within the center of the Lake, altering the open water visual quality of the center of the Lake, the Wetlands Reconfiguration Alternative would result in a greater visual change than the proposed project.

Both options under this alternative would consider a solar lighting option, similar to the proposed project, which would result in a significant and unavoidable visual contrast and intrusion as discussed in Chapter 3.1, Aesthetics. As such, the Wetlands Reconfiguration Alternative would likely result in a significant and unavoidable impact on the visual character of the project site and surroundings.

AIR QUALITY

The Wetlands Reconfiguration Alternative would have a similar duration of construction activity as assumed for the proposed project. The amount of pollutant emissions during the entire Wetlands Reconfiguration Alternative construction period would be similar to the amount of pollutants emitted during the entire proposed project construction period. The daily construction intensity (e.g., construction equipment hours) assumed for the Wetlands Reconfiguration Alternative would be similar to the daily construction intensity assumed for the proposed project. However, this alternative would include the installation of 4.3 additional acres of wetlands, which would require additional construction truck trips. With the implementation of mitigation measures, the proposed project would result in a less than significant impact related to VOC, CO, $PM_{2.5}$, and PM_{10} emissions, but a significant and unavoidable impact related to NO_X emissions. Accordingly, the Wetlands Reconfiguration Alternative daily regional construction emissions of VOC, NO_X, CO, $PM_{2.5}$, and PM_{10} would result in a significant unavoidable impact.

Localized $PM_{2.5}$ and PM_{10} construction emissions were calculated based on the amount of acres of land to be disturbed per day. The size of the project site would not change under the Wetlands Reconfiguration Alternative. In addition, the acres of land graded per day would be similar to the proposed project. This would result in fugitive dust emissions that are similar to the proposed project, which would exceed the SCAQMD localized significance thresholds for PM_{10} and $PM_{2.5}$ with the implementation of mitigation.

Similar to the proposed project, the Wetlands Reconfiguration Alternative would not generate any additional traffic trips during the operational phase because the operation of the project site would not change from existing conditions. Therefore, regional emissions associated with this alternative would not exceed the SCAQMD operational significance thresholds. Therefore, the Wetlands Reconfiguration Alternative would result in a less than significant impact related to operational phase regional air quality emissions.

Mobile source emissions associated with the construction truck trips of the Wetlands Reconfiguration Alternative would result in similar localized CO emissions to the proposed project. However, this alternative would include the installation of 4.3 additional acres of wetlands, which would require additional construction truck trips. For the proposed project, the maximum project-related one- and eight-hour CO concentrations were estimated to be 3 ppm and 2.7 ppm to 2.8 ppm, respectively. These concentrations are well below the state one- and eight-hour standards of 20 ppm and 9.0 ppm, respectively. Since CO concentrations for the proposed project are well below the state standards, the additional construction truck trips required to deliver the additional wetlands under the Wetlands Reconfiguration Alternative are not anticipated to increase CO concentrations above the state standards. Therefore, the Wetlands Reconfiguration Alternative would result in a less than significant impact related to localized CO emissions.

The Wetlands Reconfiguration Alternative would have a similar construction process and duration as the proposed project, resulting in similar exposure concentrations to diesel particulate matter generated during construction activity. However, this alternative would include the installation of 4.3 additional acres of wetlands, which would require additional construction truck trips. For the proposed project, the maximum off-site annual concentration would be 0.85 micrograms per cubic meter. This results in a carcinogenic risk of 2.2 persons in one million, which is less than the 10 persons in one million significance threshold. It is not anticipated that the Wetlands Reconfiguration Alternative would result in a carcinogenic risk of 10 or more persons in one million. Therefore, similar to the proposed project, the Wetlands Reconfiguration Alternative would result in less than significant impacts on construction-related diesel emissions.

Similar to the proposed project, the Wetlands Reconfiguration Alternative would involve the removal of sediment and other materials from the Lake bed. Once these materials are removed, they would be required to be piled in the staging areas established on the project site and dried for a period of approximately one to two months. During the drying activities, various odors may be emitted from the sediment piles due to decomposition of organic materials, potentially temporarily impacting the sensitive receptors in the project area. The Lake has an aeration and circulation system that would assist in minimizing the potential for excessive amounts of organic material in the sediment. Any odor created by the Wetlands Reconfiguration Alternative would be temporary. Therefore, the Wetlands Reconfiguration Alternative would result in less than significant impacts related to odors.

The Wetlands Reconfiguration Alternative would generate a greater amount of GHG emissions as estimated for the proposed project because the number of construction truck trips would be increased. This alternative would include the installation of 4.3 additional acres of wetlands, which would require additional construction truck trips. Similar to the proposed project, the Wetlands Reconfiguration Alternative would permanently reduce the amount of municipal water required to maintain the water level of the Lake and would reduced water-related energy uses. As such, long-term GHG emissions would be reduced. The construction of the Wetlands Reconfiguration Alternative would be in compliance with the applicable adopted plans, policies and regulations adopted by CARB. Therefore, the Wetlands Reconfiguration Alternative would result in a less than significant impact related to greenhouse gases.

BIOLOGICAL RESOURCES

Under the Wetlands Reconfiguration Alternative, impacts to biological resources would be similar to the proposed project. Similar to the proposed project, any sensitive animal species that exist in the trees of the Park would be temporarily impacted during construction, requiring the implementation of mitigation measures. The Wildlife Relocation Plan prepared for the proposed project would also be implemented with the construction of this alternative. Similar to the proposed project, potential indirect noise impacts may also occur to native migratory birds from short-term construction noise, including nesting great blue herons on the man-made island within the northeastern lobe of the Lake. As with the proposed project, the Wetlands Reconfiguration Alternative would remove all aquatic species from the Lake and the blue herons would temporarily lose all year-round food supply. Although potential nesting habitat would still be present the following spring and with the four temporary ponds provided on the project site, while construction is presumably ongoing, the herons may still be deterred from nesting by the reduced amount of food resources and by construction activities. Similar to the proposed project, with the implementation of mitigation measures, the Wetlands Reconfiguration Alternative would result in a less than significant impact related to special status species.

There are no sensitive natural vegetation communities at the Park. The native vegetation that was once present on the project site was completely removed with the urbanization of the area. Similar to the proposed project, the Wetlands Reconfiguration Alternative would result in less than significant impacts related to sensitive natural communities.

Areas of the project site under the jurisdiction and regulatory administration of CDFG include 14.14 acres of potential jurisdictional waters of the U.S. composed of unvegetated waters, as well as an additional 2.34 acres of non-USACE jurisdictional riparian habitat for a total area of approximately 16.48 acres of potential jurisdictional waters. Similar to the proposed project, the Wetlands Reconfiguration Alternative is a restoration project that would result in a net ecological benefit including improved Lake water quality; however, all of these areas would be temporarily impacted by this alternative. Similar to the proposed project, with the implementation of mitigation measures, the Wetlands Reconfiguration Alternative would result in less than significant impacts related to jurisdictional waters of the U.S.

Although the Park is not part of a major contiguous linkage between areas of open space, similar to the proposed project, direct impacts may occur to local wildlife movement corridors as a result of the Wetlands Reconfiguration Alternative. Temporary loss of open water habitat would have a significant impact on local wildlife such as birds, fish, turtles, and other wildlife that utilize the Lake. Similar to the proposed project, with the implementation of mitigation measures, the Wetlands Reconfiguration Alternative would result in less than significant impacts related to local wildlife.

Similar to the proposed project, the existing artificial wetlands in the Lake would be removed with the Wetlands Reconfiguration Alternative. If migratory birds were found to be nesting in the artificial wetlands, temporary removal of the floating wetlands during the breeding season would constitute a significant impact to nesting waterfowl under the protection of the MBTA. Potential indirect noise

impacts may also occur to native migratory birds from short-term construction noise, including nesting great blue herons on the man-made island in the northeastern lobe of the Lake. In addition, the Wetlands Reconfiguration Alternative would ultimately remove the same amount of trees on the project site as with the proposed project, resulting in a temporary loss of habitat for migratory wildlife. However, approximately 86 new healthy trees would be planted on the project site, for an overall net growth of habitat. Similar to the proposed project, with the implementation of mitigation measures, the Wetlands Reconfiguration Alternative would result in less than significant impacts related to migratory birds, migratory wildlife corridors, and wildlife nursery sites. Additionally, the impacts of the Wetlands Reconfiguration Alternative related to the loss of trees protected by the City of Los Angeles, would be similar to the proposed project and would be reduced with the implementation of mitigation measures.

CULTURAL RESOURCES

Similar to the proposed project, the construction of the Wetlands Reconfiguration Alternative would result in significant impacts to the historic resources and features of the Park without the consideration of design features and construction BMPs, as summarized in Chapter 2.0, Project Description, and without the implementation of mitigation measures.

A majority of the historic vegetation on the project site has been removed or has not survived. The northwestern lobe of the Lake formerly included a historic lotus bed that has diminished and failed to survive in recent years. The Wetlands Reconfiguration Alternative would restore the lotus bed, as well as plant new lotus plants of a similar species to those of the historic period of significance of the project site. Many of the trees on the project site appear to remain from the historic period of significance and contribute to the historic views seen from the Park. Similar to the proposed project, the Wetlands Reconfiguration Alternative would include the removal of numerous trees including a designated Heritage tree and several City street trees. Some of the trees to be removed have been identified as contributing to the Park's historic significance. Compliance with applicable RAP and other City policies would ensure that trees are properly removed and replaced. In addition, the project landscape plan would be implemented under this alternative, which outlines the protection, removal, and replacement of Park and City street trees. This landscape plan takes into consideration the importance of maintaining the Park's historic significance and would plant more trees than would be removed. Similar to the proposed project, with the implementation of mitigation measures, the Wetlands Reconfiguration Alternative would result in less than significant impacts related to historic vegetation.

As with the proposed project, although construction activities may impact the paths and the Lake edge, the Wetlands Reconfiguration Alternative would re-align paths to their historic configuration and enhance the historic edging of the Lake. Any overlook or boardwalk constructed under the Wetlands Reconfiguration Alternative would be placed in areas along the Lake edge where there are currently concrete structures (i.e., the storm water overflow area and the outfall structures/ramps). As with the proposed project, the addition of the overlook and boardwalk areas to the Lake edge under the Wetlands Reconfiguration Alternative would not substantially change the Lake edge from existing conditions. In

addition, the overlook and boardwalk areas would be an improvement as compared to the existing storm water overflow area and outfall structures/ramps.

In the Park's historic period of significance, the Lake was known for being characterized as an open body of water. Similar to the proposed project, under the Wetlands Reconfiguration Alternative constructed wetland areas would be installed within the Lake to improve the currently poor water quality conditions within the Lake. Option 1 of the Wetlands Reconfiguration Alternative would include the installation of wetlands within the northeastern lobe of the Lake, within the southern portion, and along the eastern and western edges of the Lake. Placing the wetlands at these locations within the Lake would retain the open water visual quality of the center of the Lake. Although this alternative would place wetlands at similar locations as with the proposed project, this alternative would include 4.3 more total acres of wetlands within the Lake. As such, impacts would be greater than under the proposed project.

Option 2 includes placing the wetlands within the northeastern lobe and the center of the Lake. As a result, Option 2 would retain the open water quality of the southern portion of the Lake, as well as the eastern and western edges of the Lake. Placing the wetlands at these locations would result in a greater impact than with the proposed project, although it would increase the open water visual quality of the northeastern lobe and the southern portion of the Lake. This is due to the decrease in open water visual quality of the center of the Lake, which is characteristic of the Lake during its historic period of significance, as well as the total increase in wetland acreage. Therefore, the impacts of the Wetlands Reconfiguration Alternative related to the historic open water visual quality of the Lake would be greater than with the proposed project.

Similar to the proposed project, the boathouse, Lady of the Lake statue, and bronze bust sculpture of José Martí would be protected under the Wetlands Reconfiguration Alternative. The boathouse and sculpture of José Martí would be protected in place, while the Lady of the Lake statue would be relocated to its original location at the current location of the pump station on the northern peninsula. The relocation of the Lady of the Lake statue and the preservation of the boathouse and José Martí sculpture would be in compliance with applicable requirements of the City of Los Angeles Department of Cultural Affairs, the City department that oversees such cultural resources. Also similar to the proposed project, the sloping topography at the peninsula, the flat topography of the island, and the bowl shape of the Lake bed would remain from the historic period of significance under the Wetlands Reconfiguration Alternative. With the implementation of mitigation measures that follow the Secretary of the Interior's *Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*, both the proposed project and the Wetlands Reconfiguration Alternative would result in less than significant impacts related to historic resources. However, with the addition of solar lighting with this alternative, similar to the proposed project, a significant and unavoidable impact would result for historic resources due to the loss of historic integrity.

No prehistoric or historic archaeological resources have been previously recorded within the limits of the project site. The survey conducted in association with the proposed project did not reveal any surface evidence of archaeological resources within the project site. However, the lack of surface evidence of

archaeological materials does not preclude the possibility that subsurface archaeological materials may exist. The Wetlands Reconfiguration Alternative is not anticipated to require grading or excavation activities beyond the extent of such activities associated with the proposed project. As such, with the implementation of mitigation measures, the Wetlands Reconfiguration Alternative would result in less than significant impacts related to archaeological resources.

HAZARDS AND HAZARDOUS MATERIALS

As with the proposed project, under the Wetlands Reconfiguration Alternative it is anticipated that contaminated soils that have been identified at the project site would be remediated in accordance with City, state, and federal regulations prior to being transported to a designated landfill. In addition, DTSC would be notified and a work plan created outlining the disposal and post remedial sampling. With the implementation of mitigation measures, the Wetlands Reconfiguration Alternative would result in less than significant impacts related to the routine transport, use, or disposal of hazardous materials during construction.

The operation of the proposed project would not be altered from existing conditions. As no operational changes to the Park would occur under the Wetlands Reconfiguration Alternative, the operation of the Park under this alternative would not differ from existing conditions. The transport, use, or disposal of significant quantities of hazardous materials, including, but not limited to oils, pesticides, or chemicals would not be routinely required. Any chemicals or pesticides related to the maintenance of the grass and landscaping at the project site would be stored in relatively small quantities in appropriate containers and handled in accordance with the manufacturer's instructions to protect the health and safety of Park employees and the public. Similar to the proposed project, some new mechanical equipment would be introduced adjacent to the Lake (i.e. new pump station, hydrodynamic separator); however, these facilities would not introduce significant quantities of any hazardous materials to the Park. Similar to the proposed project, upon completion, the Wetlands Reconfiguration Alternative would be consistent with the RWQCB's intent to restore the existing and potential beneficial water quality uses in the Lake. As such, the Wetlands Reconfiguration Alternative would result in less than significant impacts related to the routine transport, use, or disposal of hazardous materials during operations.

HYDROLOGY AND WATER QUALITY

A primary objective of both the proposed project and the Wetlands Reconfiguration Alternative is to improve the water quality of the Lake. The Wetlands Reconfiguration Alternative would be required to develop a SWPPP and implement construction BMPs to outline the control of storm water pollution runoff and waste management during construction. This would reduce the potential for soil erosion and release of other pollutants into the Lake, during construction. The City would be required to develop a Wet Weather Erosion Control Plan for construction activities that would occur during the rainy season. These measures would minimize the amount of runoff and associated pollutants leaving the construction site by containing runoff on-site, containing sediments on-site, and minimizing the potential for storm water to come into contact with pollutants. Similar to the proposed project, compliance with existing

regulations would help to ensure that the Wetlands Reconfiguration Alternative would not violate a water quality standard or otherwise substantially degrade water quality, resulting in less than significant impacts. This alternative would result in greater water quality benefit than the proposed project due to the increased acreage of constructed wetlands. However, both the proposed project and the Wetlands Reconfiguration Alternative would ensure that the Lake's water quality is improved to applicable standards.

Similar to the proposed project, the Wetlands Reconfiguration Alternative would include hydrodynamic separators, constructed wetlands, rain gardens, porous pavement systems, and an integrated irrigation system in order to improve the Lake's water quality. The current use of pesticides or herbicides would continue with the Wetlands Reconfiguration Alternative and impact the quality of storm water runoff eventually entering the Lake. As such, the Wetlands Reconfiguration Alternative would violate water quality standards and potentially degrade water quality in the Lake. However, this alternative would include an increased acreage of constructed wetlands, resulting in a very effective water quality improvement system, similar to the proposed project. With the implementation of mitigation, the operational impacts of the proposed project on water quality would be less than significant. Water quality impacts with the Wetlands Reconfiguration Alternative would also be less than significant.

As with the proposed project, during the construction of the Wetlands Reconfiguration Alternative, grading and other site preparation would create additional exposed earth and, if not controlled, surface water can move greater quantities of sediment to local drainages and flood control facilities, such as Echo Park Lake. The development of a SWPPP and Wet Weather Erosion Control Plan would reduce the potential for soil erosion and release of other pollutants into the Lake during construction. Further, compliance with existing NPDES regulations during construction would ensure that the Wetlands Reconfiguration Alternative would not alter existing drainage such that it results in substantial erosion, siltation, or flooding on- or off-site, resulting in a less than significant impact.

The Wetlands Reconfiguration Alternative would not result in an increased flow to the storm drain system as compared to the proposed project and would be designed to meet the required capacity of the drainage of the project site. Storm water runoff drains by sheet flow to vegetated areas where it percolates into the ground. Surface runoff adjacent to the Lake also drains into the Lake depending on the topography and if any landscaping or other features impede the flow. Drainage patterns within the project site would not be altered by the Wetlands Reconfiguration Alternative. Similar to the proposed project, the Wetlands Reconfiguration Alternative would result in less surface runoff because no new impervious areas would be constructed and existing asphalt pathways would be replaced with pervious materials, resulting in a less than significant impact.

The Lake is located within a 100-year flood zone and it is designed to protect against flooding. The remainder of the project site, consisting of the open recreational space, is located outside of the 100-year flood zone. Similar to the proposed project, the Wetlands Reconfiguration Alternative would construct a new outlet structure and construct a new pump station on the southern portion of the project site. These structures would be small and would not be located within the Lake bed. The construction activities

would be short-term and no structures would impede flow to the existing storm drain systems. Similar to the proposed project, this alternative would be constructed by draining the Lake, and then dividing the Lake bed with the partition berm into a south and north cell. This construction process would ensure that a detention basin is available on the project site during construction in the event of a storm. As such, the Wetlands Reconfiguration Alternative would result in less than significant impacts related to placing structures within the 100-year flood zone, potentially impeding or redirecting flow.

NOISE

The proposed project would result in a significant and unavoidable impact with mitigation related to on-site construction noise, and a less than significant impact related to ground-borne vibration. Construction activity associated with the Wetlands Reconfiguration Alternative would result in similar noise and vibration levels and exposure to the proposed project, since the construction process and duration for this alternative would be similar to the proposed project. Construction-related worker vehicle travel noise would be similar to the proposed project. This alternative would include the installation of 4.3 additional acres of wetlands, which would require additional construction truck trips, potentially resulting in an increase in construction noise and vibration levels related to construction trucks. Thus, the Wetlands Reconfiguration Alternative would result in greater construction noise and vibration impacts.

Similar to the proposed project, the Wetlands Reconfiguration Alternative would not generate any daily vehicle trips in addition to existing conditions. As such, no additional noise related to mobile sources would be created. The Wetlands Reconfiguration Alternative would result in less than significant impacts related to mobile noise during operations.

RECREATION

As with the proposed project, the construction phase of the Wetlands Reconfiguration Alternative would be temporary in nature. The entire project site would be fenced and closed to the public for the duration of the construction of the Wetlands Reconfiguration Alternative. As such, the recreational uses and amenities associated with the Park and Lake would not be available for public use during this time. However, activities associated with other recreational facilities in the project area would not be disrupted by the Wetlands Reconfiguration Alternative. These other existing recreational facilities would maintain service to current users and would not be impacted by the construction of the Wetlands Reconfiguration Alternative. Construction impacts related to recreation would be similar to the proposed project. As such, the Wetlands Reconfiguration Alternative would result in less than significant impacts related to the increased use and physical deterioration of parks.

Once the construction of the Wetlands Reconfiguration Alternative is completed, the project site would not operate or contain major new recreational features in addition to those with the proposed project and existing conditions. As with the proposed project, the Wetlands Reconfiguration Alternative would include the rehabilitation of an existing recreational facility and would not construct a new facility. The new overlook, boardwalk, interpretive signage, and other new features are not anticipated to result in an

increased use of the facility such that substantial physical deterioration of the facility would occur or be accelerated. Also, this alternative would not result in the construction of new residences or facilitate the development of residences and, therefore, would not result in increased population that may require the construction or expansion of recreational facilities. This alternative includes an option that would place wetlands within the central portion of the Lake (Option 2), interfering with the use of the Lake for dragon boat races during the annual Lotus Festival. Option 1 includes placing the wetlands within the northeastern lobe, the southern portion, and the eastern and western edges of the Lake would not interfere with this activity. As such, the Wetlands Reconfiguration Alternative would generally result in greater operational impacts related to the physical deterioration and construction or expansion of recreational facilities.

TRANSPORTATION AND TRAFFIC

Similar to the proposed project, the Wetlands Reconfiguration Alternative would not generate any new traffic trips during operations as the operations of the project site would not be altered. However, additional traffic trips would be generated during construction due to trucks and construction worker vehicles traveling to and from the project site. For the most intense portion of the proposed project construction, the proposed project would generate approximately 505 daily trips (80 worker trips and 425 PCE truck trips). During the morning peak hour, the proposed project would generate approximately 40 inbound worker trips and 54 PCE truck trips (27 inbound, 27 outbound). During the evening peak hour, the proposed project would generate approximately 40 outbound worker trips and 54 PCE truck trips (27 inbound, 27 outbound). The proposed project would result in temporary adverse impacts at the intersection of Glendale Boulevard and Temple Street, requiring mitigation. The Wetlands Reconfiguration Alternative would include the installation of 4.3 additional acres of wetlands, which would require additional construction truck trips. Although the construction process and duration of the Wetlands Reconfiguration Alternative would be similar to the proposed project, due to the additional wetlands that would require delivery to the project site via truck, this alternative would result in greater traffic impacts than with the proposed project.

CONCLUSION

The Wetlands Reconfiguration Alternative would develop a rehabilitated project site similar to the proposed project. However, the placement and acreage of the constructed wetlands would be altered from the proposed project. Similar to the proposed project, the Wetlands Reconfiguration Alternative would not construct any new buildings other than the small outlet structure and new pump station, which are uses that currently exist on the project site. Compared to the proposed project, the Wetlands Reconfiguration Alternative would not result in any reduced impacts. Compared to the proposed project, the Wetlands Reconfiguration Alternative would have similar impacts to the proposed project related to operational air quality, biological resources, hazards and hazardous materials, hydrology and water quality, operational noise and vibration, and recreation (Option 1 only). The Wetlands Reconfiguration Alternative would have greater impacts related to aesthetics, construction air quality, cultural resources, construction noise and vibration, recreation (Option 2 only), and transportation and traffic as compared to

the proposed project. The Wetlands Reconfiguration Alternative would meet all of the project objectives. However, under Option 2 the recirculation of Lake water through this central Lake wetland would be complex in terms of arranging the distribution piping network and outlets. This central wetland configuration would also interfere with the use of the Lake for dragon boat races during the annual Lotus Festival.

5.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The "No Project" alternative would be the environmentally superior alternative primarily because no construction activities would occur on the project site. However, this alternative would not improve the water quality of the Lake, which is considered the primary environmental issue related to the project site. In accordance with Section 15126.6(e) (2) of the CEQA Guidelines, if the environmentally superior alternative is the No Project Alternative, then the EIR shall also identify an environmentally superior alternative among the other alternatives. Table 5-1 provides a comparison of the impacts of the alternatives to the proposed project. The Mechanical Treatment Alternative would reduce cultural resources impacts as compared to the proposed project. The Wetlands Reconfiguration Alternative, considering both Options 1 and 2, would not reduce impacts in any environmental issue area as compared to the proposed project. Both the Mechanical Treatment Alternative and Wetlands Reconfiguration Alternative would result in greater impacts in at least five environmental issue areas. As such, the proposed project would be considered the environmentally superior alternative.

TABLE 5-1 COMPARISON OF IMPACTS FOR THE PROPOSED PROJECT AND THE ALTERNATIVES

Impact Area	Proposed Project	No Project Alternative	Mechanical Treatment Alternative	Wetlands Reconfiguration Alternative (Option 1)	Wetlands Reconfiguration Alternative (Option 2)
Aesthetics	I	IV (Less)	I (Less)	I (Greater)	I (Greater)
Air Quality: Construction Operation	I III	IV (Less) IV (Similar)	I (Greater) III (Similar)	I (Greater) III (Similar)	I (Greater) III (Similar)
Biological Resources	II	IV (Less)	II (Greater)	II (Similar)	II (Similar)
Cultural Resources	II	IV (Less)	II (Less)	II (Greater)	II (Greater)
Hazards and Hazardous Materials	II	IV (Less)	II (Greater)	II (Similar)	II (Similar)
Hydrology and Water Quality	II	II (Greater)	II (Similar)	II (Similar)	II (Similar)
Noise/Vibration: Construction Operation	I III	IV (Less) IV (Similar)	I (Greater) III (Greater)	I (Greater) III (Similar)	I (Greater) III (Similar)
Recreation	III	IV (Less)	III (Similar)	III (Similar)	III (Greater)
Transportation and Traffic	II	IV (Less)	II (Greater)	II (Greater)	II (Greater)

Notes:

I: Significant Unavoidable Impact
II: Potentially Significant Impact Unless Mitigated
III: Less Than Significant Impact
IV: No Impact

Less: Impact is lower in magnitude than impacts of the proposed project
Similar: Impact is similar in magnitude to impacts of the proposed project
Greater: Impact is greater in magnitude than impacts of the proposed project
Mixed: Some impacts are less than, similar to, and/or greater in magnitude than impacts of the proposed project

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6.0 ACRONYMS AND ABBREVIATIONS

BMP	Best Management Practice
BOE	City of Los Angeles, Department of Public Works, Bureau of Engineering
BOS	City of Los Angeles Bureau of Sanitation
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CFCs	chlorofluorocarbons
CH_4	methane
City	City of Los Angeles
CMP	Congestion Management Program
CNEL	community noise equivalent level
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide-equivalent
dB	decibel
dBA	A-weighted decibel
diesel PM	diesel particulate emissions
DSOD	California Department of Water Resources Division of Safety of Dams
DTSC	Department of Toxic Substance Control
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency

6.0 Acronyms and Abbreviations

°F	degrees Fahrenheit
GHGs	greenhouse gases
HCM	City of Los Angeles Historic-Cultural Monument
HPOZ	Historic Preservation Overlay Zone
LADOT	Los Angeles Department of Transportation
L_{dn}	day-night average sound level
lead agency	City of Los Angeles, Department of Public Works, Bureau of Engineering
L_{eq}	equivalent noise level
LOS	level of service
LST	Localized Significance Threshold
Metro	Los Angeles County Metropolitan Transportation Authority
$\mu g/m^3$	micrograms per cubic meter
N_2O	nitrous oxide
NO	nitric oxide
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
O_3	ozone
OPR	Office of Planning and Research
Park	Echo Park Lake
Pb	lead
PCE	perchloroethylene
$PM_{2.5}$	fine particulate matter
PM_{10}	inhalable particulate matter

ppm	parts per million
proposed project	Echo Park Lake Rehabilitation Project
RAP	City of Los Angeles Department of Recreation and Parks
RWQCB	Los Angeles Regional Water Quality Control Board
SCAQMD	South Coast Air Quality Management District
SO_2	sulfur dioxide
SO_X	sulfur oxides
SR 110	State Route 110, Pasadena Freeway
SR 2	State Route 2, Glendale Freeway
TAC	toxic air contaminants
TCE	trichloroethylene
TMDL	total maximum daily load
USACE	United States Army Corps of Engineers
US 101	U.S. Highway 101, Hollywood Freeway
V/C	volume-to-capacity
Vdb	vibration decibels
VOCs	volatile organic compounds

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