ENVIRONMENTAL CHECKLIST FORM
CITY OF HUNTINGTON BEACH
PLANNING DEPARTMENT
ENVIRONMENTAL ASSESSMENT NO. 08-003

1. PROJECT TITLE:	**Talbert Lake Diversion Project**
Concurrent Entitlements:	None
2. LEAD AGENCY:	City of Huntington Beach 2000 Main St. Huntington Beach, CA 92648
Contact:	Jennifer Villasenor – Project Planner
Phone:	(714) 536-5271
3. PROJECT LOCATION:	The northeastern corner of Huntington Beach Central Park, 18000 Goldenwest Street, Huntington Beach, California
4. PROJECT PROPONENT:	City of Huntington Beach
Contact Person:	Jennifer Villasenor
Phone:	(714) 536-5271
Email:	jvillasenor@surfcity-hb.org
5. GENERAL PLAN DESIGNATION:	The General Plan designation for the immediate project site is OS-P (Open Space-Park).
6. ZONING:	OS-PR (Open Space-Parks and Recreation)

7. PROJECT DESCRIPTION:

7.1 INTRODUCTION/BACKGROUND

Water quality has increasingly become a public, economic, and institutional concern. The impact of increasing urbanization and population densities is often manifested in beach postings and adverse effects on biological and recreational resources. Within the City of Huntington Beach, urban runoff of surface flows from residential, commercial, and industrial development is conveyed through the storm drain system, which the City owns, operates, and maintains. Runoff conveyed through this system can be a non-point source of contamination for downstream receiving waters and eventually, the ocean. In recognition of the importance of managing both the quantity and quality of urban runoff conveyed by this system, the City issued a *Citywide Urban Runoff Management Plan* (CURMP) (Huntington Beach 2005a) in January 2005 that outlines a three-pronged approach toward drainage management and water quality control and improvement. The following objectives were developed for the City's CURMP:

- Comply with State and federal regulations.
- Protect public health and safety.
- Protect and enhance the beneficial uses (such as recreation, aesthetics, economics, and habitat value) of the local aquatic systems.
- Reduce pollutants and urban runoff flows.
- Increase public awareness and education.
- Integrate water quality and drainage planning activities.
- Efficiently use resources within the city.
- Pursue grant funding.
- Achieve improved regional approaches.

This CURMP establishes a three-part approach toward achieving the goal of reducing the level of urban runoff and pollutants and enhancing the quality of water discharged from the municipal storm drain system within the city. These approaches encompass citywide source-control programs; a program for new development and/or significant redevelopment; and water quality planning area-based programs. Components of the water quality planning area-based programs include targeted source control and implementation of specific projects.

The East Garden Grove – Wintersburg Channel (EGGWC) is a designated "water quality planning area" within the CURMP. Among the discretionary elements identified as options for the EGGWC system is implementation of the Talbert Lake Diversion Project for dry weather runoff treatment. This project would provide a variety of benefits to the environment and public at large, which would include protection of the beneficial uses of coastal waters; creation and enhancement of environmental habitat values; educational awareness; potential groundwater recharge; potential seawater barrier enhancements; and enhanced recreational experiences.

The proposed project is a Santa Ana Regional Water Quality Control Board-approved Supplemental Environmental Project (SEP); it is centered around the construction of a natural treatment system in the northeastern corner of Central Park located on the eastern side of Goldenwest Street (Exhibit 7.1-1) and it would divert up to 3 million gallons per day (mgd) of dry weather flows from the EGGWC into a constructed wetlands for treatment (Exhibit 7.1-2). The constructed wetlands would be located in the northeastern corner of Central Park (between Slater Avenue and Talbert Avenue to the north and south, and Goldenwest Street and Gothard Street to the west and east). Components of this portion of the proposed project include wetland "trains" through which flows would move through a series of natural treatment processes into a restored Talbert Lake (Exhibit 7.1-3). A wetland "train" would be a linear feature consisting of alternating wetland and open water areas that would act as a system to incrementally remove pollutants as flows traverse the length of the feature. Project objectives include the improvement of water quality and the potential beneficial reuse of treated water on site for park irrigation purposes if sufficient water is available. The capacity of the diversion facilities is proposed for up to 3 mgd.

Regional Location

Exhibit 7.1-1

Talbert Lake Diversion Project

N W E S

10 5 0 10 Miles

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Proposed Project Overview

Exhibit 7.1-2

Talbert Lake Diversion Project

N W E S

1,000 500 0 1,000 Feet

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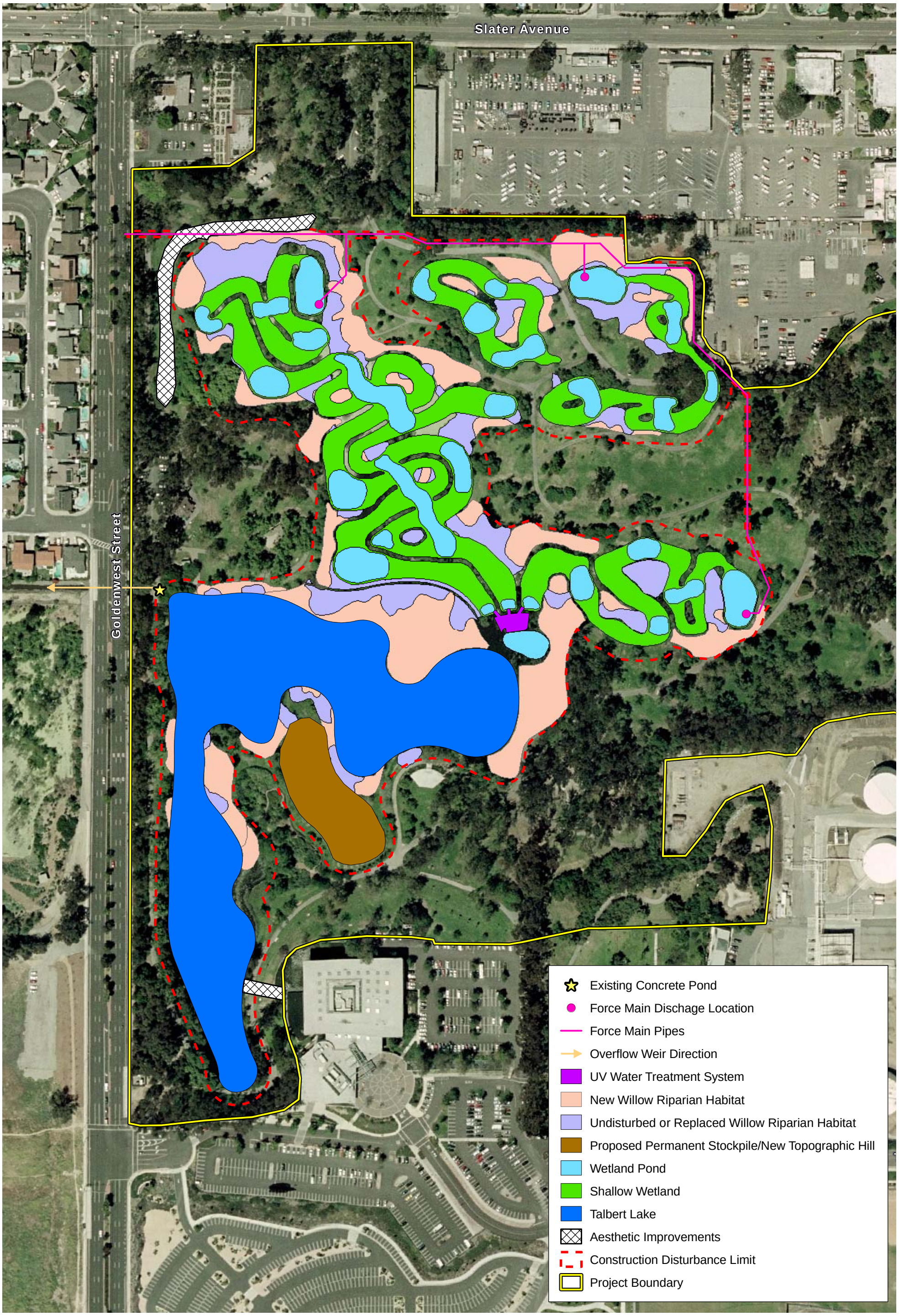

Proposed Project Central Park Components

Exhibit 7.1-3

Talbert Lake Diversion Project

N W E S

250 125 0 250 Feet

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7.2 EXISTING CONDITIONS

7.2.1 LAND USE

Early land uses on the Central Park site consisted largely of agricultural and pastoral activities. There are no State-designated Prime or Unique farmlands on the site, although the discovery of oil and its subsequent development in the 1920s is evidenced by the active oil extraction operations that border the park today.

Interest in municipal park development arose in the 1960s, and the City of Huntington Beach acquired Central Park with park bonds, subdivision fees, Housing and Urban Development Grants (HUD) and County revenue-sharing funds through a series of transactions that began in 1969. The official park dedication occurred in 1974.

Today, Central Park encompasses over 350 acres of varied passive and active recreational uses, with 266 acres of developed facilities. The proposed project site, bound by Slater Avenue to the north, Goldenwest Street to the west, Gothard Street to the east and Talbert Avenue to the south, is contained on approximately 75 acres of the northeastern corner of Central Park, north of the existing Huntington Beach Sports Complex (Exhibit 7.2-1). According to the Huntington Beach General Plan (1996), the proposed project site within Central Park is designated OS-P (Open Space – Park Uses) (Exhibit 7.2-2). Recreational facilities within the park are detailed below.

North of the proposed project site is an area designated I-F2-d (Industrial) and RL-7 (Residential Low Density). A continuation of Central Park lies west of the proposed project site as does an additional RL-7 land use. The Huntington Beach Sports Complex, also designated OS-P, is situated south of the proposed project site and an I-F2-d (Industrial) corridor lies to the east of the proposed project site. The City of Huntington Beach Zoning Map dated March 2006 identifies the project area as predominantly OS-PR (Open Space – Parks and Recreation). The northwestern corner of the project site is designated CG (Commercial General) and the northeastern and southeastern sections of the project site are designated IG (Industrial General).

Through the November 5, 1996, approval of Measure L, the voters within Huntington Beach authorized construction of a multi-field sports complex south of Talbert Avenue and east of Goldenwest Street. This facility was constructed in 2004 and is currently serving the residents and visitors of the area.

A new Senior Center has been proposed on an undeveloped 5-acre area within Central Park, west of the intersection of Goldenwest Street and Talbert Avenue. Intended to replace the existing facility at 1706 Orange Avenue, this five-acre development would comprise a senior center structure, parking areas, vehicular storage, and outdoor areas. Landscaping around the building and parking lot would include drought-tolerant, low water usage-type vegetation. Public review of the Senior Center Environmental Impact Report concluded on October 31, 2007, and the Final EIR was certified in February 2008.

The Huntington Beach Central Library is located at 7111 Talbert Avenue, immediately adjacent to the Talbert Lake area of Central Park at the southern border of the project site. The public library system in Huntington Beach has been providing services to the area since 1909, and remains an updated and vital resource to the community (HBPL 2007). Opened to the public in 1975, the Central Library on Talbert Avenue also houses the Huntington Beach Playhouse, a 320-seat theater that features plays, musicals, and children's programs. The library also provides meeting rooms available for rent, conferences, seminars, and other events. The library is served by 693 parking spaces.

The Chevron storage and distribution terminal is located at the southeastern corner of the project site at the corner of Gothard Street and Talbert Ave. This facility is associated with two abandoned oil lines that run in a northwesterly direction across Central Park, and at least one active oil pipeline that traverses the site in a northwesterly direction. The active pipeline crosses between Talbert Lake and the existing wetlands along the axis of the proposed berm between the wetlands and lake.

The Park Bench Café is located at the western boundary of the project site within Central Park. A small, dog-friendly restaurant with indoor and outdoor seating, the Café serves breakfast, lunch and dinner during the summer months, and breakfast and lunch throughout the remainder of the year. As an amenity, it remains a popular dining spot for park visitors.

The City of Huntington Beach's Office of Parks, Trees, and Landscape Division maintains 70 parks encompassing a total of approximately 750 acres, 169 playground apparatus, and associated irrigation systems. The maintenance yard for the division is located at the northeastern corner of the proposed project site.

7.2.2 RECREATION

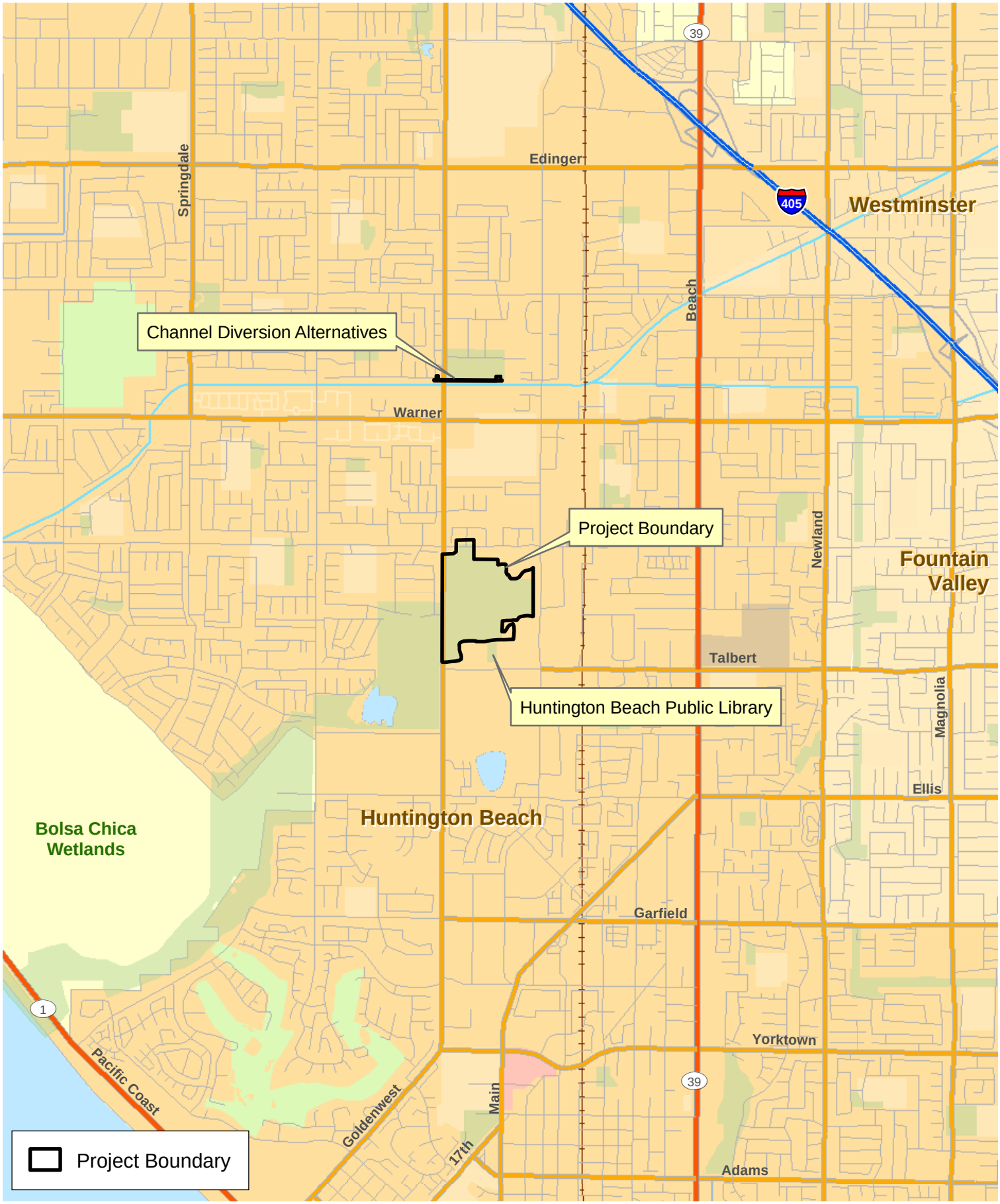
Central Park

Central Park has evolved over the years to become a major recreational amenity for the residents of Huntington Beach and visitors alike. As the largest City-owned park in Orange County, the park creates an attractive setting for picnics, bike rides, playground activities, walking, bird watching, casual dining, and general leisure. Amenities within the entire 356-acre park include walking/biking trails, turf areas, a fire ring, a picnic facility, a campground, four playgrounds, a nature center, recreational fishing opportunities, a disc golf course, a sports complex, horseshoes, lakes, an equestrian center and trails, a dog park, an amphitheater, an exercise course, and two full-service restaurants. In 2004, the portion of the park south of Talbert Avenue was developed into a multi-use sports complex that contains eight baseball/softball fields, seven soccer fields, batting cages, two artificial turf fields, and an arena turf field. Constructed over an oil field, abandoned landfill and former mushroom farm site, the Sports Complex is an award-winning facility that provides quality recreational opportunities for park users.

Exhibit 7.2-3 presents the existing recreational facilities located in the northeastern corner of Central Park in or adjacent to the proposed project area. These facilities include:

- an exercise parcourse around the perimeter of Talbert Lake;
- the Park Bench Café restaurant;
- the Central Park Library;
- an outdoor music area;
- a camping area;
- a nature conservation area;
- an Adventure Playground;
- a natural amphitheatre;
- three public parking lots;
- a City park, tree and landscape maintenance yard.

The Jack Green Nature Observation Area is located in the northwestern corner of the project site and is currently occupied by disturbed riparian vegetation. Although it does not contain any formal recreational facilities, it does have a high value as a birding location. Due to its proximity



Local Vicinity

Exhibit 7.2-1

Talbert Lake Diversion Project

N W E S

0.5 0.25 0 0.5 Miles

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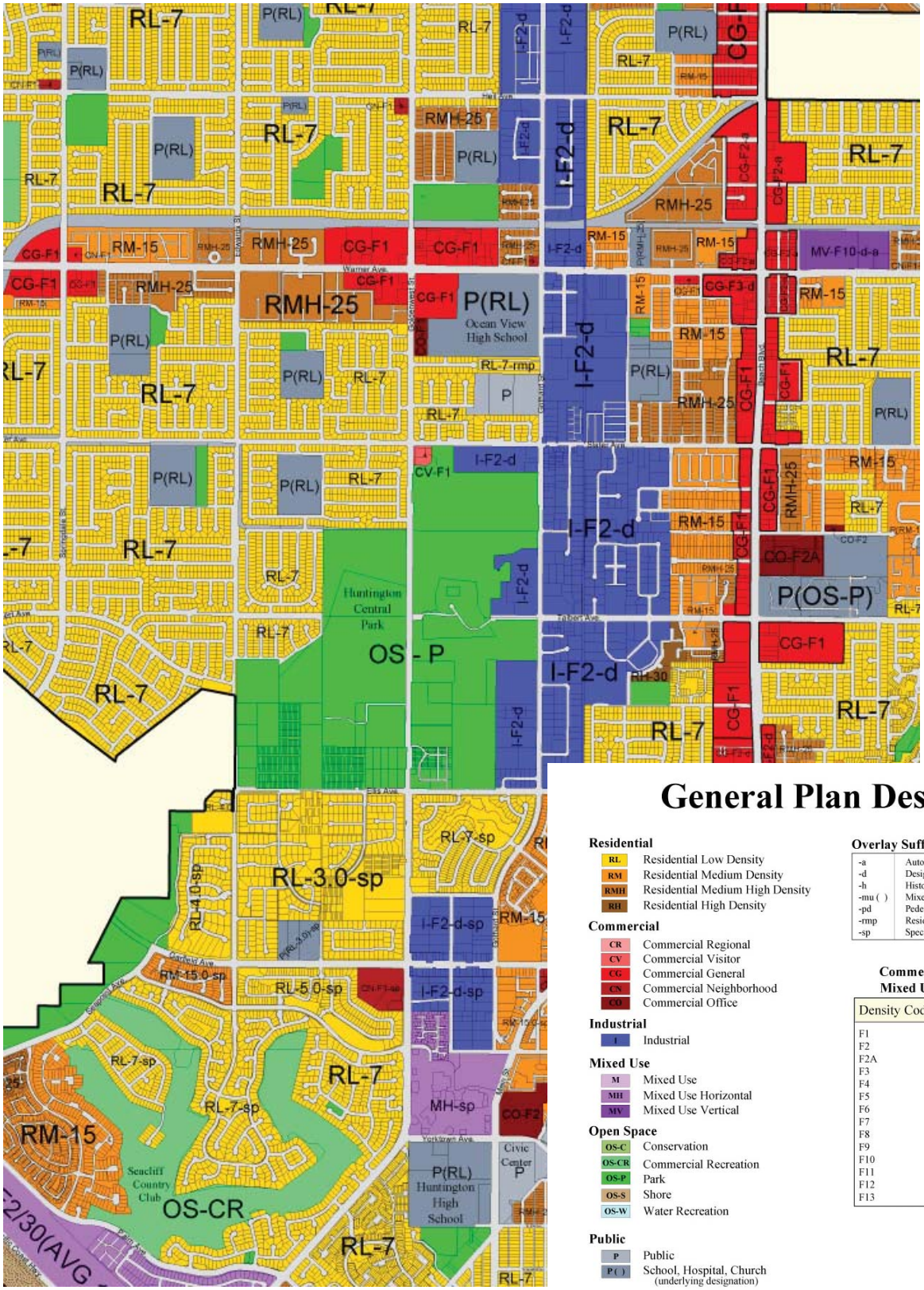

General Plan Designations

Residential

RL	Residential Low Density
RM	Residential Medium Density
RMH	Residential Medium High Density
RH	Residential High Density

Commercial

CR	Commercial Regional
CV	Commercial Visitor
CG	Commercial General
CN	Commercial Neighborhood
CO	Commercial Office

Industrial

I	Industrial

Mixed Use

M	Mixed Use
MH	Mixed Use Horizontal
MV	Mixed Use Vertical

Open Space

OS-C	Conservation
OS-CR	Commercial Recreation
OS-P	Park
OS-S	Shore
OS-W	Water Recreation

Public

P	Public
P( )	School, Hospital, Church (underlying designation)

Right of Ways & Bridges

Overlay Suffixes

-a	Auto District Overlay
-d	Design Overlay
-h	Historical Overlay
-mu ( )	Mixed Use Overlay (Mixed Use Density)
-pd	Pedestrian Overlay
-rmp	Residential Mobile Home Park Overlay
-sp	Specific Plan Overlay

Commercial, Industrial, and Mixed Use Density Schedule

Density Code	Permitted Density
F1	0.35
F2	0.50
F2A	0.75
F3	1.0
F4	1.25
F5	1.50
F6	2.0
F7	3.0
F8	1.5 (MU)-0.35 (C)/25 du/ac
F9	1.5 (MU)-0.5 (C)/25 du/ac
F10	1.5 (MU)-1.5 (C)/25 du/ac
F11	2.0 (MU)-2.0(C)/25 du/ac
F12	3.0 (MU)-3.0(C)/35 du/ac
F13	1.5(MU)-0.5(C)/15 du/ac

Source: City of Huntington Beach, 2006

General Plan Land Use Map

Exhibit 7.2-2

Talbert Lake Diversion Project

N W E S

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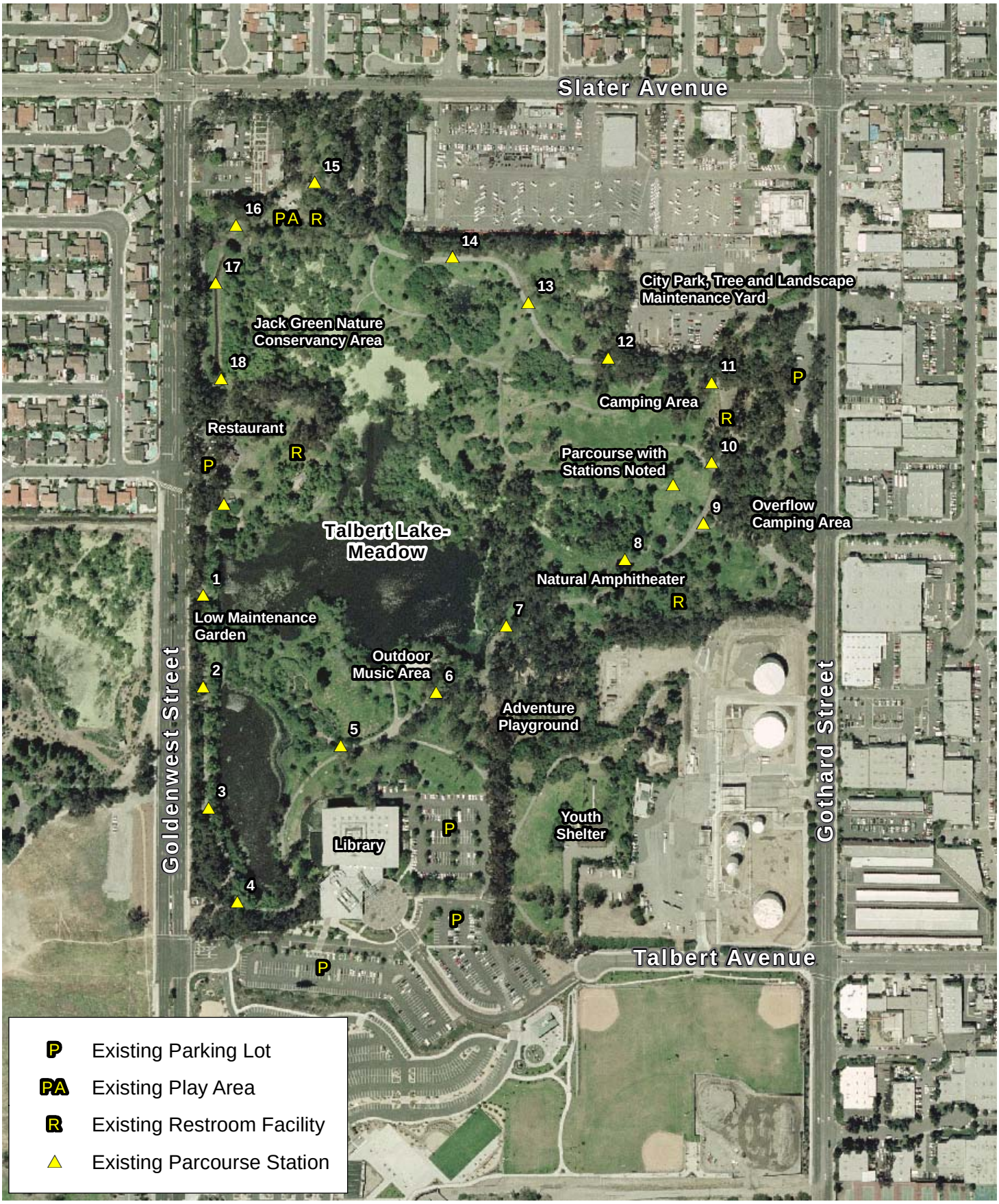

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Existing Recreation Amenities, Central Park

Exhibit 7.2-3

Talbert Lake Diversion Project

N W E S

400 200 0 400 Feet

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to the Pacific Flyway migration route, it is known as a "migrant trap" for its ability to attract a large variety of migrant bird species that move through the area. As an "island" of densely vegetated habitats surrounded by developed areas, many birds frequent the park during spring and fall migrations. Areas of the park that regularly support the highest concentrations of migrants include the area around Talbert Lake and the Shipley Nature Center; both these areas support dense stands of native vegetation as does the western end of Huntington Lake with its ornamental trees and shrubs.

Many rare species have been documented at the park as a result of its increasing renown as a birding location with great diversity. The bird list for the park now includes about 310 species. Bird watching (i.e., birding) takes place all year long at the park owing to the clement southern California climate. The park hosts birders not only from local Orange County but also from national and international points of origin.

The project site is encircled by an exercise parcourse with 18 exercise stations located along a 1.2-mile loop around the perimeter of the northeastern corner of the park. Within this loop is a Youth Camping area characterized by open turf/grass that can be used for group camping activities associated with youth organizations such as the Boy Scouts of America.

The northeastern corner of the park hosts a small rustic amphitheatre built into an earthen berm. This outdoor facility accommodates up to 200 people and is used for organized group activities including theater, music and, at times, private weddings. The outdoor music area in the park is used for special events such as the outdoor theater series and public entertainment during the summertime.

7.2.3 HYDROLOGY

The proposed project site is located within the hydrologic boundaries of the Santa Ana River Basin. The Westminster Watershed, covering 74.1 square miles of southwestern Orange County, encompasses 3 main tributaries: the Los Alamitos Channel, the Bolsa Chica Channel, and the EGGWC. All three tributaries drain into the Bolsa Chica Wetlands and eventually into Huntington Harbour and Anaheim Bay. Central Park itself is located within the EGGWC drainage area.

The City owns and operates 15 water pumping stations that are generally located near principal Orange County storm drain channels. Runoff water is collected at each pump station through the City's drainage facilities and is transferred to the nearest Orange County Flood Control District-owned (OCFCD) channel, which ultimately conveys water to the Pacific Ocean. The City's channels, originally designed to accommodate up to 25-year flood events, are generally constructed at ground level (or at grade).

East Garden Grove – Wintersburg Channel

The EGGWC system drains portions of Orange County within the cities of Huntington Beach, Fountain Valley, Garden Grove, Orange, Westminster, Santa Ana, and Anaheim. The EGGWC is part of the CO5/CO6[1] channel system, which is comprised of two main channel facilities (CO5 and CO6) and several small tributaries. This system collects and conveys runoff from over 28 square miles to Outer Bolsa Bay.[2] The channel system also contains three retention basins

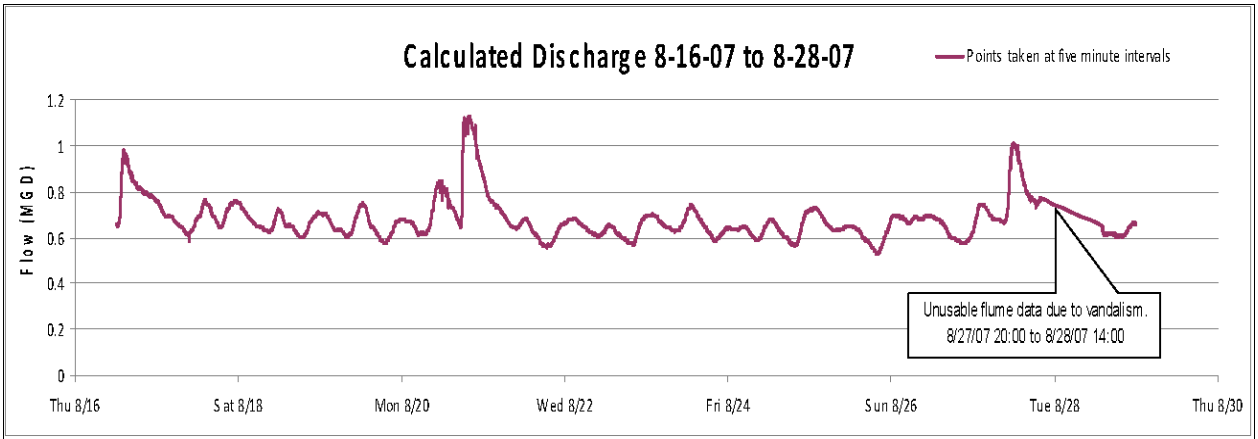
[1] OCFCD facility number

[2] BonTerra Consulting. 2007 (August). *East Garden Grove-Wintersburg Channel (CO5) Improvements, Addendum to EIR No. 560* (prepared for the County of Orange Resources and Development Management Department). Costa Mesa, CA: BonTerra Consulting.

(Haster Basin, Quartz Basin, and West Street Basin), and one large pump station (Slater Pump Station), which is owned by the City of Huntington Beach and pumps flows from the Slater Storm Channel into the CO5 (lower EGGWC) channel. The CO5 and CO6 channels are a mixture of earthen, riprap, and concrete-lined trapezoidal channels with short reaches of concrete rectangular and covered box facilities; these were originally built to interim standards as part of the 1956 Bond Act. The EGGWC is a channel that is currently in need of improvements to meet 100-year flood protection standards.

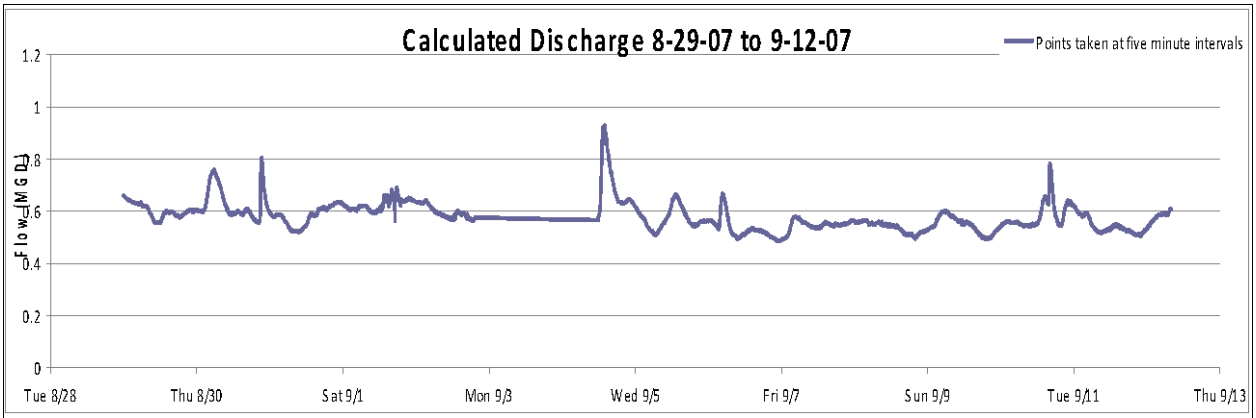
Near the proposed diversion site (Exhibit 7.2-4), the downstream terminus of the EGGWC's concrete box segment is about 100 meters (328 feet) west of Goldenwest Street. Water essentially covers all of the soft-bottom invert from the terminus of the concrete box channel downstream to the tide gates at Outer Bolsa Bay. Tide gates allow water to move in and out of the channel from Outer Bolsa Bay and, as a result, tidal influence (i.e., salt water) extends upstream from Outer Bolsa Bay to approximately the downstream terminus of the concrete box channel west of Goldenwest Street. The City's historical monitoring data within the EGGWC indicate that dry weather urban runoff (i.e., non-storm flows) within the channel near its intersection with Goldenwest Street typically ranges from 0.55 mgd to 1.5 mgd (see Tables 7.2-1 and 7.2-2 below).

TABLE 7.2-1
EGGWC CHANNEL FLOWS 8-16-07 TO 8-28-07

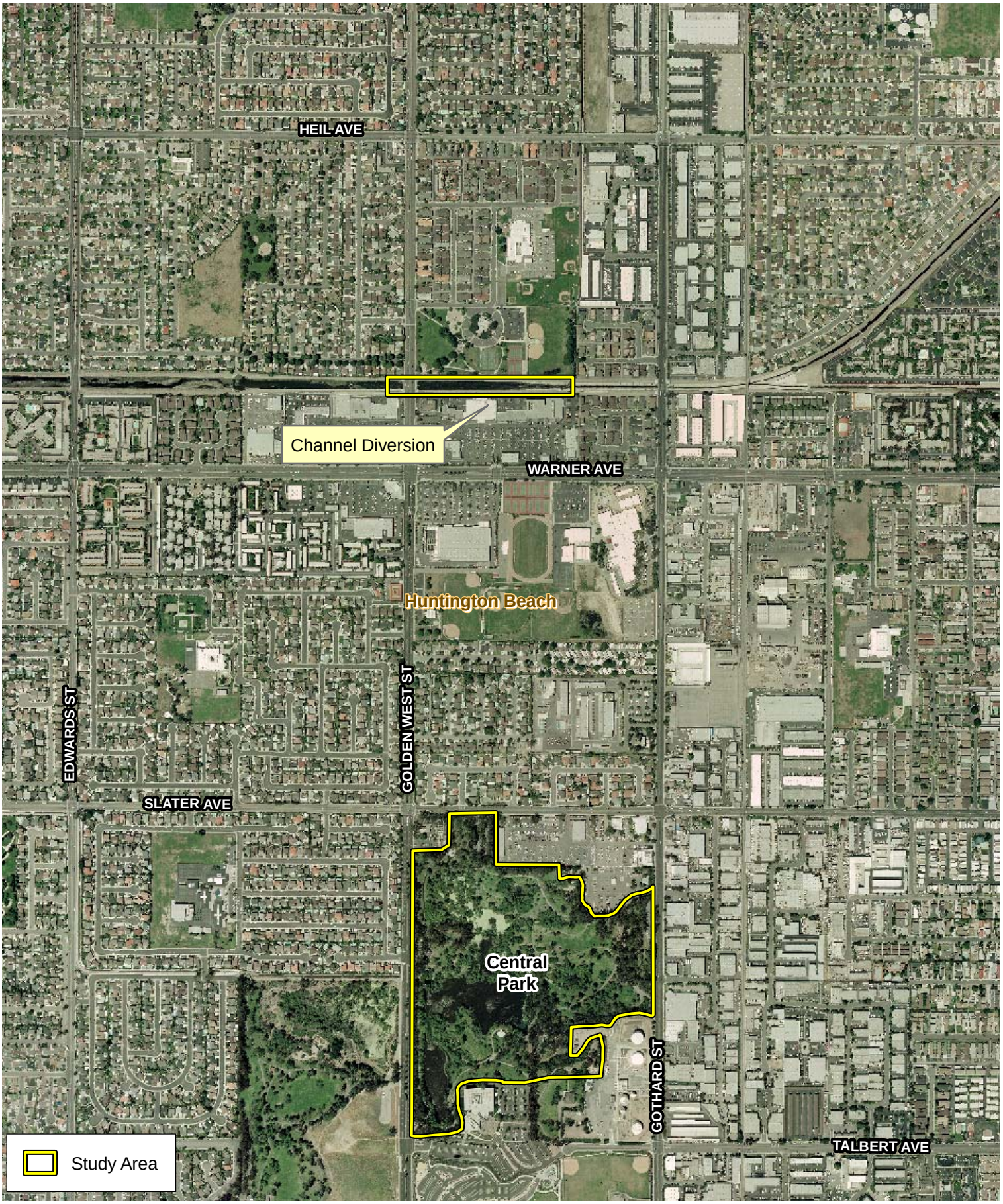


Source: PACE 2007.

TABLE 7.2-2
EGGWC CHANNEL FLOWS 8-28-07 TO 9-12-07



Source: PACE 2007.



EGGWC Diversion Location

Exhibit 7.2-4

Talbert Lake Diversion Project

N W E S

1,000 500 0 1,000 Feet

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Central Park/Talbert Lake

Within Central Park, the watershed tributary to Talbert Lake is approximately 706 acres and is bordered by Beach Boulevard to the east, Warner Avenue to the north, Goldenwest Street to the west, and Ellis Avenue to the south. The Talbert Lake Watershed is presented in Exhibit 7.2-5.

Existing hydrologic conditions within the northeastern section of Central Park consist of small areas of shallow ponds (3 to 5 feet deep) and shallow vegetated wetlands (0 to 3 feet deep), which are fed by small quantities of dry weather flow from three main sources: the surrounding storm drain system, periodic shallow groundwater upflow, and storm water inflow from high precipitation events. Under wet conditions, water within these existing ponds and wetlands will overflow into Talbert Lake, a large shallow plain adjacent to the wetlands, where most flow percolates into the groundwater aquifer, is utilized by existing vegetation, or evaporates.

Central Park provides temporary storage of storm water in both Talbert Lake and the wetlands that surround it. Runoff from the developed areas of the watershed surrounding the Talbert Lake portion of Central Park is conveyed via a storm drain system that is owned and maintained by the City of Huntington Beach (Exhibit 7.2-6, Storm Drain Locations, Central Park). Both storm water and nuisance flows enter the northeastern corner of Central Park at four principal locations:

- 500 feet west of Gothard Street and 300 feet north of the Standard Oil property via two 54″ reinforced concrete pipes (RCP);
- The northwestern corner of the park via an earthen swale and a 24″ RCP;
- The southwestern corner of the park near the intersection of Talbert Avenue and Goldenwest Street; and
- A catch basin and 18″ RCP into Talbert Lake (from the Huntington Beach Sports Complex).

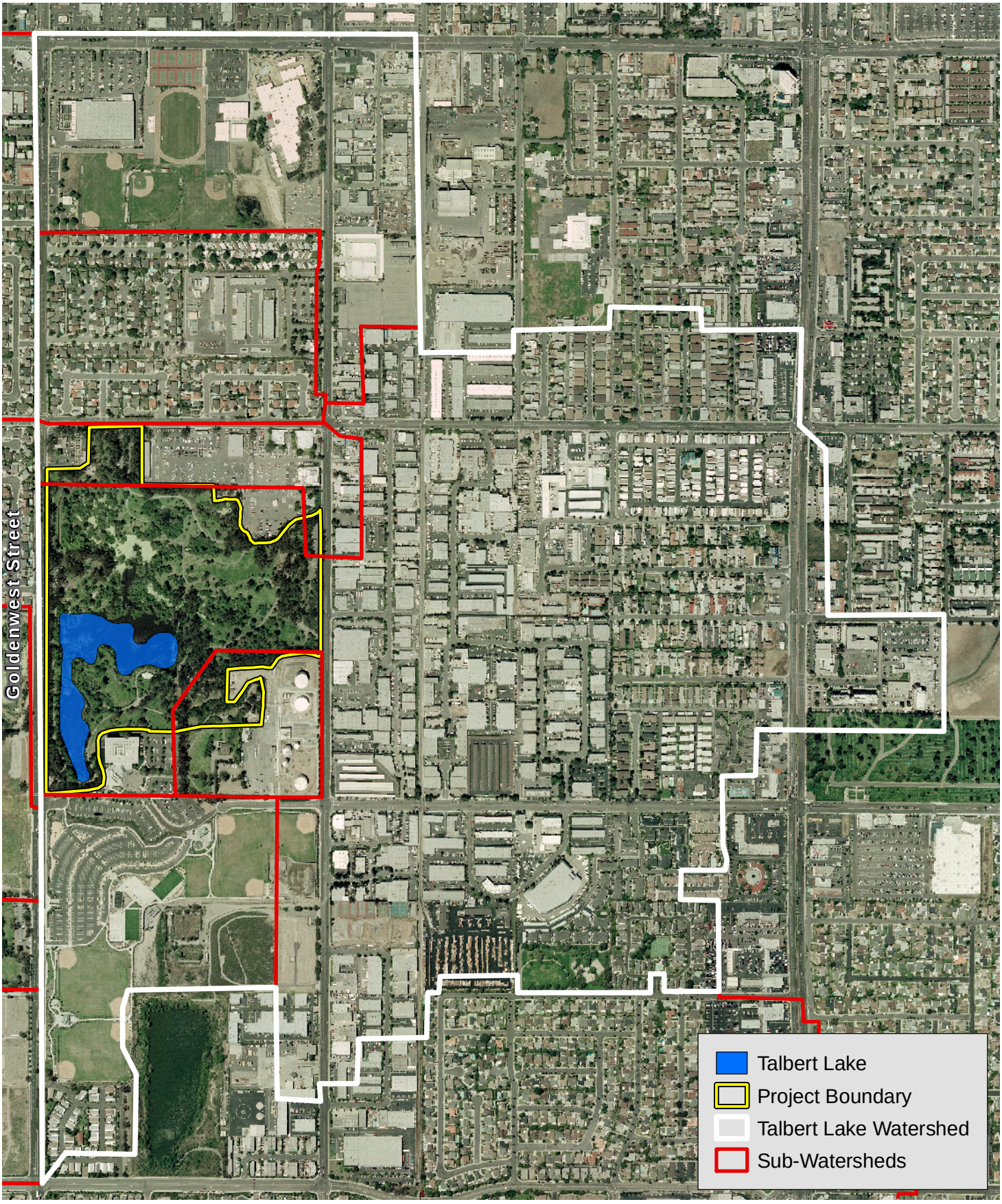
These flows collect year-round within the Talbert Lake area of the park, and the water level in the lake can vary significantly from year to year in response to precipitation variations and groundwater levels (Exhibit 7.2-7).

Once in the park, storm water is conveyed through the existing wetlands to Talbert Lake and, under storm conditions of heavy flow, out of the park into Talbert Channel via an overflow weir that discharges under Goldenwest Street via an RCP.

A Master Plan of Drainage was prepared for the entire City of Huntington Beach in 2005. This study developed estimates of peak flow rates throughout the city, utilizing the Huntington Beach 1996 General Plan for land use data. In 2000, a hydrologic analysis of the Talbert Channel watershed was prepared by Simons, Li & Associates, Inc. (SLA) and presented in the *Hydrology/Hydraulics and Design Study, Talbert Channel Flood Hazard Mitigation* (2000b). This report evaluated the entire watershed tributary to the Talbert Channel to develop flood hydrographs and to perform basin and channel routing throughout the watershed. The study incorporated the detention and retention capabilities of all existing water storage ‘facilities’ within the Central Park boundaries including Sully Miller Lake, Talbert Lake, the Shipley Nature Center, and Huntington Lake.

Information from these previous studies was updated and utilized for recent numerical modeling of existing hydrologic conditions within the Talbert Lake area of Central Park (PACE 2007). These updated numerical model results consider all available updated information and represent the complete pre-project baseline hydrologic condition for the proposed project. Table

7.2-3 presents the numerical modeling results in support of the final quantification of pre-project baseline hydrology.



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Talbert Lake Watershed

Exhibit 7.2-5

Talbert Lake Diversion Project

2

150 0 150
Feet

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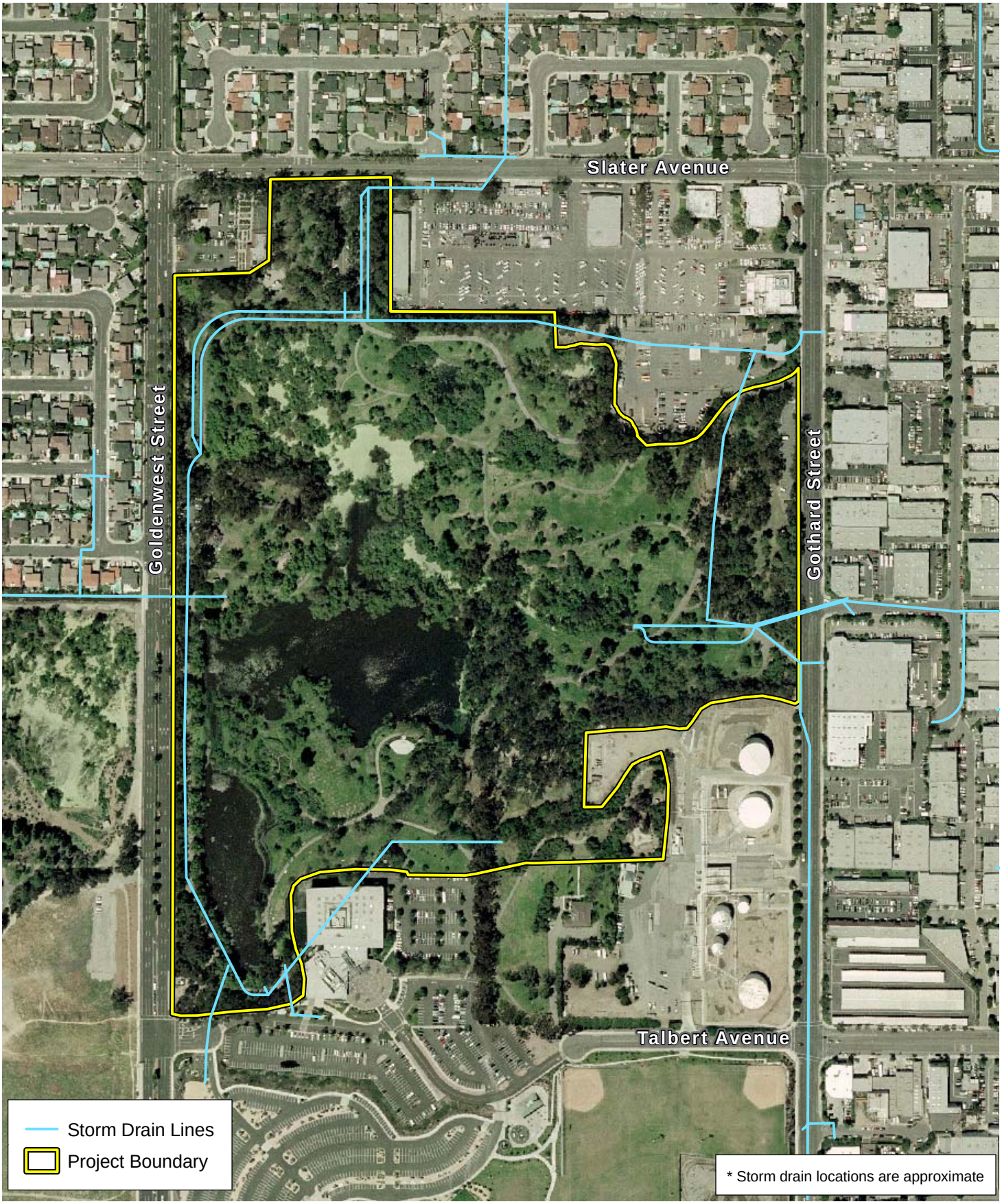

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Storm Drain Locations, Central Park

Exhibit 7.2-6

Talbert Lake Diversion Project

N
W E
S

400 200 0 400

Feet

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Talbert Lake - dry conditions.

Talbert Lake - wet conditions.

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Site Photographs

Exhibit 7.2-7

Talbert Lake Diversion Project

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TABLE 7.2-3
TALBERT LAKE HYDROLOGIC MODELING EVOLUTION AND PRE-PROJECT BASELINE

Prepared By	Model	Description	Modifications to Model	Peak Inflow (cfs)[a]	Volume (af)[b]	Peak Outflow (cfs)[a]	Time of Peak Outflow (hrs)[c]	Max Stage Elev (NAVD 88)[d]
SLA	AES	Current Hydrology for Talbert Channel Watershed (Pre-project)	None	692	362	171	41.667	2.23
PACE	HEC-1	Duplicate SLA model in HEC-1 (Pre-project)	None	675	401	176	42	2.44
PACE	HEC-1	For comparison purposes only	Updated Stage – Storage – Discharge	675	401	166	42.25	2.93
PACE	HEC-1	For comparison purposes only	Updated Stage – Storage – Discharge, Updated Routing	698	265	163	42	2.82
PACE	HEC-1	Final Pre-project Hydrology for Talbert Lake	Updated Stage – Storage – Discharge, Updated Routing	892	292	174	42.25	3.28

[a] cfs = cubic feet per second
[b] af = acre/feet
[c] hrs = hours
[d] 1988 NAVD = The North American Vertical Datum of 1988 is the vertical control datum established in 1991 and currently used as a fixed reference for elevations determined by geodetic leveling.

Source: PACE 2007.

The portions of Talbert Lake that are lowest in elevation have held water for several years at a time, but have also been completely dry as recently as 2003. Higher portions of the lake bed hold water only occasionally following large rains, and have been managed as manicured lawns comprised of ornamental turf grass for an extended period. Exhibit 7.2-8 presents the existing flooding elevations that occur within the northeastern corner of Central Park under storm flow conditions.

The maximum water depth in the lake is currently estimated at approximately four feet, although this level fluctuates significantly based upon local precipitation patterns. The entire lake bed is vegetated with maintained ornamental turf grass in shallow areas that are most often dry. A variety of water-tolerant plants and annual weeds exist in areas that are not regularly maintained, which results in large amounts of plant material within the water column. The high organic load and the high nutrient loads that are contained with the storm water effluent stored within the lake contribute to poor water quality conditions on site.

Existing peak inflow rates into the existing Talbert Lake have been calculated at 892 cubic feet per second (cfs), with peak outflow at 174 cfs (Table 7.2-3). The maximum stage elevation is 3.28 feet North American Vertical Datum (NAVD).[3]

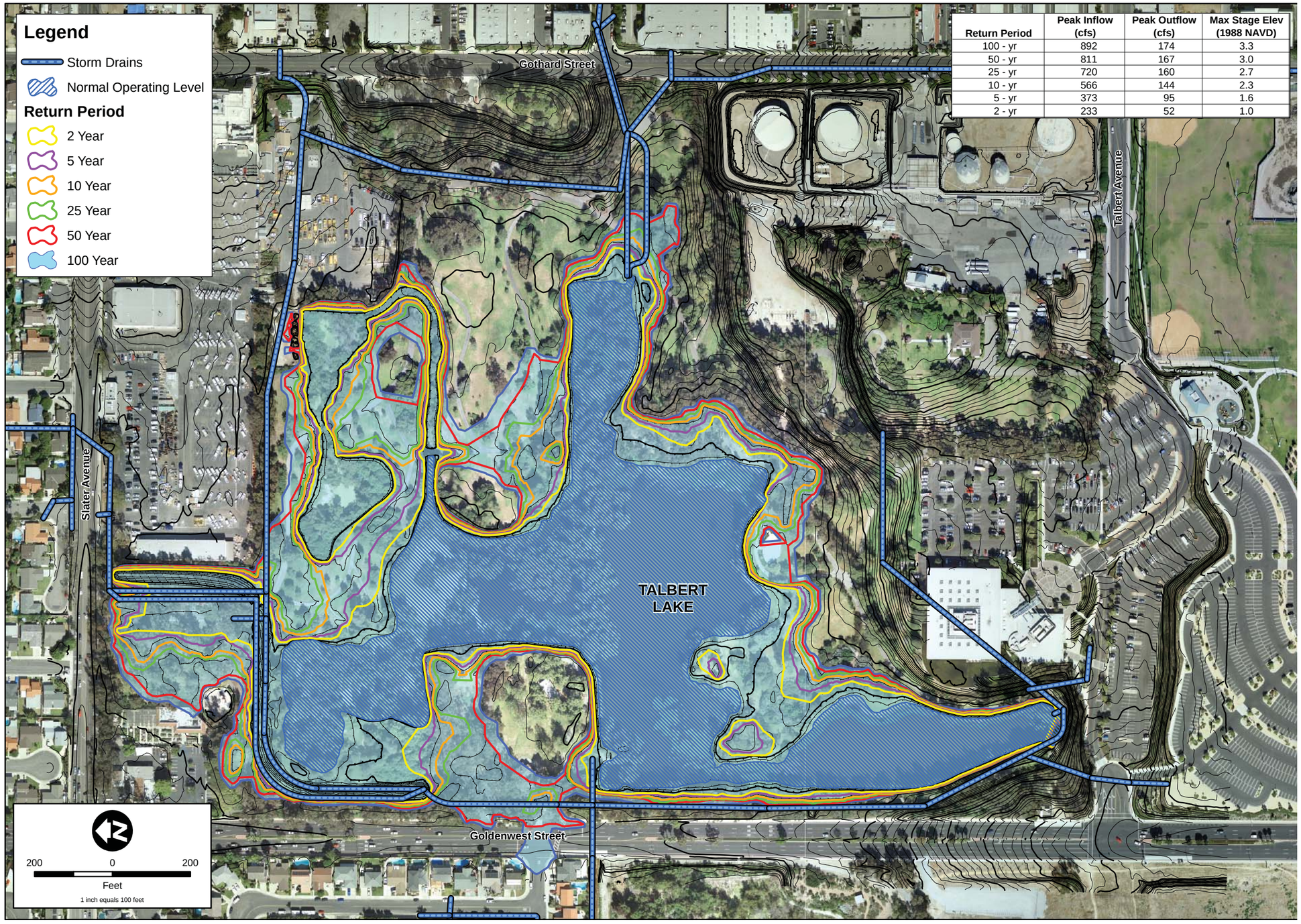
Groundwater

Talbert Lake is located within the Orange County Groundwater Basin (basin), which underlies the northern half of Orange County beneath broad lowlands known as the Tustin and Downey plains. The basin covers an area of approximately 350 square miles, bordered by the Coyote and Chino hills to the north, the Santa Ana Mountains to the northeast, the Pacific Ocean to the southwest, and terminates at the Orange County line to the northwest. Groundwater flow is unrestricted across the county line into the Central Basin of Los Angeles County. The Newport-Inglewood fault zone forms the southwestern boundary of all but the shallow aquifers in the basin. The major surface water drainages overlying this groundwater basin are the San Gabriel and Santa Ana rivers, as well as San Diego and Santiago creeks, all of which have headwaters outside the groundwater basin.

Located on the eastern edge of the Bolsa Gap and the toe of the Huntington Beach Mesa, the project site is underlain by recent-aged deposits forming the Bolsa Aquifer which is, in turn, underlain by Pleistocene-aged deposits that form the Semi-Perched Aquifer. Below the Semi-Perched Aquifer lies the Pleistocene-aged Alpha Aquifer, under which lie the Beta, Lamda, Omicron, Lower Rho, and Main Aquifers. The aquifers that comprise the basin extend over 2,000 feet deep and form a complex series of interconnected sand and gravel deposits.

Historically, groundwater generally flowed toward the ocean in the southwest, but pumping has greatly altered the hydraulic gradient and has caused water levels to drop below sea level inland of the Newport-Inglewood fault zone. Salt water intrusion plumes have migrated inland along the coastal regions, and some water supplies have been contaminated in this area. The basin is recharged primarily from local rainfall; base flow from the Santa Ana River (much of which is actually recycled wastewater from treatment plants in Riverside and San Bernardino counties); imported water that has percolated into the basin; and reclaimed wastewater that is directly recharged into the basin.

[3] The North American Vertical Datum of 1988 (NAVD 88) is the vertical control datum established in 1991 and currently used as a fixed reference for elevations determined by geodetic leveling (NGS web site, NOAA Tide and Current Glossary).



Return Period	Peak Inflow (cfs)	Peak Outflow (cfs)	Max Stage Elev (1988 NAVD)
100 - yr	892	174	3.3
50 - yr	811	167	3.0
25 - yr	720	160	2.7
10 - yr	566	144	2.3
5 - yr	373	95	1.6
2 - yr	233	52	1.0

Source: Pacific Advanced Civil Engineering, June 2007

Flood Elevations, Existing Conditions, Central Park

Exhibit 7.2-8

Talbert Lake Diversion Project

Bonterra CONSULTING

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Two groundwater wells located near the overflow weir into Talbert Channel currently provide water for park irrigation. These wells are serviced by an existing 1,750 gallon per minute (gpm) pump station that is located immediately adjacent to a small concrete pond. The wells produce sub-potable water which, along with the City's domestic potable water system, serves to irrigate park facilities. The system is maintained by the City's Park, Tree and Landscape Division of the Public Works Department. Groundwater elevations in wells within the vicinity of Talbert Lake generally indicate downward vertical gradients in the summer months and upward vertical gradients (with corresponding higher groundwater elevations) in the winter months. In a 2006 study of hydrogeology at the site, WorleyParsons Komex concluded that groundwater elevations generally increased from 2001 to 2006, reversing the overall downward gradient (WorleyParsons Komex 2006b).

7.2.4 AIR QUALITY

The project site is located within the City of Huntington Beach, which is part of the South Coast Air Basin (SoCAB) and is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). In accordance with the requirements of the federal Clean Air Act (42 United States Code [U.S.C.] §§7401–7617), both the State of California (State) and the federal government have established health-based ambient air quality standards (AAQS) for seven air pollutants. These pollutants include ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), coarse particulate matter with a diameter of 10 microns or less (PM10), fine particulate matter less than 2.5 microns in diameter (PM2.5), and lead. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety. The State ambient air quality standards (AAQS) are more stringent than the federal AAQS. Federal and state standards are shown in Table 7.2-4.

TABLE 7.2-4
CALIFORNIA AND NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time[a]	NAAQS[b]		CAAQS[c]
		Primary[d]	Secondary[e]	Concentration[f]
Ozone (O_3)	1 Hour	–	Same as Primary Standard	0.09 ppm (180 µg/m^3)
	8 Hour	0.08 ppm (157 µg/m^3)		0.070 ppm (137 µg/m^3)
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m^3)	None	9.0 ppm (10 mg/m^3)
	1 Hour	35 ppm (40 mg/m^3)		20 ppm (23 mg/m^3)
Nitrogen Dioxide (NO_2)	AAM	0.053 ppm (100 µg/m^3)	Same as Primary Standard	0.030 ppm (56 µg/m^3)[h]
	1 Hour	–		0.18 ppm (338 µg/m^3)[h]
Sulfur Dioxide (SO_2)	AAM	0.03 ppm (80 µg/m^3)	–	–
	24 Hour	0.14 ppm (365 µg/m^3)	–	0.04 ppm (105 µg/m^3)
	3 Hour	–	0.5 ppm (1,300 µg/m^3)	–
	1 Hour	–	–	0.25 ppm (655 µg/m^3)
Suspended Particulate Matter (PM_{10})	24 Hour	150 µg/m^3	Same as Primary Standard	50 µg/m^3
	AAM	Revoked		20 µg/m^3
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	35 µg/m^3	Same as Primary Standard	–
	AAM	15 µg/m^3		12 µg/m^3

TABLE 7.2-4 (Continued)
CALIFORNIA AND NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time[a]	NAAQS[b]		CAAQS[c]
		Primary[d]	Secondary[e]	Concentration[f]
Lead (Pb)	30-Day Average	–	–	1.5 µg/m^3
	Calendar Quarter	1.5 µg/m^3	Same as Primary Standard	–
Hydrogen Sulfide (H_2S)	1 Hour	No Federal Standards		0.03 ppm (42 µg/m^3)
Sulfates (SO_4)	24 Hour			25 µg/m^3
Visibility Reducing Particles	8 Hour (10 AM to 6 PM, PST)			In sufficient amount to produce an extinction coefficient of 0.23 per km due to particles when the relative humidity is less than 70 percent.
Vinyl chloride[g]	24 Hour			0.01 ppm (26 µg/m^3)

LEGEND:

ppm = parts per million
µg/m^3 = micrograms per cubic meter
mg/m^3 = milligrams per cubic meter
AAM = Annual Arithmetic Mean
PST = Pacific Standard Time

[a] Period of time during which the pollutant's average ambient concentration exceeds the standard.
[b] National Ambient Air Quality Standards (NAAQS) (other than O_3, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year.
[c] California Ambient Air Quality Standards (CAAQS) for O_3, CO, SO_2 (1- and 24-hour), NO_2, PM_{10}, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded.
[d] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.
[e] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
[f] Concentration expressed first in units in which it was promulgated. Ppm in this table refers to parts per million by volume or micromoles of pollutant per mole of gas.
[g] Vinyl chloride has been identified by ARB as a "toxic air contaminant" with no threshold level of exposure for adverse health effects determined. This designation allows for the implementation of control measures designed to keep levels below the specified ambient concentration.
[h] The nitrogen dioxide ambient air quality standard was amended on February 22, 2007, to lower the 1-hr standard to 0.18 ppm and establish a new annual standard of 0.030 ppm. These changes become effective after regulatory changes are submitted and approved by the Office of Administrative Law.

Source: USEPA 2007a; CARB 2006.

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

The following discussion describes the criteria air pollutants and their attainment status in the SoCAB based on California Air Resources Board's (CARB's) Area Designations, Activities, and Maps (CARB 2007). Table 7.2-5 below summarizes the attainment status in the SoCAB for the major criteria pollutants.

TABLE 7.2-5
ATTAINMENT STATUS OF CRITERIA POLLUTANTS IN THE SOUTH COAST AIR BASIN

Pollutant	State	Federal
O_3 (1 hour)	Non-attainment	Revoked June 2005
O_3 (8 hour)	Not Established	"Severe 17" Non-attainment
PM10	Non-attainment	Serious Non-attainment
PM2.5	Non-attainment	Non-attainment
CO	Attainment (except Los Angeles County)	Attainment
NO_2	Attainment	Attainment/Maintenance
SO_2	Attainment	Attainment
Lead	Attainment	Attainment
All others	Attainment/Unclassified	Attainment/Unclassified
Source: CARB 2007.		

Ozone (O_3) is formed by photochemical reactions between oxides of nitrogen and reactive organic gases rather than being directly emitted. Ozone is a pungent, colorless gas typical of southern California smog. Elevated O_3 concentrations result in reduced lung function, particularly during vigorous physical activity. This health problem is particularly acute in sensitive receptors such as the sick, the elderly, and young children. Ozone levels peak during summer and early fall. The entire SoCAB is designated as a non-attainment area for the State one-hour O_3 standard. The U.S. Environmental Protection Agency (USEPA) has officially designated the status for the SoCAB regarding the eight-hour O_3 standard as "Severe 17," which means the SoCAB has until 2021 to attain the O_3 eight-hour standard.

Carbon Monoxide (CO) is formed by the incomplete combustion of fossil fuels, almost entirely from automobiles. It is a colorless, odorless gas that can cause dizziness, fatigue, and impairments to central nervous system functions. The entire SoCAB is designated as an attainment area for federal CO standards. The CARB has designated Orange County as an attainment area for State CO standards.

Nitrogen Oxide (NO_2), a reddish brown gas, and nitric oxide (NO), a colorless, odorless gas, are formed from fuel combustion under high temperature or pressure. These compounds are referred to as nitrogen oxides, or NOx. NOx is a primary component of the photochemical smog reaction. It also contributes to other pollution problems, including a high concentration of fine particulate matter, poor visibility, and acid deposition (i.e., acid rain). Nitrogen oxide decreases lung function and may reduce resistance to infection. The entire SoCAB has not exceeded either federal or State standards for NO_2 in the past three years with published monitoring data. It is designated as a maintenance area under the federal standards and an attainment area under the State standards.

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

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

Particulate Matter (PM) is the term used for a mixture of solid particles and liquid droplets found in the air. Coarse particles (all particles less than or equal to 10 micrometers in diameter, or PM10) derive from a variety of sources, including windblown dust and grinding operations. Fuel combustion and the resultant exhaust from power plants and diesel buses and trucks are primarily responsible for fine particle (less than 2.5 microns in diameter, or PM2.5) levels. Coarse particles (PM10) can accumulate in the respiratory system and aggravate health problems such as asthma. Fine particles (PM2.5) can cause health effects resulting in premature death and increased hospital admissions and emergency room visits (primarily the elderly and individuals with cardiopulmonary disease); increased respiratory symptoms and disease (children and individuals with cardiopulmonary disease such as asthma); decreased lung functions (particularly in children and individuals with asthma); and alterations in lung tissue and structure and in respiratory tract defense mechanisms. The entire SoCAB is a non-attainment area for the federal and State PM10 standards. The USEPA has designated the SoCAB as a non-attainment area for PM2.5.

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

The South Coast Air Quality Management Plan (AQMP) is the air quality plan for the SoCAB. The SCAQMD adopted the AQMP on June 1, 2007. The 2007 AQMP is an update of the 2003 AQMP and incorporates new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools. The CARB approved the plan when it approved the State Strategy for the State Implementation Plan (SIP) on September 27, 2007. The Draft SIP has been submitted to the USEPA for review and approval. Until such time that the USEPA approves the SIP, the 2003 AQMP will remain in effect for federal Clean Air Act (CAA) conformity analysis. However, for CEQA analysis, projects must also be considered consistent with the requirements of the 2007 AQMP.

The SCAQMD has divided the air basin into 38 air monitoring areas with a designated ambient air monitoring station representative of each area. The project site is located in Source Receptor Area (SRA) 18, otherwise known as the North Coastal Orange County Subarea. The air quality monitoring station designated for this area is the Costa Mesa Station, which is the nearest air quality monitoring station to the project site. The Costa Mesa Station is located near Mesa Verde Drive west of Harbor Boulevard, approximately four miles southeast of the project site. The air pollutants measured at the Costa Mesa station include O_3, CO, NO_2, and SO_2. PM10 and PM2.5 ambient concentrations are not measured at the Costa Mesa Station. The nearest station where PM10 and PM2.5 are measured is the Mission Viejo Station. The monitoring data show that O_3 is the air pollutant of primary concern in the project area, with ambient concentrations exceeding the federal 1-hour standard an average of 1.4 days annually from 1990 to 2005.

7.2.5 BIOLOGICAL RESOURCES

Biological resources potentially affected by the proposed project are located (1) within the EGGWC at the diversion site; (2) downstream of the diversion site within the channel to the confluence of the channel with Outer Bolsa Bay; and (3) within the northeastern corner of Central Park adjacent to Talbert Lake.

EGGWC Diversion Site

Field surveys of the area of direct/immediate impact at the proposed diversion site and EGGWC project area were conducted on August 6 and September 21, 2007, in order to document existing biological resources and to evaluate potential biological constraints to project implementation. The California Native Plant Society's (CNPS) Inventory of Rare and Endangered Vascular Plants of California (CNPS 2007) and the CDFG's California Natural Diversity Database (CDFG 2007a) were consulted to identify special status plants, wildlife, and habitats known to occur in the project vicinity.

Vegetation

A total of five vegetation types were identified within the EGGWC project site. Exhibit 7.2-9 illustrates the vegetation types on site as of the September 21, 2007, survey. These include freshwater marsh, riparian herb, and ruderal. Although not classified as a "vegetation type," areas of development or open water are also identified on the exhibit to fully describe the site.

Wildlife

Suitable habitat exists within and along the channel for many wildlife species, especially birds. Developed areas surround the diversion site, though Murdy Park is separated from the project site on the north by a tall chain-link fence. These developed areas and associated structures surrounding the project site act as constraints to wildlife movement for many species.

Fish at the diversion location are expected to consist of freshwater species or species adapted to both brackish and freshwater conditions. The non-native western mosquitofish (*Gambusia affinis*) is expected to be present, as are native fish species including the California killifish (*Fundulus parvipinnis*). The common carp (*Cyprinus carpio*) (non-native to the area and detrimental to native species) was observed in the shallow water upstream of Goldenwest Street. No amphibian and only one reptile species (red eared slider [*Trachemys scripta elegans*]) was observed during the field survey, although amphibian species that may occur on the project site include the Pacific treefrog (*Pseudacris regilla*) and western toad (*Bufo boreas*). An occasional side-blotched lizard (*Uta stansburiana*) and gopher snake (*Pituophis catenifer*) may occur, but the western fence lizard (*Sceloporus occidentalis*) is the only native reptile species expected to occur on the project site.

A variety of water birds can be expected to occur at the diversion location, especially during migration and the winter season. Species observed within the channel during the field survey included mallard (*Anas platyearhynchos*), great egret (*Ardea alba*), snowy egret (*Egretta thula*), white-faced ibis (*Plegadis chihi*), killdeer (*Charadrius vociferous*), black-necked stilt (*Himantopus mexicanus*), greater yellowlegs (*Tringa melanoleuca*), black phoebe (*Sayornis nigricans*), common yellowthroat (*Geothlypis trichas*), song sparrow (*Melospiza melodia*), and house finch (*Carpodacus mexicanus*). These species potentially nest on the project site with the exception of great and snowy egrets, white-faced ibis, and greater yellowlegs. Although the two egret species and the white-faced ibis potentially breed in the area at Bolsa Chica, it is likely they only use the channel habitat for foraging.

No mammals were observed during the survey of the channel diversion site. However, there are several native species that have readily adapted to similar urban habitats and can be expected to occur such as the Virginia opossum (*Didelphis virginiana*), black rat (*Rattus rattus*), common raccoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*). The coyote (*Canis latrans*) is a resident within the Bolsa Chica Wetlands and surrounding open space habitats, and may occasionally wander up the channel to the diversion site. Other mammal species expected to occur on the project site include a variety of bats, most of which are expected to be migrants.

Special Status Species

One special status plant species, southern tarplant (*Centromadia parryi* ssp. *australis),* has limited potential to occur on the project site. Because the channel habitats are disturbed on a regular basis by maintenance activities, substantial populations of this species are not expected to exist. The white-faced ibis, a California Species of Special Concern, was observed in the channel during the field survey. The project site appears to only provide foraging habitat, however, and no rookeries are present in the EGGWC. Special status habitats, which are considered to be "depleted" habitats by the California Department of Fish and Game (CDFG), are typically protected by an ordinance, code, or regulation under which conformance typically requires a permit or other discretionary action prior to impacting the habitat. CDFG-listed special status habitats include the freshwater marsh and riparian herb vegetation types.

EGGWC Downstream of the Diversion Site to the Tide Gates at Outer Bolsa Bay

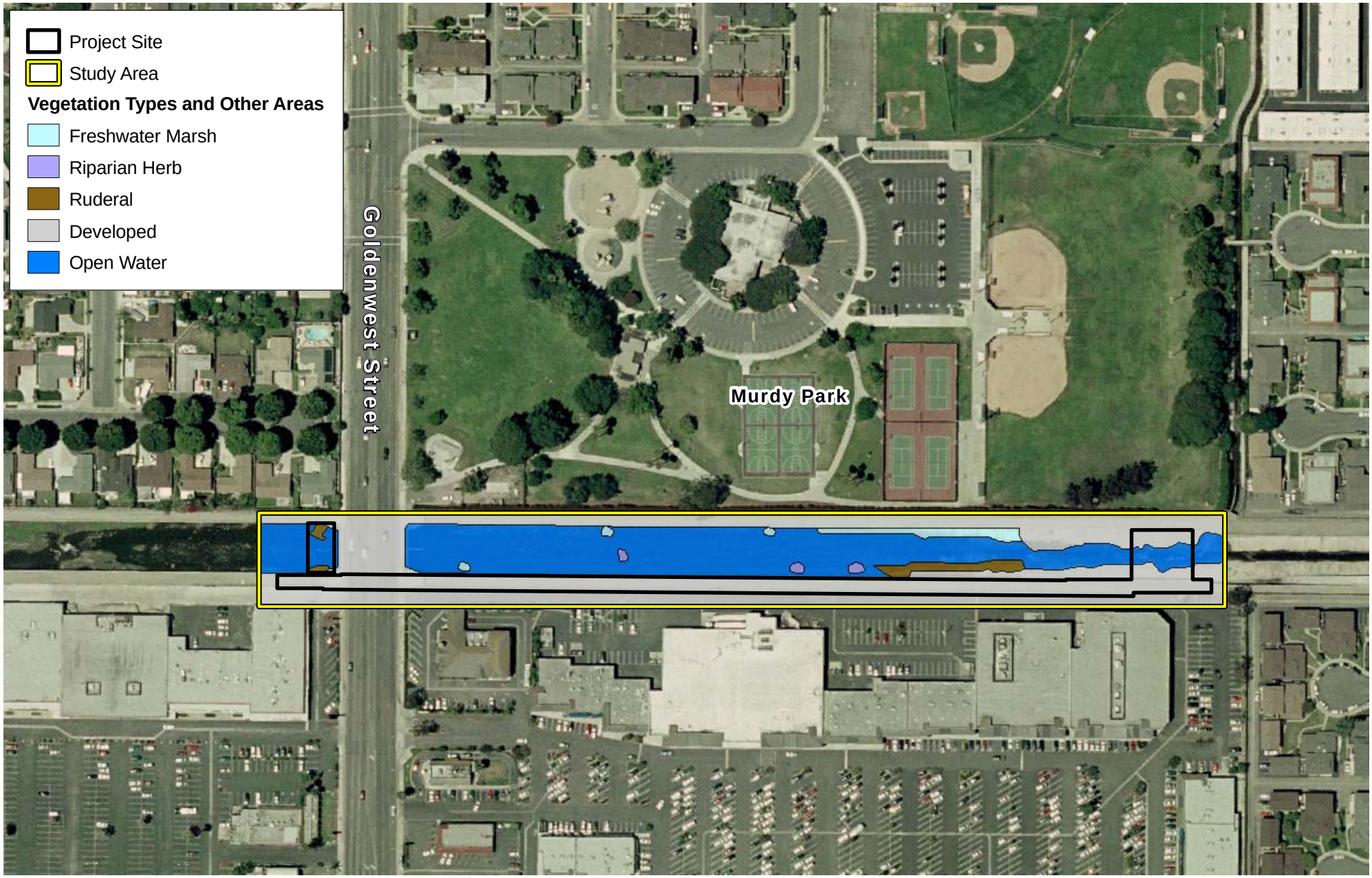
A biological reconnaissance field survey was conducted on November 1, 2007, to evaluate existing biological resources within the area of potential effects downstream of the channel diversion site in the EGGWC. The California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2007) and CDFG's California Natural Diversity Database (CDFG 2007a) were reviewed to identify special status plants, wildlife, and habitats known to occur in the vicinity of the EGGWC.

Vegetation

Vegetation within this reach is primarily limited to the toes of the levees that extend from the tidal gates to the upstream terminus of the soft-bottom channel. Some vegetation is present on the invert in the upper parts of this channel reach, specifically between Goldenwest Street and Springdale Street. Existing marsh vegetation, present throughout the reach, is degraded by presence of ruderal (weedy) non-native species and trash.

Salt marsh vegetation is found from the tide gates upstream to about 500 meters (1,640 feet) downstream of Graham Street. This area is disturbed with many ruderal species. Characteristic species of salt marsh vegetation present in this reach includes common woody pickleweed (*Salicornia virginica*), saltgrass (*Distichilis spicata*), alkali heath (*Frankenia salina*), and alkali weed (*Cressa truxillensis*). This vegetation is limited to the levee toes as the invert of the channel is dominated by open water at high tide. At low tide, some of the invert is exposed and mud flats appear that are largely unvegetated.

Brackish marsh vegetation dominates in areas where there appears to be moderate salinity. Within the EGGWC, brackish marsh vegetation extends from the boundary of the salt marsh vegetation upstream to the freshwater marsh found in the concrete box channel at the proposed diversion site. The most prominent plant species within the brackish marsh community is bulrush (*Scirpus* sp.). Bulrushes were not observed in the salt marsh or freshwater parts of the EGGWC during field investigations.



Existing Vegetation, EGGWC at Diversion

Exhibit 7.2-9

Talbert Lake Diversion Project

N W E S

200 100 0 200 Feet

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Ruderal vegetation found intermixed with both the salt and brackish marsh vegetation include the flax-leaved horseweed (*Conyza bonariensis*), common sow-thistle (*Sonchus oleraceus*), five-hooked bassia (*Bassia hysopifolia*), and Russian thistle (*Salsola tragus*).

Wildlife

Wildlife observed during field investigations within this reach include about 40 species of birds. Most bird species were water birds and include: Canada goose (*Branta canadensis*), gadwall (*Anas strepera*), mallard, blue-winged teal (*Anas discors*), cinnamon teal (*Anas cyanoptera*), northern pintail (*Anas acuta*), green-winged teal (*Anas crecca*), lesser scaup (*Aythya affinis*), ruddy duck (*Oxyura jamaicensis*), pied-billed grebe (*Podilymbus pidiceps*), eared grebe (*Podiceps nigricollis*), double-crested cormorant (*Phalacrocorax auritus*), and American coot (*Fulica Americana*). Other species present included great blue heron (*Ardea herodias*), great egret, snowy egret, white-faced ibis, black-necked stilt, spotted sandpiper (*Actitis macularius*), and greater yellowlegs. Land birds observed using habitats within the channel during the survey included Anna's hummingbird (*Calypte anna*), black phoebe, Say's phoebe (*Sayornis saya*), bushtit (*Psaltriparus minimus*), marsh wren (*Cistothorus palustris*), common yellowthroat, savannah sparrow (*Passerculus sandwichensis*), song sparrow, Lincoln's sparrow (*Melospiza lincolnii*), white-crowned sparrow (*Zonotrichia leucophrys*), and house finch. Other than the bird species observed during the survey, several shorebird species are expected to occur regularly in the EGGWC when mud flats are exposed at low tide (especially downstream near the tide gates) and include willet (*Tringa semipalmata*), marbled godwit (*Limosa fedoa*), western sandpiper (*Calidris mauri*), least sandpiper (*Calidris minutilla*), dunlin (*Calidris alpine*), and short-billed dowitcher (*Limnodromus griseus*).

Within the open spaces of Bolsa Chica Wetlands, the abundance and diversity of wildlife species greatly increases over what is present and potentially present upstream at the EGGWC project site. Native fish are more common in this part of the EGGWC with many salt-tolerant species expected to be present such as California killifish and topsmelt (*Atherinops affinis*). As most amphibian species are salt intolerant, they are not expected to occur in the EGGWC channel habitats within the Bolsa Chica Wetlands. Reptile species expected to occur at least occasionally on the EGGWC near Bolsa Chica include the western fence lizard, side-blotched lizard, southern alligator lizard (*Elgaria multicarinata*), and gopher snake (*Pituophis catenifer*).

Special Status Species

There are numerous special status plant species known to occur or that potentially occur at the Bolsa Chica Ecological Reserve. Only the southern tarplant, a CNPS List 1B.1 species (discussed above) has the potential to occur in the EGGWC downstream of the project site. Three State- and federally Endangered plant species known to occur in the project vicinity include the Ventura Marsh milk-vetch (*Astragalus pycnostachyus* var*. lanosissimus*), salt marsh bird's-beak (*Cordylanthus maritimus* ssp. *maritimus*), and California Orcutt grass (*Orcuttii californica*). However, none of these species are expected to occur in the EGGWC due to lack of suitable dune, relatively undisturbed coastal salt marsh, and vernal pool habitats.

Numerous special status wildlife species have the potential to occur in the EGGWC near the Bolsa Chica Ecological Reserve. Seven of these species are listed as Threatened and Endangered with the resource agencies, including the California brown pelican (*Pelecanus occidentalis californicus*), bald eagle (*Haliaeetus leucocephalus*), American peregrine falcon (*Falco peregrinus anatum*), light-footed clapper rail (*Rallus longirostris levipes*), western snowy plover (*Charadrius alexandrinus nivosus*), California least tern (*Sternula antillarum browni*), and Belding's savannah sparrow (*Passerculus sandwichensis beldingi*). The California brown pelican is a common year-round visitor to the Bolsa Chica Wetlands that breeds offshore on the

Channel Islands and is most abundant at the Bolsa Chica Ecological Reserve during the fall and winter. The bald eagle is a rare fall and winter visitor to Orange County. In recent years, the peregrine falcon has become a regular year-round visitor to the Bolsa Chica Ecological Reserve, but does not yet nest in the area. The lower reaches of the EGGWC provide suitable foraging habitat for all three species.

Although the light-footed clapper rail has been a rare visitor in recent years, the new tidal habitats being developed by the Bolsa Chica Restoration Project are expected to provide additional suitable nesting habitats for this species, and it may re-establish a breeding population at the Bolsa Chica Ecological Reserve. The EGGWC does not provide enough salt marsh habitat to support the light-footed clapper rail, but wandering individuals could occur. The western snowy plover breeds at Bolsa Chica and uses many parts of the Reserve for foraging, roosting, and nesting. This species may occasionally occur in the EGGWC for foraging or roosting, especially during migration and the winter season, but it is not expected to occur for nesting. The California least tern breeds at the Bolsa Chica Ecological Reserve; it primarily forages offshore and secondarily within the inner bays (including the EGGWC). The Belding's savannah sparrow is a year-round resident that breeds in relatively large numbers at the Reserve. Salt marsh habitats within the EGGWC are not substantial enough to support nesting Belding's savannah sparrows, but they are expected to occur occasionally for foraging.

Northeastern Section of Central Park

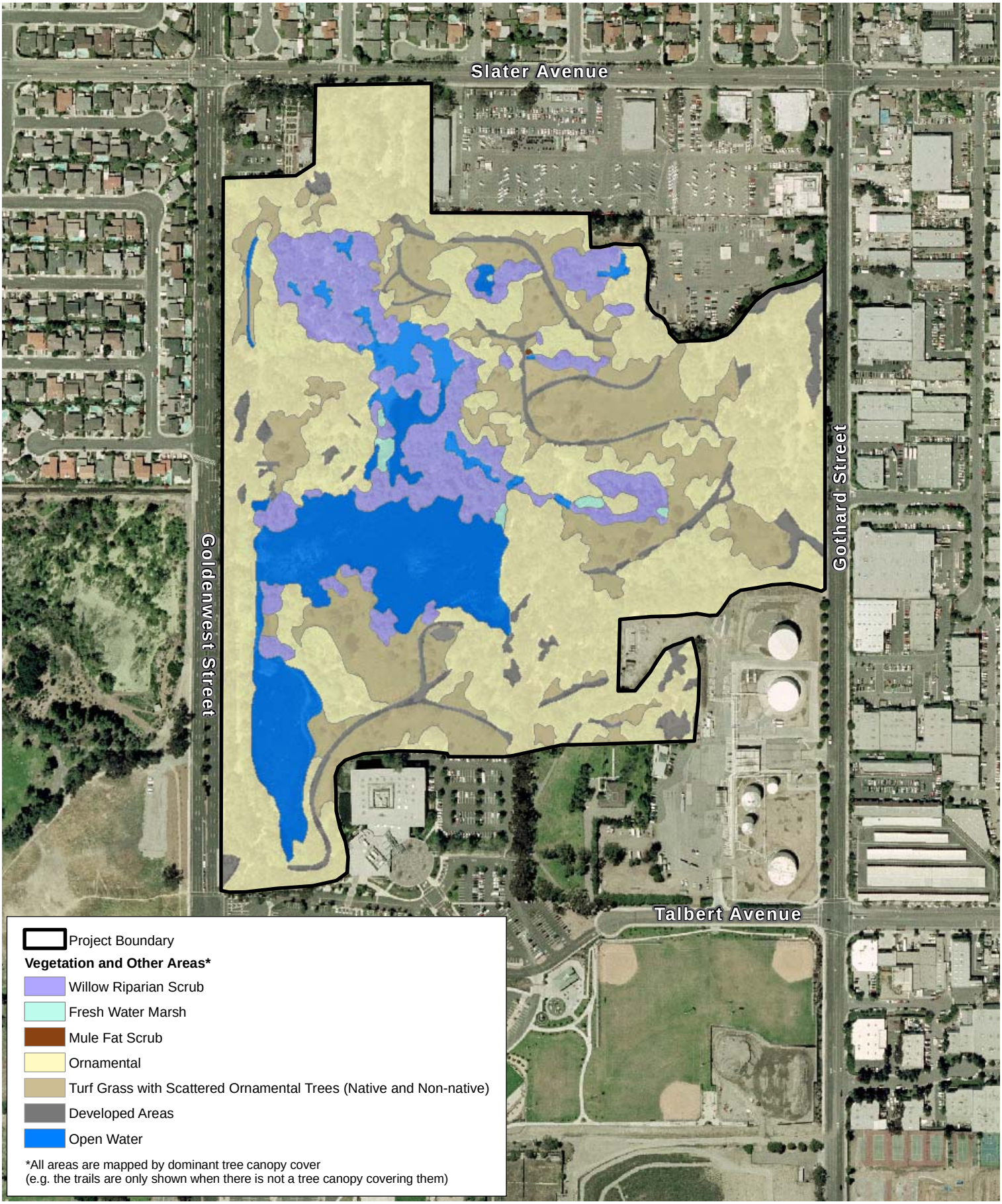
Central Park's biological resources were described and analyzed in recent studies including the *Huntington Central Park Master Plan of Recreation Uses* (Huntington Beach 1999); the Biological Resources Technical Report for the Huntington Beach Senior Center Project (Huntington Beach 2007); and the *Results of Focused Surveys for the Southwestern Willow Flycatcher and Least Bell's Vireo on the Talbert Lake Diversion Project Site, City of Huntington Beach, Orange County, California* (BonTerra Consulting 2007d).

Vegetation

Five vegetation types were identified within the Central Park portion of the project area. These include willow riparian scrub, fresh water marsh, mule fat scrub, ornamental, and "turf grass with scattered ornamental trees (native and non-native)."[4] 'Developed areas' and 'Open Water' are additional designations on the vegetation map (Exhibit 7.2-10) and are included to ensure all portions of the project site were considered in the analysis.

The willow riparian scrub vegetation type is found along the margins of permanent water or in areas that are seasonally inundated with water. Willow riparian scrub is characterized within Central Park by the presence of black willow (*Salix gooddingii*), arroyo willow (*Salix lasiolepis*), and mule fat (*Baccharis salicifolia*). Understory species that are associated with this vegetation type include mule fat, stinging nettle (*Urtica dioica*), cocklebur (*Xanthium strumarium*), and smartweed (*Polygonum* sp.). Non-native invasive species include castor bean (*Ricinus communis*), passion vine (*Passiflora sprucei*), tamarisk (*Tamarix ramosissima*), and others. In particular, the passion vine is especially problematic as it spreads and grows rapidly, covering willow trees and eventually bringing the trees down by the weight of its vegetative growth. Existing acreage of willow riparian scrub in the area that would be impacted by the project is estimated at 7.90 acres.

[4] This is a term used by the project's Biologists for this common vegetation type found on the site.



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Existing Vegetation, Central Park

Exhibit 7.2-10

Talbert Lake Diversion Project

N W E S

400 200 0 400 Feet

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The freshwater marsh vegetation type is found in Central Park where stands of cattails (*Typha* sp.) and/or common tule (*Scirpus* sp.) are dominant. These stands of cattails and tule are present around permanent bodies of water such as Huntington Lake (across Goldenwest Street) or areas that receive frequent inundation such as those around Talbert Lake. Existing acreage of freshwater marsh vegetation in the area that would be impacted by the project is estimated at 0.28 acre.

The dominant plant species within the mule fat scrub vegetation type is mule fat. Mule fat can form dense stands either in wet or relatively dry habitats. In northeastern Central Park, it is found in small patches in the area around Talbert Lake. Existing acreage of mule fat scrub in the area that would be impacted by the project is estimated at 0.01 acre.

Ornamental landscaping typically consists of introduced trees, shrubs, flowers, and turf grass. In Central Park, the ornamental vegetation classification includes some native species that have been planted for aesthetic purposes, including white alder (*Alnus rhombifolia*), sycamore (*Platanus* sp.), and cottonwood (*Populus* sp.). California sycamore (*Platanus racemosa*) is native to the region, but the sycamore trees on the project site appear to be a hybrid between London plane tree (*Platanus acerifolia*) and the California sycamore or another sycamore species. The cottonwood trees may be the native Fremont's cottonwood (*Populus fremontii*), but some appear to be a non-native cottonwood species (*Populus* sp.) such as the one currently within the Talbert Lake Meadow area. Existing acreage of ornamental vegetation in the area that would be impacted by the project is estimated at 9.74 acres.

Ruderal vegetation consists of non-native weedy species that typically grow following some form of ground disturbance. Grading, mowing, and clearing activities often allow ruderal vegetation to invade and dominate an area. A variety of ruderal species are found in Central Park and include black mustard (*Brassica nigra*) and wild radish (*Raphanus sativus*).

Annual (non-native) grasslands are found in several areas of Central Park. Talbert Lake is dominated by this vegetation type during periods of low precipitation. Characteristic species of these grasslands in Central Park include slender wild oat (*Avena barbata*), wild oat (*Avena fatua*), soft chess (*Bromus hordaceous*), and foxtail chess (*Bromus rubens*). Existing acreage of ornamental/turf grass vegetation in the area that could be impacted by the project is estimated at 5.41 acres; an additional 1 acre of turf grass could be impacted by project aesthetic features if funding is available for implementation.

Wildlife

Central Park is well known amongst the bird-watching community for its diverse bird population, as described above. The lack of unimpeded connectivity and relative isolation of the park from other large open space areas reduces the potential for the occurrence of wildlife species of lesser mobility, which, in turn, results in the increased sensitivity for those species that actually can be found on the site relative to local extirpation. A degree of connectivity between Central Park and other open spaces (i.e., the Bolsa Chica Wetlands) does exist through Harriett Wieder Regional Park, across Edwards Street at the southeastern corner of Central Park. The value of this connection as a wildlife corridor is somewhat reduced due to existing obstructions, such as vehicular traffic and fences.

There are no naturally occurring fish populations within the park. The non-native western mosquitofish (*Gambusia affinis*) does occur as it used by Orange County Vector Control for mosquito abatement. Talbert Lake does not currently support recreational fishing.

The non-native African clawed frog (*Xenopus laevis*) and bullfrog (*Rana catesbeiana*) are common in Central Park. Both species are detrimental to native amphibian species. Native amphibian species that are expected to still persist in the park include garden slender salamander (*Batrachoseps major*), western toad (*Bufo boreas*), and Pacific treefrog (*Pseudacris regilla*).

The western fence lizard (*Sceloporus occidentalis*) is the most common reptile species in Central Park. Other native species expected to occur include the side-blotched lizard (*Uta stansburiana*), southern alligator lizard (*Elgaria multicarinata*), and gopher snake (*Pituophis catenifer*). Introduced non-native species include the red-eared slider (*Trachemys scripta*) and the common snapping turtle (*Chelydra serpentina*). Both of these species are detrimental to native wildlife species.

Although the greatest diversity of birds at Central Park occurs during spring and fall migrations, there are many diverse species that breed in the park. Several raptor species have nested in Central Park and include white-tailed kite (*Elanus leucurus*), Cooper's hawk (*Accipiter cooperii*), red-shouldered hawk (*Buteo lineatus*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), and great horned owl (*Bubo virginianus*). A relatively long list of land bird species nest in the park, including the common ground dove (*Columbina passerina*), downy woodpecker (*Picoides pubescens*), Nuttall's woodpecker (*Picoides nuttallii*), Hutton's vireo (*Vireo huttoni*), common raven (*Corvus corax*), tree swallow (*Tachycineta bicolor*), western bluebird (*Sialia mexicana*), orange-crowned warbler (*Vermivora celata*), yellow warbler (*Dendroica petechia*), great-tailed grackle (*Quiscalus quiscula*), and American goldfinch (*Carduelis tristis*). Rare nesting occurrences for Orange County have occurred at Central Park and include such species as least bittern (*Ixobrychus exilis*), dark-eyed junco (*Junco hyemalis*), and indigo bunting (*Passerina cyanea*).

The most common mammal species observed at Central Park include Virginia opossum (*Didelphis virginiana*), desert cottontail (*Sylvilagus audubonii*), and California ground squirrel (*Spermophilus beecheyi*). Occasionally observed mammals include the house mouse (*Mus musculus*), broad-footed mole (*Sapanus latimanus*), striped skunk (*Mephitis mephitis*), common raccoon (*Procyon lotor*), and coyote (*Canis latrans*). The non-native fox squirrel (*Sciurus niger*) has recently become fairly common in portions of Central Park. Feral cats (*Felis cattus*) are present in the park and detrimental to native wildlife species.

Special Status Species

State and federal resource agencies, as well as private organizations, have afforded certain plant and wildlife species (including subspecies or variety) a special status if it has been documented that an individual taxon has declined or has a limited population size or range and/or distribution that has resulted, in most cases, from habitat loss. Sources used to determine the special status of biological resources at Central Park include:

> ***Plants*** – Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2007); the California Natural Diversity Database (CNDDB) (CDFG 2007a); various Federal Register notices from the USFWS regarding listing status of plant species; and the CDFG's List of Special Plants (CDFG 2007c).
>
> ***Wildlife*** – the List of Special Animals (CDFG 2007b); the CNDDB (CDFG 2007a); and various Federal Register notices from the USFWS regarding listing status of wildlife species.

The following tables provide a summary of special status plant (Table 7.2-6) and special status wildlife (Table 7.2-7) species that occur or have a reasonable potential to occur at Central Park.

These tables include only those special status species known to occur at Central Park and those considered to have a "reasonable" chance of occurring.

TABLE 7.2-6
SUMMARY OF SPECIAL STATUS PLANT SPECIES
OCCURRING/POTENTIALLY OCCURRING
AT HUNTINGTON (BEACH) CENTRAL PARK

Common Name	Scientific Name	USFWS	CDFG	CNPS	Occurrence
southern tarplant	*Centromadia parryi* ssp. *australis*			1B.1	Occurs in the Bolsa Chica Wetlands (CDFG 2007a). Suitable habitat for this species occurs in undeveloped areas and ruderal lots.
Coulter's goldfields	*Lasthenia glabrata* ssp. *coulteri*			1B.1	Historically occurred in the Bolsa Chica Wetlands (CDFG 2007a). Suitable habitat in the undeveloped areas that contain alkaline soils.
Sanford's arrowhead	*Sagittaria sanfordii*			1B.2	Record for Wintersburg Channel (CDFG 2007a); the specimen for this plant is mis-identified (Roberts 2007). Suitable habitat for this species in the undisturbed banks of lakes within the park (i.e., Sully Miller portion of the park).
San Bernardino aster	*Symphyotrichum defoliatum*			1B.2	Historically occurred in Bryant Ranch area (CDFG 2007a). Suitable habitat for this species occurs in wet areas adjacent to the undisturbed portions of the lakes within the park (i.e., Sully Miller portion of the park).

LEGEND

California Native Plant Society (CNPS) List Categories

1A Plants Presumed Extinct in California
1B Plants Rare, Threatened, or Endangered in California and Elsewhere
2 Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
3 Plants for Which More Information is Needed - A Review List
4 Plants of Limited Distribution – A Watch List

California Native Plant Society (CNPS) Threat Code Extensions

x.1 Seriously endangered in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)
x.2 Fairly endangered in California (20–80 percent occurrences threatened)
x.3 Not very endangered in California (less than 20 percent of occurrences threatened or no current threats known)

Source: CNPS 2007; CDFG 2007a; Roberts 2007.

TABLE 7.2-7
SUMMARY OF SPECIAL STATUS WILDLIFE SPECIES OCCURRING/POTENTIALLY OCCURRING AT HUNTINGTON (BEACH) CENTRAL PARK

Species	Status		Occurrence
	USFWS	CDFG	
Reptiles			
Emys [*Clemmys*] *marmorata pallida* Southwestern pond turtle	—	SSC	Has been reported but believed, if correct, to involve released individuals; no breeding population extant.
Phrynosoma coronatum [*blainvillii* population] coast [San Diego] horned lizard	—	SSC	May have occurred previously, but no suitable habitat currently and not expected to occur.
Birds			
Pelecanus occidentalis californicus California brown pelican	FE	SE	Very rare visitor (5 or fewer records); no suitable nesting habitat.
Phalacrocorax auritus double-crested cormorant	–	SSC	Uncommon year-round visitor; potential nesting habitat but no nesting attempted.
Ixobrychus exilis least bittern	–	SSC	Rare spring/summer visitor; very rare nester (5 or fewer records).
Plegadis chihi white-faced ibis	–	SSC	Rare year-round visitor; no suitable nesting habitat.
Accipiter cooperii Cooper's hawk	—	SSC	Uncommon year-round resident; nests in park.
Accipiter striatus sharp-shinned hawk	—	SSC	Uncommon migrant and winter visitor; does not breed in region.
Aquila chrysaetos golden eagle		FP/SSC	No record, but potential to occur during winter; no suitable nesting habitat.
Buteo regalis Ferruginous hawk	—	SSC	Very rare fall/winter visitor (5 or fewer records); does not breed in region.
Buteo swainsoni Swainson's hawk	—	ST	Very rare migrant (5 or fewer records); does not breed in region.
Circus cyaneus northern harrier	—	SSC	Uncommon migrant and winter visitor, rare in summer; potentially suitable nesting habitat.
Elanus leucurus white-tailed kite	—	FP	Uncommon year-round visitor; nests in park.
Falco columbarius merlin	—	SSC	Rare fall and winter visitor; does not breed in region.
Falco mexicanus prairie falcon	—	SSC	Very rare fall and winter visitor (5 or fewer records); no suitable nesting habitat.
Falco peregrinus anatum American peregrine falcon	—	SE, FP	Rare year-round visitor; potentially suitable nesting habitat.
Charadrius alexandrinus nivosus western snowy plover	FT	SSC	No record, but potential to occur as migrant; no suitable nesting or wintering habitat.
Numenius americanus long-billed curlew	–	SSC	Rare migrant and winter visitor; does not breed in region.
Chlidonias nigeri black tern	–	SSC	Very rare migrant (5 or fewer records); does not breed in region.
Larus atricilla laughing gull	–	SSC	Very rare visitor (5 or fewer records); does not breed in region.
Larus californicus California gull	–	SSC	Common winter visitor; does not breed in region.
Rynchops niger black skimmer	–	SSC	Uncommon and irregular spring/summer visitor; no suitable nesting habitat.
Sterna antillarum browni California least tern	FE	SE	Uncommon and irregular spring/summer visitor; no suitable nesting habitat.
Thalasseus elegans elegant tern	–	SSC	Rare spring/summer visitor; no suitable nesting habitat.
Coccyzus americanus occidentalis western yellow-billed cuckoo	FC	SE	Very rare migrant (5 or fewer records); potentially suitable nesting habitat.

TABLE 7.2-7 (Continued)
SUMMARY OF SPECIAL STATUS WILDLIFE SPECIES OCCURRING/POTENTIALLY OCCURRING AT HUNTINGTON (BEACH) CENTRAL PARK

Species	Status		Occurrence
	USFWS	CDFG	
Asio flammeus short-eared owl	—	SSC	Very rare migrant (5 or fewer records); does not breed in region.
Asio otus long-eared owl	—	SSC	Very rare winter visitor (5 or fewer records); potentially suitable nesting habitat.
Athene cunicularia burrowing owl	—	SSC	No record, but potential to occur; potentially suitable wintering and nesting habitat.
Chaetura vauxi Vaux's swift	–	SSC	Common migrant; does not breed in region.
Cypseloides niger black swift	–	SSC	Rare migrant; no suitable nesting habitat.
Empidonax traillii extimus southwestern willow flycatcher	FE	SE	Uncommon migrant (including all subspecies); potentially suitable nesting habitat.
Myiarchus tyearannulus brown-crested flycatcher	–	SSC	Rare migrant and winter visitor (5 or fewer records); does not breed in region.
Pyearocephalus rubinus vermilion flycatcher	–	SSC	Rare migrant (5 or fewer records); potentially suitable nesting habitat, but rare breeder in region.
Lanius ludovicianus loggerhead shrike	—	SSC	Uncommon year-round breeding resident until less than 10 years ago, but now rare winter visitor.
Vireo bellii pusillus least Bell's vireo	FE	SE	Rare spring/summer/fall visitor and very rare winter visitor (5 or fewer records); suitable nesting habitat but no successful breeding yet.
Eremophila alpestris actia California horned lark	—	SSC	Generally uncommon summer visitor and common winter visitor, but irregular; potentially suitable nesting habitat.
Progne subis purple martin	–	SSC	Rare migrant; potentially suitable nesting habitat, but rare breeder in region.
Riparia riparia bank swallow	–	ST	Rare migrant; does not breed in region.
Polioptila californica californica coastal California gnatcatcher	FT	SSC	Very rare (5 or fewer records) with breeding in 2002 and 2003 (nest probably on O.C. Transfer Station, but not in "park proper").
Toxostoma bendirei Bendire's thrasher	–	SSC	Very rare migrant (5 or fewer records); does not breed in region.
Vermivora virginiae Virginia's warbler	–	SSC	Rare migrant; does not breed in region.
Dendroica petechia brewsteri western yellow warbler	—	SSC	Common migrant, uncommon breeder, rare winter visitor; suitable nesting habitat.
Icteria virens yellow-breasted chat	—	SSC	Rare migrant and rare summer resident (no confirmed breeding); suitable nesting habitat.
Piranga rubra summer tanager	–	SSC	Rare migrant and summer and winter visitor; does not breed in region.
Agelaius tricolor tricolored blackbird	—	SSC	Common year-round breeding resident into 1980s but decline noted in early 1990s and continues, so that it's now rare.

LEGEND

Federal (USFWS)		**State (CDFG)**	
FE	Endangered	SE	Endangered
FT	Threatened	ST	Threatened
FC	Candidate Species	SSC	Species of Special Concern

Source: BonTerra Consulting 2007b.

7.2.6 JURISDICTIONAL RESOURCES

A jurisdictional delineation was conducted on January 26, 2007 (Attachment 5), in accordance with the requirements of the U.S. Army Corps of Engineers (USACE) and the CDFG to determine the type and extent of the jurisdictional boundaries based on the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2006), policies, and guidance letters provided by these regulatory agencies. It should be noted that the delineation must be reviewed by these agencies in order to obtain final determination of jurisdictional boundaries. An area must exhibit all three wetland parameters to be considered a Jurisdictional Wetland, as provided in the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region.*

Wetlands Determination: Based on the results of the field investigations, it was determined that multiple areas on the project site met all three criteria for USACE Jurisdiction. Field observations and data collection efforts indicate that approximately 19.44 acres of "waters of the U.S.," including 9.23 acres of wetlands, occur on the Central Park portion of the project site. No wetlands occur within the area of channel diversion.

"Waters of the United States" (Non-Wetland) Determination: Most of the western half of the project site exhibits evidence of hydrology sufficient to document that the ordinary high water mark (OHWM) meets the criteria for USACE jurisdictional waters. Of the 19.44 acres of USACE jurisdictional "waters of the U.S." that occur on the project site (Table 7.2-8), approximately 0.07 acre was delineated as non-wetland "waters of the U.S." and 10.14 acres were delineated as open water. Areas of open water contain surface water and are unvegetated (i.e., had less than five percent total plant cover) or are dominated by non-native vegetation.

TABLE 7.2-8
EXISTING USACE JURISDICTIONAL WATERS

USACE Jurisdiction	Talbert Lake	EGGWC Diversion Concept 1	EGGWC Diversion Concept 2	EGGWC Diversion Concept 3
Wetlands	9.23	0.00	0.00	0.00
Non-Wetlands Waters of the U.S.	0.07	0.01	0.00	0.00
Open Water	10.14	0.05	0.17	0.11
Total Waters of the U.S.	**19.44**	**0.06**	**0.17**	**0.11**
Source: BonTerra Consulting 2007b.				

As a standard condition of project approval. SC-4 ensures project compliance with Section 404 of the Clean Water Act through appropriate permit acquisition.

SC-4 A Section 404 permit will be obtained from the U.S. Army Corps of Engineers for the proposed project prior to project implementation.

7.2.7 TRAFFIC

The Huntington Beach Senior Center EIR (Huntington Beach 2007) identifies existing traffic conditions at the intersections of Goldenwest Street at: Slater Avenue, Talbert Avenue, and Ellis Avenue. The traffic conditions at these intersections are described for the AM and PM peak traffic hours in terms of Level of Service (LOS) based on the Intersection Capacity Utilization (ICU) method. ICU values are calculated by comparing the volume of traffic that uses the intersection with that intersection's capacity. Level of Service (LOS) is assigned a letter grade from "A" to "F" with LOS A representing free-flow traffic conditions and LOS F representing congested conditions with lengthy delays. The ICU value and corresponding LOS is defined in Table 7.2-9.

TABLE 7.2-9
CITY OF HUNTINGTON BEACH/LEVEL OF SERVICE (LOS) DEFINITIONS

Level of Service (LOS)	Intersection Capacity Utilization (ICU) Value
A	0–0.60
B	0.61–0.70
C	0.71–0.80
D	0.81–0.90
E	0.94–1.00
F	>1.00

Within the City of Huntington Beach, the acceptable level of service is LOS D. A project is said to have a significant impact if it results in LOS "E" or "F" at any intersection or results in a 0.01 increase in ICU for any intersection that currently experiences LOS "E" or LOS "F" traffic conditions.

The Huntington Beach Senior Center EIR (Huntington Beach 2007) identifies existing traffic conditions at intersections in the vicinity of the project site on Goldenwest Street at: Slater Avenue, Talbert Avenue, and Ellis Avenue. Existing traffic conditions are identified in Table 7.2-10.

TABLE 7.2-10
EXISTING TRAFFIC CONDITIONS, GOLDENWEST STREET AT CENTRAL PARK

Intersections	AM Peak	PM Peak	AM Peak ICU	PM Peak ICU	LOS AM/PM
Goldenwest St. at Slater Ave	3,683	4,547	0.80	0.83	D/D
Goldenwest St. and Talbert Ave.	2,175	2,692	0.32	0.45	A/A
Goldenwest St. and Ellis Ave.	2,576	3,110	0.40	0.54	A/A
Source: Huntington Beach 2007.					

7.2.8 CULTURAL RESOURCES

A cultural resources records search for the proposed project's area of potential effects (APE) and surrounding vicinity was completed by the South Central Coastal Information Center (SCCIC) at the California State University, Fullerton on February 5, 2007. The records search provided data on known archaeological and constructed resources as well as on previous studies within one mile of the proposed project. Data sources that the SCCIC consulted include archaeological

records, Archaeological Determinations of Eligibility (DOE), historic maps and the Historic Property Data File (HPDF), which is maintained by the California Office of Historic Preservation (OHP). Attachment 6 contains additional detail on the results of these investigations.

The SCCIC reported that 28 previous surveys have been conducted within 1 mile of the proposed project's APE. Four of these studies included all or portions of the current proposed project's APE. The SCCIC reported 17 archaeological and 9 built-environment cultural resources within the search radius that included the proposed project APE and the surrounding 1-mile buffer area around the site. None of the previously identified resources are within the proposed project APE, though two archaeological resource sites (CA-ORA-142 and CA-ORA-372/595) were directly adjacent to the site.

A systematic archaeological field survey of the 85-acre proposed project APE was conducted by Brian K. Glenn, M.A., RPA of BonTerra Consulting on February 2, 2007. The survey consisted of a combination of linear and contour-based transects spaced no greater than 15 meters (approximately 49′ 2.5″) apart. This survey identified two valves of marine shell: one scallop (*Argopecten* sp.) and one Venus clam (*Chione* sp.).

A review of the paleontological sensitivity and previously identified fossil resources in the vicinity of the proposed project's APE and/or within similar formations was conducted by Dr. Sam McLeod of the Vertebrate Paleontology Section of the Natural History Museum of Los Angeles County (NHMLAC) on January 26, 2007 (Appendix D of Attachment 6). Dr. McLeod identified and discussed the previous finds and determined the paleontological sensitivity of the deposits represented within the proposed project's APE. The NHMLAC review of the data indicates that no fossil resources have been discovered within the proposed project APE. The northwestern portion of the project APE consists of younger Quaternary alluvium, which is unlikely to yield fossil specimens in the uppermost layers.

7.2.9 GEOLOGY AND SOILS

Information on the existing geologic, seismic, and soils conditions at the project site was derived from the Environmental Hazards Element of the *City of Huntington Beach General Plan* (Huntington Beach 1996) and the Geology and Soils section of the Huntington Beach Senior Center EIR (Huntington Beach 2007). As geologic and seismic conditions are generally regional (i.e., large-scale) in nature, geotechnical information on regional geologic conditions and seismic hazards provided in Section 4.5 of the Senior Center EIR can be applied to the project site.

The project site is situated within and immediately beyond the northern margin of the Huntington Beach Mesa within the central block of the Los Angeles Basin (Basin) of the Transverse Ranges Geomorphic Province (Huntington Beach 1996, 2007). The central block of the Basin is bordered on the south by the Newport-Inglewood Fault Zone, approximately 1 mile southwest of the site and the Whittier-Elsinore Fault Zone, approximately 16 miles northeast of the site (Huntington Beach 2007). Faults in the project area are discussed further below.

The City of Huntington Beach lies on a coastal plain underlain by recent (Quaternary) sedimentary deposits. In the project area, the Quaternary sediments are divided into older alluvium (Pleistocene[5]) and younger alluvium (Holocene[6]). The older sediments are shallow marine terrace deposits that have been uplifted and then eroded to form the Bolsa Chica and Huntington Beach mesas. The mesas are surrounded by younger alluvial soils. Approximately the southern third of Central Park is underlain by older alluvium within the Huntington Beach

[5] 11,000 to 1,700,000 years before present
[6] 11,000 years before present to present

Mesa and the remainder of the site, including the EGGWC area, is underlain by younger alluvium (Huntington Beach 1996).

Faults and Seismicity

The project site, as with all of southern California, lies in a seismically active region. There are several active and potentially active faults in the region with the potential to generate moderate-to-strong ground shaking on the project site. The nearest fault to the project site is the inactive Bolsa-Fairview Fault, located approximately one-half mile to the southwest (Huntington Beach 1996). However, the nearest active fault to the project site is the Newport-Inglewood Fault Zone, which is also the nearest Alquist-Priolo Earthquake Fault Zone (Alquist-Priolo Zone) (Exhibit 7.2-11) (Huntington Beach 1996, 2007). Exhibit 7.2-11 illustrates the location of the Newport-Inglewood Alquist-Priolo Zone in relation to the project site. It has been estimated that the Newport-Inglewood Fault Zone could produce an earthquake with a maximum magnitude of 6.9 (Huntington Beach 2007). There are no known active or potentially active faults traversing the project site.

Secondary Seismic Hazards

Secondary effects of seismic ground shaking from earthquakes that may affect the project site include seismically induced liquefaction, including lateral spreading, dynamic settlement, and landslides. A brief description of these hazards and the potential for their occurrence on the site follows below.

Liquefaction

Liquefaction is defined as the transformation of a granular material from a solid state into a liquid state with vibration (most commonly due to seismic shaking) in the presence of water. It is a phenomenon that tends to occur in saturated and near-saturated, relatively loose sandy soils where the groundwater is less than 50 feet below ground surface (bgs). Lateral spreading is a type of ground failure associated with liquefaction that involves rapid horizontal displacement of sediments on gentle slopes towards an open or “free” face, such as a channel or open water body. Seismically induced settlement (also called dynamic settlement) can occur in conditions similar to liquefaction but where soils are only partially saturated. As discussed above, the project site is underlain by unconsolidated alluvial deposits. Due to its proximity to the Pacific Ocean, the City of Huntington Beach experiences generally shallow (less than 50 feet bgs) near-surface water. This water is found as both perched water and in shallow aquifers. The *City of Huntington Beach General Plan* identifies water levels between 5 feet and greater than 30 feet bgs within the project site. The water levels are deepest in mesa areas and become shallower in the gap areas between the mesas. Accordingly, the General Plan identifies the southern third of Central Park (within the mesa) as having low liquefaction potential while the remainder of the site is identified as having medium to very high liquefaction potential, depending on the water level (Huntington Beach 1996).

Landslides

Seismically induced landslides occur when shaking from an earthquake: (1) causes pre-existing landslides to reactivate or (2) triggers new landslides along planes of weakness. The *City of Huntington Beach General Plan* identifies the southernmost portion of Central Park (largely consistent with the boundary between the older alluvium underlying the mesa area and the surrounding younger alluvium) as having a low potential for unsuitable slopes (Huntington Beach 1996) that are normally prone to sliding.

Soil Engineering Characteristics

There are a variety of natural soils characteristics that have the ability to adversely affect development of a site, and for which specific engineering measures must be implemented to counteract such limitations. Adverse soils conditions identified for the city include expansive soils, compressible soils, hydroconsolidation-prone sediments, subsidence, and presence of peat and organic soils, which are highly prone to settlement due to their low density (Huntington Beach 1996). As the proposed project does not involve the construction of structures, these adverse soils are not likely to significantly affect project implementation. The presence and extent of such soils conditions is determined by a site-specific geotechnical investigation, which has not yet been conducted on the project site. However, the General Plan provides further data for certain conditions, including expansive soils and subsidence.

Expansive soils expand when wet and contract when dry, generally based on clay content, which can cause damage to overlying structures. According to the *City of Huntington Beach General Plan,* the majority of the project site is identified as having moderate to high expansion potential; the southeastern corner of the Central Park portion of the site is identified as having low to moderate expansion potential (Huntington Beach 1996).

Subsidence is a lowering of surface elevation due to the withdrawal of groundwater, oil, and/or gas. Between 1976 and 1986, the City of Huntington Beach documented a pattern of subsidence in an area roughly corresponding to the limits of the Huntington Beach Oil Field. The overall maximum subsidence recorded was five feet at the corner of Goldenwest Street and Pacific Coast Highway. Re-pressurization by injection (water flooding) has since been applied to stabilize this vertical movement (Huntington Beach 1996).

Channel Diversion Alternatives

Project Location

Project Boundary

Faults

Earthquake Fault Zone Boundary Polygons

Approximately Located Fault Traces

Inferred Fault Traces

Concealed Fault Traces

Source: USGS Newport Beach and Seal Beach 7.5 Minute Digital Quadrangles

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Alquist-Priolo Fault Hazard Map

Exhibit 7.2-11

Talbert Lake Diversion Project

N W E S

2,000 1,000 0 2,000 Feet

BonTerra CONSULTING

PAS R:/Projects/Pace/J002/Graphics/MND/Ex7.2-11_Alquist_Priolo_032008.pdf

7.2.10 HAZARDS

The *City of Huntington Beach General Plan's* Hazardous Materials Element has identified 20 hazardous materials operations within city limits, with 2 sites located near the project area. One site has been identified as Chevron's Huntington Beach Terminal at 17881 Gothard Street, immediately adjacent to the southeastern corner of the Central Park. This facility is an active oil terminal, with two abandoned oil lines and at least one active oil line connecting the facility with a pipeline near the Goldenwest Street and Slater Avenue intersection. These pipelines run in a northwesterly direction across Central Park. Based on an old grading plan for Central Park, the abandoned lines appear to be 8″ in diameter and run approximately parallel across the park. The method of abandonment and the depth of these pipelines are unknown, even to Chevron personnel (PACE 2007). The alignment of the active pipeline is different than the abandoned lines, although they begin and end in the same location. Similar to the abandoned lines, the depth of the active pipeline is unknown. Project design includes conducting field investigations prior to project grading to positively locate each line.

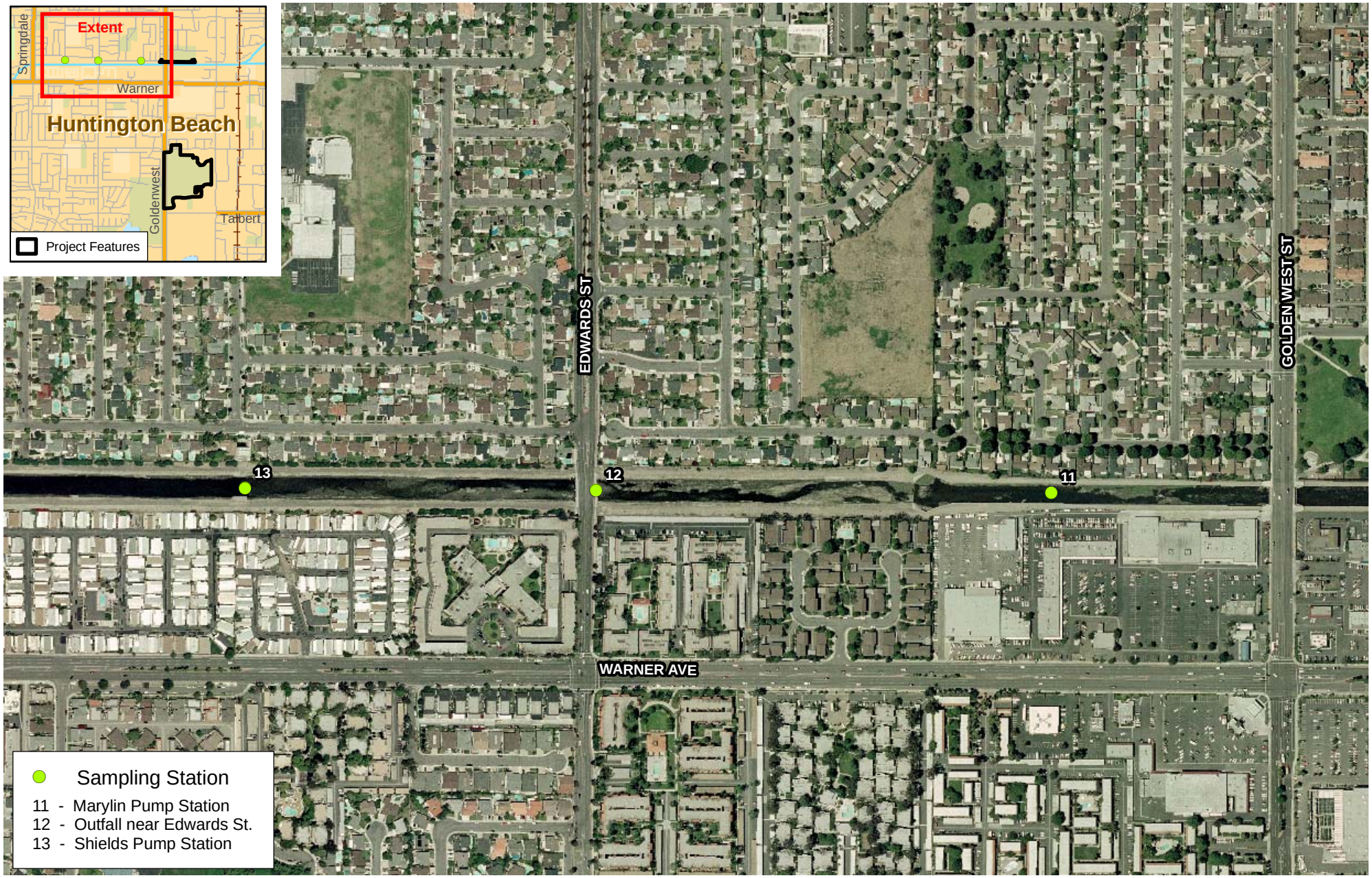
The second hazardous materials operation identified in the General Plan is the Huntington Beach Police Officer's Association (POA) Range (Huntington Beach 1996). This facility operated from 1971 to 1998 as the gun range for the Huntington Beach POA and was also used by federal agents, police officers from neighboring cities, private security companies, public agencies, and individuals. This site, however, was located across Talbert Avenue south of the proposed project location.

There are several sites within one-quarter mile of the project area listed in the California Department of Toxic Substance Control's (DTSC's) Envirostor database, also called the Hazardous Waste and Substances List. All but one of these sites are Leaking Underground Fuel Tank (LUFT) sites, and are undergoing cleanup of unauthorized releases from an Underground Storage Tank (UST) system. There are a total of 12 LUFT sites within approximately one quarter mile of the project site: 4 are near the EGGWC project area clustered at the intersection of Goldenwest Street and Warner Avenue and 8 are located near Central Park, largely to the north and east consistent with the commercial and industrial land uses present in these areas. Also listed on the Envirostor database near the project site is one "military evaluation" site (Ryan Aeronautical Corporation) near the intersection of Gothard Street and Talbert Avenue to the southwest of the project site. The database has limited information about the nature of this listing other than it is or was part of the DTSC's Site Mitigation and Brownfield Reuse Program; as of July 2005 it was inactive and required evaluation (DTSC 2007).

7.3 PROJECT PURPOSE AND NEED

The CURMP provides baseline water quality data for flows in the EGGWC. Sample locations #11, 12, and 13 are in closest proximity to the proposed project location, as illustrated in Exhibit 7.3-1. Tables 7.3-1 and 7.3-2 provide a detailed cross section of dry weather sampling data from these stations.

The waters of Huntington Harbor and Anaheim Bay have been included on the USEPA's 303(d) list of impaired water bodies, as reported by the State Water Resources Control Board (USEPA 2006). Constituents of concern for Huntington Harbour include chlordane, copper, lead, nickel, pathogens, polychlorinated biphenyls (PCBs), and sediment toxicity. Constituents of concern for Anaheim Bay include dieldrin, nickel, PCBs, and sediment toxicity.



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EGGWC Water Quality Sampling Sites #11, 12, 13

Exhibit 7.3-1

Talbert Lake Diversion Project

N W E S

500 250 0 500 Feet

Bonterra CONSULTING

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