Natural Environment Study

State Route 710 North Study

Los Angeles County, CA

District 07 – Los Angeles

07-LA-710-(SR 710)

EA 187900

November 2014

Caltrans
CALIFORNIA DEPARTMENT OF TRANSPORTATION

Metro
Los Angeles County
Metropolitan Transportation Authority

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STATE OF CALIFORNIA
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Los Angeles County Metropolitan Transportation Authority

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Summary

The California Department of Transportation (Caltrans), in cooperation with the Los Angeles County Metropolitan Transportation Authority (Metro) proposes transportation improvements to improve mobility and relieve congestion in the area between State Route 2 (SR 2) and Interstates 5, 10, 210, and 605 (I-5, I-10, I-210, and I-605, respectively) in east/northeast Los Angeles and the western San Gabriel Valley. The study area for the State Route 710 (SR 710) North Study (Proposed Project) is approximately 100 square miles and generally bounded by I-210 on the north, I-605 on the east, I-10 on the south, and I-5 and SR 2 on the west. Caltrans is the Lead Agency under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA).

The lack of continuous north-south transportation facilities in the study area has the following consequences, which have been identified as the elements of need for the Proposed Project:

- Degradation of the overall efficiency of the larger regional transportation system
- Congestion on freeways in the study area
- Congestion on the local streets in the study area
- Poor transit operations within the study area

The purpose of the proposed action is to effectively and efficiently accommodate regional and local north-south travel demands in the study area of the western San Gabriel Valley and east/northeast Los Angeles, including the following considerations:

- Improve efficiency of the existing regional freeway and transit networks.
- Reduce congestion on local arterials adversely affected due to accommodating regional traffic volumes.
- Minimize environmental impacts related to mobile sources.

The proposed alternatives for the Proposed Project include:

- the No Build Alternative,
- the Transportation System Management/Transportation Demand Management (TSM/TDM) Alternative,
- the Bus Rapid Transit (BRT) Alternative
- the Light Rail Transit (LRT) Alternative
- the Freeway Tunnel Alternative

Components of the TSM/TDM Alternative will also be included with the BRT, LRT, and Freeway Tunnel Alternatives.

The No Build Alternative includes projects/planned improvements through 2035 that are contained in the Federal Transportation Improvement Program (FTIP), as listed in the Southern California Association of Governments (SCAG) 2012 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) Measure R and the funded portion of Metro's 2009 Long Range Transportation Plan (LRTP). The No Build Alternative does not include any planned improvements to the SR 710 Corridor.

The TSM/TDM Alternative consists of strategies and improvements to increase efficiency and capacity for all modes in the transportation system with lower capital cost investments and/or lower potential impacts. The TSM/TDM Alternative is designed to maximize the efficiency of the existing transportation system by improving capacity and reducing the effects of bottlenecks and chokepoints. TSM strategies include Intelligent Transportation Systems (ITS), local street and intersection improvements, and Active Traffic Management (ATM). The TDM strategies include expanded bus service, bus service improvements, and bicycle improvements.

The BRT Alternative would provide high-speed, high-frequency bus service through a combination of new, dedicated, and existing bus lanes, and mixed-flow traffic lanes to key destinations between East Los Angeles and Pasadena.

The LRT Alternative would include passenger rail operated along a dedicated guideway, similar to other Metro light rail lines. The LRT Alternative would begin on

Mednik Avenue adjacent to the existing East Los Angeles Civic Center Station on the Metro Gold Line and end at Raymond Avenue adjacent to the existing Fillmore Station on the Metro Gold Line.

The Freeway Tunnel Alternative would start at the existing southern stub of SR 710 in Alhambra, just north of I-10, and connect to the existing northern stub of SR 710, south of the I-210/SR 134 interchange in Pasadena. The Freeway Tunnel Alternative has two design variations: a dual-bore tunnel and a single-bore tunnel.

Five operational variations for the Freeway Tunnel Alternative include:

- the freeway tunnel alternative without tolls
- freeway tunnel alternative with trucks excluded
- freeway tunnel alternative with tolls
- the freeway tunnel alternative with tolls and trucks excluded
- the freeway tunnel alternative with toll and express bus.

This Natural Environment Study (NES) was prepared to support the SR 710 North Study or "Proposed Project." The NES may be used in the preparation of an Environmental Impact Statement/Environmental Impact Report (EIS/EIR) pursuant to NEPA and CEQA.

A thorough literature review including a search of the California Natural Diversity Database (CNDDB) resulted in the identification of 54 special-status plants (12 of which are federally and/or state-listed endangered, threatened, rare, or candidate species) and 71 special-status wildlife species (19 of which are listed as federally and/or state-listed endangered or threatened, or proposed endangered or threatened, or are considered Fully Protected species by the State of California) with the potential to occur within and adjacent to the Proposed Project.

In 2013, general-reconnaissance surveys, protected tree surveys, plant community mapping, focused botanical surveys, focused avian surveys, focused burrowing owl and special-status riparian bird habitat assessments, focused bat surveys, and a jurisdictional delineation were conducted. These surveys served to document the conditions of the existing biological resources located within the Biological Study Area (BSA). The BSA for the Proposed Project is an approximately 3,410-acre area

that includes portions of the Cities of Los Angeles, Pasadena, South Pasadena, Alhambra, San Gabriel, Rosemead, San Marino, and Monterey Park, as well as unincorporated portions of Los Angeles County. Existing land uses within and adjacent to the BSA primarily include: transportation, residential, commercial, industrial, infrastructure, and recreational land uses.

The BSA contains primarily disturbed/developed habitats with small isolated areas of natural vegetation. By far the most common plant community/land cover type present was disturbed/developed, which represented more than 95 percent of the BSA. Additional plant communities identified included non-native grassland, non-native woodland, non-native riparian woodland, wetland complex, giant reed semi-natural stands, laurel sumac scrub, coast live oak woodland, white alder groves, black cottonwood forest, and arroyo willow thickets. The California Department of Fish and Wildlife (CDFW) considers the latter four plant community types as sensitive and/or natural communities of special concern, along with the riparian habitats of the riparian non-native woodland, wetland complex, and giant reed breaks. The only sensitive plant community that could be impacted is wetland complex, which would be permanently impacted by the Freeway Tunnel Alternative (Table S-1, Impacts to Plant Communities by Alternative).

Table S-1, Impacts to Plant Communities by Alternative

Plant Community/ Cover Type	Acres of Direct Impacts									
	TSM/TDM		BRT		LRT		Freeway Tunnel			
							Single Bore		Dual Bore	
	Perm.	Temp.	Perm.	Temp.	Perm.	Temp.	Perm.	Temp.	Perm.	Temp.
Wetland complex	0	0	0	0	0	0	1.09	0	1.09	0
Non-native grassland	0.6	0.3	1.9	0	12.6	2.1	25.2	2.9	25.2	2.2
Non-native woodland	<0.1	0	0	0	3.9	8.0	31.6	<0.1	32.4	1.1
Disturbed/ developed	0.7	0.5	123.8	0.6	93.6	29.7	244.9	53.4	244.9	51.7

Key:
TSM/TDM = Transportation System Management/Transportation Demand Management Alternative
BRT = Bus Route Transit Alternative
LRT = Light Rail Transit Alternative

No federally- or state-listed plants or animals were observed during the surveys. No impacts are planned to any habitats within the BSA identified as being suitable for federally- or state-listed species. Non-listed special-status species that might be directly impacted included:

- Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*). A small population of this sensitive plant would be permanently impacted by the Freeway Tunnel Alternative.
- Southern California black walnut (*Juglans californica var. californica*). A single individual of this sensitive tree was located just outside the permanent impacts area of the Freeway Tunnel Alternative, and thus might be directly impacted.

Incidental Take Permits from USFWS and/or CDFW for threatened or endangered species are not anticipated to be required.

A jurisdictional delineation was conducted, which identified potentially jurisdictional drainages and associated habitats within the BSA. Final determination of agency jurisdiction is pending input from the United States Army Corps of Engineers (Corps), CDFW, and the Regional Water Quality Control Board (RWQCB), and the jurisdictional status of drainages should be considered tentative at this time. Waters and wetlands potentially subject to Corps jurisdiction included two named streams with relatively permanent waters (the Arroyo Seco and the Laguna Channel) totaling 4.43 jurisdictional acres, and an abutting 0.44-acre wetland. Areas potentially subject to CDFW jurisdiction included those subject to Corps jurisdiction, as well as 4.12 acres of non-wetland riparian plant communities associated with the Arroyo Seco, 0.79 acres of non-wetland riparian plant communities associated with the Laguna Channel. Waters and wetlands potentially subject to RWQCB jurisdiction included all of the above.

Due to identified occurrences of jurisdictional features that would be impacted by the Freeway Tunnel Alternative, the following permits and agreements with the jurisdictional agencies would be required: a Dredge and Fill permit from the Corps, a Lake and Streambed Alteration Agreement (SAA) with CDFW, and water quality certification from the Los Angeles RWQCB. Avoidance, minimization and mitigation measures would be included as conditions of these permits and agreements, including compensatory mitigation that is anticipated to offset project impacts to a level such that there would be no net loss. Only the Freeway Tunnel Alternative would result in

impacts to jurisdictional waters and wetlands; the other Build Alternatives would avoid such impacts (Table S-2, Jurisdictional Impacts by Alternative).

Table S-2: Jurisdictional Impacts by Alternative

Alternative and Option	Jurisdiction	Acres of Impacts				
		Non-wetland waters		Wetland waters		Riparian Habitats
		Perm.	Temp.	Perm.	Temp.	
TSM/TDM	Corps	0	0	0	0	NA
	CDFW	0	0	0	0	0
	RWQCB	0	0	0	0	NA
BRT	Corps	0	0	0	0	NA
	CDFW	0	0	0	0	0
	RWQCB	0	0	0	0	NA
LRT	Corps	0	0	0	0	NA
	CDFW	0	0	0	0	0
	RWQCB	0	0	0	0	NA
Freeway Tunnel, Single Bore	Corps	0.06	0.02	0	0	NA
	CDFW	0.06	0.02	0	0	0
	RWQCB	0.06	0.02	0	0	NA
Freeway Tunnel, Dual Bore	Corps	0.51	0.22	0	0	NA
	CDFW	0.51	0.22	0	0	0
	RWQCB	0.51	0.22	0	0	NA

Invasive species were widespread within the BSA, primarily located within the Freeway Tunnel Alternative impact area. Pursuant to Executive Order (EO) 13112, the development and implementation of weed control measures would be required in order to minimize the introduction and/or spread of exotic plant materials during and after construction.

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List of Abbreviated Terms

ATM	Active Traffic Management
Ave.	Avenue
Blvd.	Boulevard
BMP	Best Management Practice
BRT	Bus Rapid Transit
BSA	Biological Study Area
CaCodes	California Natural Community Codes
Cal-IPC	California Invasive Plant Council
Caltrans	California Department of Transportation
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CMS	Changeable Message Signs
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CNPSEI	Electronic Inventory of Rare and Endangered Vascular Plants of California
Corps	United States Army Corps of Engineers
CRPR	California Rare Plant Rank
CSS	Coastal Sage Scrub
CWA	Clean Water Act
CUP	Conditional Use Permit
DBH	Diameter at Breast Height
Dr.	Drive
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Environmentally Sensitive Area
ETA	Ecological Transition Area
FAC	Facultative

FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
Foothill	Foothill Transit
ft	Foot
FTIP	Federal Transportation Improvement Program
GIS	Geographic Information Systems
GPS	Global Positioning System
HUC	Hydrological Unit Code
I	Interstate Number
IEN	Information Exchange Network
in	Inch
ITS	Intelligent Transportation Systems
km	Kilometer
LRT	Light Rail Transit
LRTP	Long Range Transportation Plan
MBTA	Migratory Bird Treaty Act
Metro	Los Angeles County Metropolitan Transportation Authority
MFR	Memorandum for the Record
mi	Mile
MOU	Memorandum of Understanding
mph	Miles per Hour
MSA	Metropolitan Statistical Area
MSL	Mean Sea Level
NB	Northbound
NEPA	National Environmental Policy Act
NES	Natural Environment Study
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
O&M	Operations and Maintenance
OBL	Obligate
OHWM	Ordinary High Water Mark
Rapid	Bus Rapid Transit
Rd.	Road

ROW	Right of Way
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SAA	Lake and Streambed Alteration Agreement
SB	Southbound
SCAG	Southern California Association of Governments
SCS	Sustainable Communities Strategy
SEA	Significant Ecological Area
SSC	Species of Special Concern
Sp.	Species
SR	State Route
Ssp.	Subspecies
TAP	Transit Access Pass
TDM	Transportation Demand Management
TSM	Transportation System Management
TSSP	Traffic Signal Synchronization Program
US-#	United States Route
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
Var.	Variety
Wy.	Way

Chapter 1. Introduction

The California Department of Transportation (Caltrans), in cooperation with the Los Angeles County Metropolitan Transportation Authority (Metro) proposes transportation improvements to improve mobility and relieve congestion in the area between SR 2 and Interstates 5, 10, 210, and 605 (I-5, I-10, I-210, and I-605, respectively) in east/northeast Los Angeles and the western San Gabriel Valley. The study area for the SR 710 North Study as depicted in Appendix A, Figure 1, is approximately 100 square miles (mi) and generally bounded by I-210 on the north, I-605 on the east, I-10 on the south, and I-5 and SR 2 on the west. Caltrans is the Lead Agency under NEPA and CEQA.

1.1. Project Background

1.1.1. Purpose of the Project

Due to the lack of continuous north-south transportation facilities in the study area, there is congestion on freeways, cut-through traffic that affects local streets, and low-frequency transit operations in the study area. Therefore, the following project purpose has been established.

The purpose of the proposed action is to effectively and efficiently accommodate regional and local north-south travel demands in the study area of the western San Gabriel Valley and east/northeast Los Angeles, including the following considerations:

- Improve efficiency of the existing regional freeway and transit networks.
- Reduce congestion on local arterials adversely affected due to accommodating regional traffic volumes.
- Minimize environmental impacts related to mobile sources.

1.1.2. Need for the Project

The study area is centrally located within the extended urbanized area of Southern California. With few exceptions, the area from Santa Clarita in the north to San Clemente in the south (a distance of approximately 90 mi) is continuously urbanized. Physical features such as the San Gabriel Mountains and Angeles National Forest on the north, and the Puente Hills and Cleveland National Forest on the south, have concentrated urban activity between the Pacific Ocean and these physical constraints.

This urbanized area functions as a single social and economic region that is identified by the Census Bureau as the Los Angeles-Long Beach-Santa Ana Metropolitan Statistical Area (MSA).

There are seven major east-west freeway routes:

- State Route 118 (SR 118)
- United States Route 101 (US-101)/State Route 134 (SR 134)/I-210
- I-10
- State Route 60 (SR 60)
- Interstate 105 (I-105)
- State Route 91 (SR 91)
- State Route 22 (SR 22)

There are seven major north-south freeway routes:

- Interstate 405 (I-405)
- US-101/State Route 170 (SR 170)
- I-5
- Interstate 110 (I-110)/State Route 110 (SR 110)
- Interstate 710 (I-710)
- I-605
- State Route 57 (SR 57)

All of these major routes are located in the central portion of the Los Angeles-Long Beach-Santa Ana MSA. Of the seven north-south routes, four are located partially within the study area (I-5, I-110/SR 110, I-710, and I-605), two of which (I-110/SR 110 and I-710) terminate within the study area without connecting to another freeway. As a result, a substantial amount of north-south regional travel demand is concentrated on a few freeways, or diverted to local streets within the study area. This effect is exacerbated by the overall southwest-to-northeast orientation of I-605, which makes it an unappealing route for traffic between the southern part of the region and the urbanized areas to the northwest in the San Fernando Valley, the Santa Clarita Valley, and the Arroyo-Verdugo region.

The lack of continuous north-south transportation facilities in the study area has the following consequences, which have been identified as the elements of need for the Proposed Project:

- Degradation of the overall efficiency of the larger regional transportation system
- Congestion on freeways in the study area
- Congestion on the local streets in the study area
- Poor transit operations within the study area

1.2. Project Description

The Proposed Project is located in Los Angeles County, within the jurisdiction of Caltrans District 7. Transportation improvements are proposed spanning from south of the I-10 in unincorporated Los Angeles County to north of the SR 134 in the City of Pasadena. The Proposed Project includes four Build Alternatives generally located within and between the I-10/SR 710 and the I-210/SR 134 freeway intersections, spanning a distance of approximately 11 mi in length. Post Miles for the Proposed Project were not available at the time of the preparation of the NES. The Proposed Project encompasses a large area, and the proposed alternatives pass through mostly urban settings consisting of residential, industrialized warehouse, commercial businesses, and existing transportation systems.

The proposed alternatives include the No Build Alternative, the Transportation System Management/Transportation Demand Management (TSM/TDM) Alternative, the Bus Rapid Transit (BRT) Alternative, the Light Rail Transit (LRT) Alternative, and the Freeway Tunnel Alternative. These alternatives are each discussed below.

1.2.1. No Build Alternative

The No Build Alternative includes projects/planned improvements through 2035 that are contained in the Federal Transportation Improvement Program (FTIP), as listed in the Southern California Association of Governments (SCAG) 2012 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) Measure R and the funded portion of Metro's 2009 Long Range Transportation Plan (LRTP). The No Build Alternative does not include any planned improvements to the SR 710 Corridor. Figure 2 in Appendix A illustrates the Proposed Project in the No Build Alternative.

1.2.2. Transportation System Management/Transportation Demand Management (TSM/TDM) Alternative

The TSM/TDM Alternative consists of strategies and improvements to increase efficiency and capacity for all modes in the transportation system with lower capital

cost investments and/or lower potential impacts. The TSM/TDM Alternative is designed to maximize the efficiency of the existing transportation system by improving capacity and reducing the effects of bottlenecks and chokepoints. Components of the TSM/TDM Alternative are shown on Figure 3 in Appendix A. TSM strategies increase the efficiency of existing facilities (i.e., TSM strategies are actions that increase the number of vehicle trips which a facility can carry without increasing the number of through lanes).

1.2.2.1. TRANSPORTATION SYSTEM MANAGEMENT

TSM strategies include Intelligent Transportation Systems (ITS), local street and intersection improvements, and Active Traffic Management (ATM):

- **ITS Improvements:** ITS improvements include traffic signal upgrades, synchronization and transit prioritization, arterial changeable message signs (CMS), and arterial video and speed data collection systems. The TSM/TDM Alternative includes signal optimization on corridors with signal coordination hardware already installed by Metro's Traffic Signal Synchronization Program (TSSP). These corridors include Del Mar Avenue, Rosemead Boulevard, Temple City Boulevard, Santa Anita Avenue, Fair Oaks Avenue, Fremont Avenue, and Peck Road. The only remaining major north-south corridor in the San Gabriel Valley in which TSSP has not been implemented is Garfield Avenue; therefore, TSSP on this corridor is included in the TSM/TDM Alternative. The locations are shown in Table 1. The following provide a further explanation of the ITS elements listed above:
    - Traffic signal upgrades include turn arrows, vehicle and/or bicycle detection, pedestrian countdown timers, incorporation into regional management traffic center for real-time monitoring of traffic and updating of signal timing.
    - Synchronization is accomplished through signal coordination to optimize travel times and reduce delay.
    - Transit signal prioritization includes adjusting signal times for transit vehicles to optimize travel times for public transit riders.
    - Arterial CMS are used to alert travelers about unusual road conditions, special event traffic, accident detours, and other incidents.
    - Video and speed data collection includes cameras and other vehicle detection systems that are connected to a central monitoring location, allowing for faster detection and response to traffic incidents and other unusual traffic conditions.

- **Local Street and Intersection Improvements:** The local street and intersection improvements are within the Cities of Los Angeles, Pasadena, South Pasadena, Alhambra, San Gabriel, Rosemead, and San Marino. Table 2 outlines the location of the proposed improvements to local streets, intersections, and freeway ramps as well as two new local roadways.
- **Active Traffic Management:** ATM technology and strategies are also included in the TSM/TDM Alternative. The major elements of ATM are arterial speed data collection and CMS. Data on arterial speeds would be collected and distributed through Los Angeles County's Information Exchange Network (IEN). Many technologies are available for speed data collection or the data could be purchased from a third-party provider. Travel time data collected through this effort could be provided to navigation system providers for distribution to the traveling public. In addition, arterial CMS or "trailblazer" message signs would be installed at key locations to make travel time and other traffic data available to the public.

Table 1: TSM/TDM Alternative Elements

ID No.	Description	Location
ITS Improvements		
ITS-1	Transit Signal Priority	Rosemead Boulevard (from Foothill Boulevard to Del Amo Boulevard)
ITS-2	Install Video Detection System on SR 110	SR 110 north of US 101
ITS-3	Install Video Detection System at Intersections	At key locations in study area
ITS-4	Arterial Speed Data Collection	On key north/south arterials
ITS-5	Install Arterial CMS	At key locations in study area
ITS-6	Traffic Signal Synchronization on Garfield Avenue	Huntington Drive to I-10
ITS-7	Signal optimization on Del Mar Avenue	Huntington Drive to I-10
ITS-8	Signal optimization on Rosemead Boulevard	Foothill Boulevard to I-10
ITS-9	Signal optimization on Temple City Boulevard	Duarte Road to I-10
ITS-10	Signal optimization on Santa Anita Avenue	Foothill Boulevard to I-10
ITS-11	Signal optimization on Peck Road	Live Oak Avenue to I-10
ITS-12	Signal optimization on Fremont Avenue	Huntington Drive to I-10

CMS = changeable message signs
I-10 = Interstate 10
ITS = Intelligent Transportation Systems
SR 110 = State Route 110
TDM = Transportation Demand Management
TSM = Transportation System Management
US 101 = United States Route 101

Table 2: Local Street and Intersection Improvements of the TSM/TDM Alternative

ID No.	Description	Location
Local Street Improvements		
L-1	Figueroa St. from SR 134 to Colorado Blvd.	City of Los Angeles (Eagle Rock)
L-2a	Fremont Ave. from Huntington Dr. to Alhambra Rd.	City of South Pasadena
L-2c	Fremont Ave. from Mission Rd. to Valley Blvd.	City of Alhambra
L-3	Atlantic Blvd. from Glendon Wy. to I-10	City of Alhambra
L-4	Garfield Ave. from Valley Blvd. to Glendon Wy.	City of Alhambra
L-5	Rosemead Blvd. from Lower Azusa Rd. to Marshall St.	City of Rosemead
L-8	Fair Oaks Ave. from Grevelia St. to Monterey Rd.	City of South Pasadena
Intersection Improvements		
I-1	West Broadway/Colorado Blvd.	City of Los Angeles (Eagle Rock)
I-2	Eagle Rock Blvd./York Blvd.	City of Los Angeles (Eagle Rock)
I-3	Eastern Ave./Huntington Dr.	City of Los Angeles (El Sereno)
I-8	Fair Oaks Ave./Monterey Rd.	City of South Pasadena
I-9	Fremont St./Monterey Rd.	City of South Pasadena
I-10	Huntington Dr./Fair Oaks Ave.	City of South Pasadena
I-11	Fremont Ave./Huntington Dr.	City of South Pasadena
I-13	Huntington Dr./Garfield Ave.	Cities of Alhambra/South Pasadena/San Marino
I-14	Huntington Dr./Atlantic Blvd.	Cities of Alhambra/South Pasadena/San Marino
I-15	Atlantic Blvd./Garfield Ave.	Cities of Alhambra/South Pasadena/San Marino
I-16	Garfield Ave./Mission Rd.	City of Alhambra
I-18	San Gabriel Blvd./Huntington Dr.	City of San Marino/ Unincorporated Los Angeles County (East Pasadena/East San Gabriel)
I-19	Del Mar Ave./Mission Rd.	City of San Gabriel
I-22	San Gabriel Blvd./Marshall St.	City of San Gabriel
I-24	Huntington Dr./Oak Knoll Ave.	City of San Marino
I-25	Huntington Dr./San Marino Avenue	City of San Marino
I-34	Fremont Ave./Commonwealth Ave.	City of Alhambra
I-35	Fremont Ave./Poplar Blvd.	City of Alhambra
I-43	Del Mar Ave./Valley Blvd.	City of San Gabriel
I-44	Hellman Ave./Fremont Ave.	City of Alhambra
I-45	Eagle Rock Blvd./Colorado Blvd.	City of Los Angeles (Eagle Rock)
Other Road Improvements		
T-1	Valley Boulevard to Mission Road Connector Road	Cities of Alhambra/Los Angeles (El Sereno)
T-2	SR 110/Fair Oaks Ave. Hook Ramps	Cities of South Pasadena/Pasadena
T-3	St. John Ave. Extension between Del Mar Blvd. and California Boulevard	City of Pasadena

Ave. = Avenue	SB = southbound
Blvd. = Boulevard	SR 110 = State Route 110
Dr. = Drive	SR 134 = State Route 134
I-10 = Interstate 10	St. = Street
I-710 = Interstate 710	TDM = Transportation Demand Management
NB = northbound	TSM = Transportation System Management
Rd. = Road	Wy. = Way

1.2.2.2. TRANSPORTATION DEMAND MANAGEMENT

TDM strategies focus on regional means of reducing the number of vehicle trips and vehicle miles traveled as well as increasing vehicle occupancy. TDM strategies facilitate higher vehicle occupancy or reduce traffic congestion by expanding the traveler's transportation options in terms of travel method, travel time, travel route, travel costs, and the quality and convenience of the travel experience. The TDM strategies include reducing the demand for travel during peak periods, reducing the use of motor vehicles, shifting the use of motor vehicles to uncongested times of the day, encouraging rideshare and transit use, eliminating trips (i.e., telecommuting), and improved transportation options. The TDM strategies include expanded bus service, bus service improvements, and bicycle improvements:

- **Expanded Bus Service and Bus Service Improvements:** Transit service improvements included in the TSM/TDM Alternative are summarized in Tables 3 and 4 and illustrated on Figure 3 in Appendix A. The transit service improvements enhance bus headways between 10 and 30 minutes during the peak hour and 15 to 60 minutes during the off-peak period. Bus headways are the amount of time between consecutive bus trips (traveling in the same direction) on the bus route. Some of the bus service enhancements almost double existing bus service.
- **Bicycle Facility Improvements:** The bicycle facility improvements include on-street Class III bicycle facilities that support access to transit facilities through the study area and expansion of bicycle parking facilities at existing Metro Gold Line stations. Proposed bicycle facility improvements are outlined in Table 4.

Table 3: Transit Refinements of the TSM/TDM Alternative

Bus Route	Operator	Route Type	Route Description	Existing Headways		Enhanced Headways	
				Peak	Off-Peak	Peak	Off-Peak
70	Metro	Local	From Downtown Los Angeles to El Monte via Garvey Ave.	10–12	15	10	15
770	Metro	Rapid	From Downtown Los Angeles to El Monte via Garvey/Cesar Chavez Ave.	10–13	15	10	15
76	Metro	Local	From Downtown Los Angeles to El Monte via Valley Blvd.	12–15	16	10	15
78	Metro	Local	From Downtown Los Angeles to Irwindale via Las Tunas Dr.	10–20	16-40	10	15
378	Metro	Limited	From Downtown Los Angeles to Irwindale via Las Tunas Dr.	18–23	-	20	30
79	Metro	Local	From Downtown Los Angeles to Santa Anita via Huntington Dr.	20–30	40-45	15	30
180	Metro	Local	From Hollywood to Altadena via Los Feliz/ Colorado Blvd.	30	30-32	15	30
181	Metro	Local	From Hollywood to Pasadena via Los Feliz/Colorado Blvd.	30	30-32	15	30
256	Metro	Local	From Commerce to Altadena via Hill Ave./ Avenue 64/Eastern Ave.	45	45	30	40
258	Metro	Local	From Paramount to Alhambra via Fremont Ave./Eastern Ave.	48	45-55	20	30
260	Metro	Local	From Compton to Altadena via Fair Oaks Ave./Atlantic Blvd.	16–20	24-60	15	30
762[1]	Metro	Rapid	From Compton to Altadena via Atlantic Blvd.	25	30-60	15	30
266	Metro	Local	From Lakewood to Pasadena via Rosemead/Lakewood Blvd.	30–35	40-45	15	30
267	Metro	Local	From El Monte to Pasadena via Temple City/Del Mar Blvd.	30	30	15	30
485	Metro	Express	From Union Station to Altadena via Fremont/Lake Ave.	40	60	30	60
487	Metro	Express	From Westlake to El Monte via Santa Anita Ave./Sierra Madre Blvd./San Gabriel Blvd.	18–30	45	15	30
489	Metro	Express	From Westlake to East San Gabriel via Rosemead Blvd.	18–20	-	15	-
270	Metro	Local	From Norwalk to Monrovia via Workman Mill/Peck Rd.	40–60	60	30	60
780	Metro	Rapid	From West LA to Pasadena via Fairfax Ave./Hollywood Blvd./Colorado Blvd.	10–15	22-25	10	20
187	Foothill	Local	From Pasadena to Montclair via Colorado Blvd./Huntington Dr./Foothill Blvd.	20	20	15	15

[1] This route would not be included as part of the BRT Alternative because the BRT Alternative would replace this service.

Ave. = Avenue
Blvd. = Boulevard
BRT = Bus Rapid Transit
Dr. = Drive
Express = Express Bus
Foothill = Foothill Transit
Metro = Los Angeles County Metropolitan Transportation Authority
Rapid = Bus Rapid Transit
Rd. = Road
TDM = Transportation Demand Management
TSM = Transportation System Management

Table 4: Active Transportation and Bus Enhancements of the TSM/TDM Alternative

ID No.	Description	Location
Bus Service Improvements		
Bus-1	Additional bus service	See Table 3 and Appendix A, Figure 3
Bus-2	Bus stop enhancements	Along routes listed in Table 3
Bicycle Facility Improvements		
Bike-1	Rosemead Blvd. bike route (Class III)	Colorado Blvd. to Valley Blvd. (through Los Angeles County, Temple City, Rosemead)
Bike-2	Del Mar Ave. bike route (Class III)	Huntington Dr. to Valley Blvd. (through San Marino, San Gabriel)
Bike-3	Huntington Dr. bike route (Class III)	Mission Rd. to Santa Anita Ave. (through the City of Los Angeles, South Pasadena, San Marino, Alhambra, Los Angeles County, Arcadia)
Bike-4	Foothill Blvd. bike route (Class III)	In La Cañada Flintridge
Bike-5	Orange Grove bike route (Class III)	Walnut St. to Columbia St. (in Pasadena)
Bike-6	California Blvd. bike route (Class III)	Grand Ave. to Marengo Ave. (in Pasadena)
Bike-7	Add bike parking at transit stations	Metro Gold Line stations
Bike-8	Improve bicycle detection at existing intersections	Along bike routes in study area

Ave. = Avenue
Blvd. = Boulevard
Dr. = Drive
Metro = Los Angeles County Metropolitan Transportation Authority
Rd. = Road
St. = Street
TDM = Transportation Demand Management
TSM = Transportation System Management

1.2.3. Bus Rapid Transit (BRT) Alternative

The BRT Alternative would provide high-speed, high-frequency bus service through a combination of new, dedicated, and existing bus lanes, and mixed-flow traffic lanes to key destinations between East Los Angeles and Pasadena. The proposed route length is approximately 12 mi. Figure 4 in Appendix A illustrates the BRT Alternative.

The BRT Alternative includes the BRT trunk line arterial street and station improvements, frequent bus services, new bus feeder services, and enhanced connecting bus services. BRT includes bus enhancements identified in the TSM/TDM Alternative, except for improvements to Route 762.

Buses are expected to operate every 10 minutes during peak hours and every 20 minutes during off-peak hours. The BRT service would generally replace, within the study area, the existing Metro Route 762 service. The 112 mi route would begin at Atlantic Boulevard and Whittier Boulevard to the south, follow Atlantic Boulevard, Huntington Drive, Fair Oaks Avenue, Del Mar Boulevard, and end with a terminal loop in Pasadena to the north. Buses operating in the corridor would be given transit

signal priority from a baseline transit signal priority project that will be implemented separately by Metro.

Where feasible, buses would run in dedicated bus lanes adjacent to the curb, either in one direction or both directions, during peak periods. The new dedicated bus lanes would generally be created within the existing street rights of way (ROW) through a variety of methods that include restriping the roadway, restricted on-street parking during peak periods, narrowing medians, planted parkways, or sidewalks. Buses would share existing lanes with other traffic in cases where there is not enough ROW. The exclusive lanes would be exclusive to buses and right-turning traffic during a.m. and p.m. peak hours only. At other times of day, the exclusive lanes would be available for on-street parking use.

A total of 17 BRT stations with amenities would be placed on average, at approximately 0.8 mi intervals at major activity centers and cross streets. Typical station amenities would include new shelters, branding elements, seating, wind screens, leaning rails, variable message signs (next bus information), lighting, bus waiting signals, trash receptacles, and stop markers. Some of these stops will be combined with existing stops, while in some cases, new stops for BRT will be provided. The BRT service would include 60-foot (ft) articulated buses with three doors, and would have the latest fare collection technology such as on-board smart card (Transit Access Pass [TAP] card) readers to reduce dwell times at stations. The BRT stops would be provided at the following 17 locations:

- Atlantic Boulevard at Whittier Boulevard
- Atlantic Boulevard between Pomona Boulevard and Beverly Boulevard
- Atlantic Boulevard at Cesar Chavez Avenue/Riggin Street
- Atlantic Boulevard at Garvey Avenue
- Atlantic Boulevard at Valley Boulevard
- Atlantic Boulevard at Main Street
- Huntington Drive at Garfield Road
- Huntington Drive at Marengo Avenue
- Fair Oaks Avenue at Mission Street
- Fair Oaks Avenue at Glenarm Street
- Fair Oaks Avenue at California Boulevard
- Fair Oaks Avenue at Del Mar Boulevard
- Del Mar Boulevard at Los Robles Avenue

- Del Mar Boulevard at Lake Avenue
- Del Mar Boulevard at Hill Avenue (single direction only)
- Colorado Boulevard at Hill Avenue (single direction only)
- Colorado Boulevard at Lake Avenue (single direction only)

Additionally, this alternative would include bus feeder routes that would connect additional destinations with the BRT mainline. Two bus feeder routes are proposed: one that would run along Colorado Boulevard, Rosemead Boulevard, and Valley Boulevard to the El Monte transit station; and another bus feeder route that would travel from Atlantic Boulevard near the Gold Line station to the Metrolink stations in the City of Commerce and Montebello via Beverly Boulevard and Garfield Avenue. In addition, other existing bus services in the study area would be increased in frequency and/or span of service. The El Sol shuttle improvements are an existing bus service that would be increased in frequency. The headways on the El Sol shuttle "City Terrace/East Los Angeles Collecge (ELAC)" route that connects ELAC to the proposed Floral Station would be reduced from 60 minutes to 15 minutes.

The TSM/TDM Alternative improvements would also be constructed as part of the BRT Alternative, except as noted below. These improvements would provide the additional enhancements to maximize the efficiency of the existing transportation system by improving capacity and reducing the effects of bottlenecks and chokepoints. Local Street Improvements L-8 (Fair Oaks Avenue from Grevelia Street to Monterey Road) and the reversible lane component of L-3 (Atlantic Boulevard from Glendon Way to I-10) would not be constructed with the BRT Alternative.

1.2.4. Light Rail Transit (LRT) Alternative

The LRT Alternative would include passenger rail operated along a dedicated guideway, similar to other Metro light rail lines. The LRT alignment is approximately 7.5 mi long, with 3 mi of aerial segments and 4.5 mi of bored tunnel segments. Figure 5 in Appendix A illustrates the LRT Alternative.

The LRT Alternative would begin at an aerial station on Mednik Avenue adjacent to the existing East Los Angeles Civic Center Station on the Metro Gold Line. The alignment would remain elevated as it travels north on Mednik Avenue, west on Floral Drive, north across Corporate Center Drive, and then along the west side of I-710, primarily in Caltrans ROW, to a station adjacent to the California State University, Los Angeles (Cal State LA). The alignment would descend into a tunnel south of Valley Boulevard and travel northeast to Fremont Avenue, north under

Fremont Avenue, and easterly to Fair Oaks Avenue. The alignment would then cross under SR 110 and end at an underground station beneath Raymond Avenue adjacent to the existing Fillmore Station on the Metro Gold Line.

Two directional tunnels are proposed with tunnel diameters approximately 20 ft each, located approximately 60 ft below the ground surface. Other supporting tunnel systems include emergency evacuation cross passages for pedestrians, a ventilation system consisting of exhaust fans at each portal and an exhaust duct along the entire length of the tunnel, fire detection and suppression systems, communications and surveillance systems, and 24-hour monitoring, similar to the existing LRT system.

Trains would operate at speeds of up to 65 miles per hour (mph) approximately every 5 minutes during peak hours and 10 minutes during off-peak hours.

Seven stations would be located along the LRT alignment at Mednik Avenue in East Los Angeles, Floral Drive in Monterey Park, Cal State LA, Fremont Avenue in Alhambra, Huntington Drive in South Pasadena, Mission Street in South Pasadena, and Fillmore Street in Pasadena. The Fremont Avenue Station, the Huntington Drive Station, the Mission Street Station, and the Fillmore Street Station would be underground stations. New Park-and-Ride facilities would be provided at all of the proposed stations except for the Mednik Avenue, Cal State LA, and Fillmore Street stations.

A maintenance yard to clean, maintain, and store light rail vehicles would be located on both sides of Valley Boulevard at the terminus of SR 710. A track spur from the LRT mainline to the maintenance yard would cross above Valley Boulevard.

Two bus feeder services would be provided. One would travel from the Commerce Station on the Orange County Metrolink line and the Montebello Station on the Riverside Metrolink line to the Floral Station, via East Los Angeles College. The other would travel from the El Monte Bus Station to the Fillmore Station via Rosemead and Colorado Boulevards. In addition, other existing bus services in the study area would be increased in frequency and/or span of service.

As part of the LRT Alternative, the I-710 northbound off-ramp at Valley Boulevard would be modified.

The TSM/TDM Alternative improvements would also be constructed as part of the LRT Alternative. These improvements would provide the additional enhancements to

maximize the efficiency of the existing transportation system by improving capacity and reducing the effects of bottlenecks and chokepoints. The only component of the TSM/TDM Alternative improvements that would not be constructed with the LRT Alternative is the Other Road Improvement T-1 (Valley Boulevard to Mission Road Connector Road).

1.2.5. Freeway Tunnel Alternative

The alignment for the Freeway Tunnel Alternative starts at the existing southern stub of SR 710 in Alhambra, just north of I-10, and connects to the existing northern stub of SR 710, south of the I-210/SR 134 interchange in Pasadena. The Freeway Tunnel Alternative would include the following tunnel support systems: emergency evacuation for pedestrians and vehicles, air scrubbers, a ventilation system consisting of exhaust fans at each portal, an exhaust duct along the entire length of the tunnel and jet fans within the traffic area of the tunnel, fire detection and suppression systems, communications and surveillance systems, and 24-hour monitoring. An operations and maintenance (O&M) building would be constructed at the northern and southern ends of the tunnel. There would be no operational restrictions for the tunnel, with the exception of vehicles carrying flammable or hazardous materials. As part of both design variations of the Freeway Tunnel Alternative, the I-710 northbound off-ramp and southbound on-ramp at Valley Boulevard would be modified.

The TSM/TDM Alternative improvements would also be constructed as part of the Freeway Tunnel Alternative, including either the dual-bore or single-bore design variations. These improvements would provide the additional enhancements to maximize the efficiency of the existing transportation system by improving capacity and reducing the effects of bottlenecks and chokepoints. The only components of the TSM/TDM Alternative improvements that would not be constructed with the Freeway Tunnel Alternative are Other Road Improvements T-1 (Valley Boulevard to Mission Road Connector Road) and T-3 (St. John Avenue Extension between Del Mar Boulevard and California Avenue).

1.2.5.1. DESIGN VARIATIONS

The Freeway Tunnel Alternative includes two design variations. These variations relate to the number of tunnels constructed. The dual-bore design variation includes two tunnels that independently convey northbound and southbound vehicles. The single-bore design variation includes one tunnel that carries both northbound and southbound vehicles. Figure 6 illustrates the dual-bore and single-bore tunnel design

variations for the Freeway Tunnel Alternative. Each of these design variations is described below.

- **Dual-Bore Tunnel:** The dual-bore tunnel design variation is approximately 6.3 mi long, with 4.2 mi of bored tunnel, 0.7 mi of cut-and-cover tunnel, and 1.4 mi of at-grade segments. The dual-bore tunnel design variation would consist of two side-by-side tunnels (the east tunnel would convey northbound traffic, and the west tunnel would convey southbound traffic). Each tunnel would have two levels with traffic traveling in the same direction. Each tunnel would consist of two lanes of traffic on each level, traveling in one direction, for a total of four lanes in each tunnel. The eastern tunnel would be constructed for northbound traffic, and the western tunnel would be constructed for southbound traffic. Each bored tunnel would have an outside diameter of approximately 58.5 ft and would be located approximately 120 to 250 ft below the ground surface. Vehicle cross passages would be provided throughout this tunnel variation that would connect one tunnel to the other tunnel for use in an emergency situation. Figure 6 in Appendix A illustrates the dual-bore tunnel variation of the Freeway Tunnel Alternative.

  Short segments of cut-and-cover tunnels would be located at the south and north termini to provide access via portals to the bored tunnels. The portal at the southern terminus would be located south of Valley Boulevard. The portal at the northern terminus would be located north of Del Mar Boulevard. No intermediate interchanges are planned for the tunnel.

- **Single-Bore Tunnel:** The single-bore tunnel design variation is also approximately 6.3 mi long, with 4.2 mi of bored tunnel, 0.7 mi of cut-and-cover tunnel, and 1.4 mi of at-grade segments. The single-bore tunnel design variation would consist of one tunnel with two levels. Each level would have two lanes of traffic traveling in one direction. The northbound traffic would traverse the upper level, and the southbound traffic would traverse the lower level. The single-bore tunnel would provide a total of four lanes. The single-bore tunnel would also have an outside diameter of approximately 58.5 ft and would be located approximately 120 to 250 ft below the ground surface. The single-bore tunnel would be in the same location as the northbound tunnel in the dual-bore tunnel design variation. Figure 7 in Appendix A illustrates the single-bore tunnel variation cross section of the Freeway Tunnel Alternative.

1.2.5.2. OPERATIONAL VARIATIONS

There were three different parameters related to the operational variations of the Freeway Tunnel Alternative:

- **Tolling:** Tolls could be charged for vehicles using the tunnel, or it could be free for all drivers (a conventional freeway).
- **Trucks:** Trucks could be prohibited or allowed.
- **Express Bus:** A dedicated Express Bus could be operated using the tunnel. The Express Bus route would start at the Commerce Station on the Orange County Metrolink line, and then serve the Montebello Station on the Riverside Metrolink line and East Los Angeles College before entering I-710 at Floral Drive. The bus would travel north to Pasadena via the proposed freeway tunnel, making a loop serving Pasadena City College, the California Institute of Technology, and downtown Pasadena before re-entering the freeway and making the reverse trip.

The following operational variations have been identified for the Freeway Tunnel Alternative:

- **Freeway Tunnel Alternative without Tolls:** The facility would operate as a conventional freeway with lanes open to all vehicles. Trucks would be allowed and there would be no Express Bus service. This operational variation would be considered for only the dual-bore tunnel design variation.
- **Freeway Tunnel Alternative with Trucks Excluded:** The facility would operate as a conventional freeway; however, trucks would be excluded from using the tunnel. There would be no Express Bus service. Signs would be provided along I-210, SR 134, I-710, and I-10 to provide advance notice of the truck restriction. This operational variation would be considered for the dual-bore tunnel only.
- **Freeway Tunnel Alternative with Tolls:** All vehicles, including trucks, using the tunnel would be tolled. There would be no Express Bus service. This operational variation would be considered for both the dual- and single-bore tunnels described above.
- **Freeway Tunnel Alternative with Tolls and Trucks Excluded:** The facility would be tolled for all automobiles. There would be no Express Bus service. Trucks would be excluded from using the tunnel. Signs would be provided along I-210, SR 134, I-710, and I-10 to provide advance notice of the truck restriction. This operational variation would be considered for the single-bore tunnel only.

Freeway Tunnel Alternative with Toll and Express Bus: The freeway tunnel would operate as a tolled facility and include an Express Bus component. The Express Bus would be allowed in any of the travel lanes in the tunnel; no bus-restricted lanes would be provided. Trucks would be permitted. This operational variation would be considered for the single-bore tunnel only.

Chapter 2. Study Methods

2.1. Regulatory Requirements

The following federal, state, and local regulatory requirements are applicable for the Proposed Project.

2.1.1. Federal Regulations

2.1.1.1. RIVERS AND HARBORS APPROPRIATION ACT OF 1899

Authorization from the Corps must be obtained for construction of a structure in or over any navigable water of the U.S., pursuant to Section 10 of the Rivers and Harbors Appropriation Act of 1899. Authorization is also needed for structures built near a navigable water if they would affect the course, location, condition, or capacity of the water body, as through rechannelization, disposal of fill, etc. No navigable waters occur within the BSA, therefore Proposed Project activities would not require authorizations pursuant to the Rivers and Harbors Act of 1899. The tidal portion of the Los Angeles River, located more than 18 miles outside the BSA, is the nearest such waterway.

2.1.1.2. CLEAN WATER ACT, SECTION 401

Section 401 of the federal Clean Water Act (CWA) is administered by the State Water Resources Control Board and the RWQCBs. Section 401 requires that prior to any federal permit or license, any activity, including river or stream crossings during road, pipeline, or transmission line construction, which may result in discharges into waters of the United States, must be certified by the applicable RWQCB, which for the Proposed Project is the Los Angeles RWQCB. This certification ensures that the proposed activity does not violate federal water quality standards.

2.1.1.3. CLEAN WATER ACT, SECTION 404

Section 404 of the federal CWA, which is administered by the Corps, regulates the discharge of dredged and fill material into waters of the United States, which include surface waters such as navigable waters and their tributaries, all interstate waters and their tributaries, natural lakes, all wetlands adjacent to other waters, and all impoundments of these waters. The Corps has established a series of nationwide permits that authorize certain activities in waters of the United States, provided that a

proposed activity can demonstrate compliance with standard conditions. Projects that result in the loss of less than the acreage specified by the applicable nationwide permit can normally be conducted pursuant to one of the nationwide permits, if consistent with the standard permit conditions. If the conditions of a nationwide permit cannot be met, or the Proposed Project results in more than minimal adverse environmental impacts, an individual permit will be required. This may be either a standard permit or, under certain conditions, a letter of permission. The Corps can only issue an individual permit, for the least environmentally damaging practicable alternative.

Multiple nationwide permits may be used by a project if the total acreage of loss of waters of the U.S. does not exceed the highest acreage specified in the permits used to authorize the single and complete project, as described in 33 CFR Part 330 c. The single and complete project is defined as the crossing(s) of a single water of the U.S. at a specific location as implemented by one owner/developer or partnership. Crossings of one or more waters of the U.S. at separate and distant locations can be considered a single and complete project. Multi-armed or braided channels are not considered separate waterbodies, and crossings cannot be considered separately.

Nationwide Permit No. 14, for linear transportation projects like the Proposed Project, may be available. This nationwide permit includes all activities required for the construction, expansion, modification, or improvements of linear transportation projects in waters of the United States. In nontidal waters, the discharge from a project cannot cause the loss of greater than a half-acre (0.5 acre) of waters of the United States for a single and complete project.

2.1.1.4. EXECUTIVE ORDER NUMBER 11990

Executive Order Number 11990 was issued in May 1977, as a furtherance of NEPA providing protection of wetlands. Pursuant to the Executive Order, all new construction should be designed to the greatest extent possible to avoid long- and short-term adverse impacts that would lead to the destruction or the modification of wetlands, in order to preserve and enhance the natural and beneficial values of wetlands.

2.1.1.5. FEDERAL ENDANGERED SPECIES ACT

FESA defines and lists species, subspecies, and distinct population segments as “endangered” and “threatened” and provides regulatory protection for the listed

species. FESA provides a program for conservation and recovery of threatened and endangered species; it also ensures the conservation of designated critical habitat that the USFWS has determined is required for the survival and recovery of these listed species. Section 9 of FESA prohibits the "take" of species listed by USFWS as threatened or endangered. Take is defined as follows: "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in such conduct." In recognition that take cannot always be avoided, Section 10(a) of FESA includes provisions for take that is incidental to, but not the purpose of, otherwise lawful activities. Section 10(a)(1)(B) permits (incidental take permits) may be issued if take is incidental and does not jeopardize the survival and recovery of the species.

Section 7(a)(2) of FESA requires that all federal agencies, including the USFWS and the Federal Highway Administration (FHWA), evaluate projects with respect to any species proposed for listing or already listed as endangered or threatened and any proposed or designated critical habitat for the species. Federal agencies must undertake programs for the conservation of endangered and threatened species and are prohibited from authorizing, funding, or carrying out any action that would jeopardize a listed species or destroy or modify its critical habitat.

2.1.1.6. MIGRATORY BIRD TREATY ACT

The Migratory Bird Treaty Act (MBTA) provides that it is unlawful to pursue, hunt, take, capture, or kill; attempt to take, capture, or kill; or possess any migratory bird, part, nest, egg, or product, manufactured or not of any such bird listed in wildlife protection treaties between the United States, Great Britain, Mexico, Japan, and the former Soviet Union. The MBTA authorizes the Secretary of the Interior to issue permits for incidental take. Migratory birds are defined to include all members of bird families considered migratory, whether or not the species in question exhibits migratory behavior. In practice, virtually all birds native to North America are covered by the MBTA, with exceptions including quail, turkey, and grouse. Several of the commonly present urban species, such as house sparrow (*Passer domesticus*), rock pigeon (*Columba livia*), and European starling (*Sturnus vulgaris*), are non-native and not subject to MBTA protection.

2.1.1.7. NATIONAL ENVIRONMENTAL POLICY ACT

NEPA resolves to declare a continuing national policy which would "encourage productive and enjoyable harmony between man and his environment… promote efforts which will prevent or eliminate damage to the environment and biosphere." Under NEPA, it is the "continuing responsibility of the Federal Government to use all

practicable means…" to "utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision making which may have an impact on man's environment." NEPA is triggered by any federal action (including projects, provision of funding, issuances of permits, etc.) that may have an effect on the environment. In accordance with NEPA, the Code of Federal Regulations (CFR) (40, Parts 1500–1508) states that "Federal agencies shall to the fullest extent possible…use the NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment" and "…use all practicable means…to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions upon the quality of the human environment."

2.1.1.8. INVASIVE SPECIES – EXECUTIVE ORDER 13112

This EO was signed by President Clinton on February 3, 1999. It serves to prevent activities that may promote the introduction and spread of invasive species. The order states that federal agencies whose actions "may affect the status of invasive species shall … use relevant programs and authorities to … prevent the introduction of invasive species … detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner … monitor invasive species populations accurately and reliably … provide for restoration of native species and habitat conditions in ecosystems that have been invaded." In order to implement EO 13112, the FHWA has established guidance to prevent the introduction, spread, and promote the control of invasive plant species on highway rights-of-way. Under EO 13112, federal agencies are prohibited from authorizing, funding, or carrying out actions that are likely to promote or result in the introduction or spread of invasive species unless all feasible measures to minimize the impacts have been analyzed and considered.

2.1.2. State Regulations

2.1.2.1. CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA requires that the significant environmental impacts of proposed projects or actions undertaken, funded, or requiring an issuance of a permit by a state or local agency are identified, government decision makers and the public are informed about the effects of those actions, and that steps are taken in order to avoid or mitigate those environmental impacts, if feasible.

2.1.2.2. CALIFORNIA PORTER-COLOGNE WATER QUALITY CONTROL ACT

Pursuant to the California Porter-Cologne Water Quality Control Act, the State Water Resources Control Board is granted ultimate authority over water quality policy for the State of California. The nine regional boards, the RWQCBs, oversee water quality at the local and regional levels, and regulate pollutant and nuisance discharges into waters of the state. Waters of the state are defined as any surface water or groundwater, including saline waters, within the boundaries of the state. Before allowing discharges that may affect the quality of waters of the state, a Report of Waste Discharge must be filed with the RWQCB.

2.1.2.3. CALIFORNIA FISH AND GAME CODE SECTIONS 1600 THROUGH 1603

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California are subject to the regulatory authority of the CDFW pursuant to Sections 1600 through 1603 of the California Fish and Game Code and require an SAA. Pursuant to the Code, a stream is defined as a body of water that flows at least periodically, or intermittently, through a bed or channel having banks and supporting fish or other aquatic life. Based on this definition, a watercourse with surface or subsurface flows that support or have supported riparian vegetation is a stream and is subject to CDFW jurisdiction. Altered or artificial waterways valuable to fish and wildlife are also subject to CDFW jurisdiction. The CDFW must be contacted for an SAA for any project that may impact a streambed or wetland. The CDFW has maintained a "no net loss" policy regarding potential impact, requiring replacement of lost habitats on at least an acre-for-acre ratio.

2.1.2.4. CALIFORNIA ENDANGERED SPECIES ACT AND CALIFORNIA FISH AND GAME CODE SECTIONS 2080 AND 2081

The California Endangered Species Act (CESA) (California Fish and Game Code §§ 2050 et seq.) prohibits the take of listed species, except as otherwise provided in state law. Take under CESA is defined as it is in FESA; however, unlike FESA, CESA also applies the take prohibitions to species that are candidates for listing, as well as listed species. State lead agencies are required to consult with the CDFW to ensure that any actions undertaken by the lead agency are not likely to jeopardize the continued existence of any state-listed species or result in destruction or degradation of required habitat. CDFW is authorized to enter into Memoranda of Understanding (MOUs) with individuals, public agencies, universities, zoological gardens, and scientific or educational institutions to import, export, take, or possess listed species for scientific, educational, or management purposes. Permits for incidental take of species protected pursuant to CESA are available under certain circumstances as

described in Sections 2080 and 2081 of the California Fish and Game Code described below.

Section 2080 of the California Fish and Game Code states, "No person shall import into this state [California], export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the commission [State Fish and Game Commission] determines to be an endangered species or threatened species, or attempt any of those acts, except as otherwise provided in this chapter [Chapter 1.5, Endangered Species], or the Native Plant Protection Act, or the California Desert Native Plants Act."

Pursuant to Section 2081 of the California Fish and Game Code, CDFW may authorize individuals or public agencies to import, export, take, or possess, any state-listed endangered, threatened, or candidate species through permits or MOUs as follows: (1) if the take is incidental to an otherwise lawful activity, (2) if impacts of the authorized take are minimized and fully mitigated, (3) if the permit is consistent with any regulations adopted pursuant to any recovery plan for the species, and (4) if the applicant ensures adequate funding to implement the measures required by CDFW. CDFW shall make this determination based on available scientific information and shall include consideration of the ability of the species to survive and reproduce.

2.1.2.5. CALIFORNIA FISH AND GAME CODE SECTIONS 3503, AND 3503.5

Sections 3503 and 3503.5 of the California Fish and Game Code provide regulatory protection to resident and migratory birds and all birds of prey within the State of California, including the regulation of the taking of nests and eggs, unless otherwise provided for by the California Fish and Game Code. Specifically, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, or destroy the nest or eggs of any bird of prey, except as otherwise provided.

2.1.2.6. CDFW SPECIES OF SPECIAL CONCERN

CDFW defines a Species of Special Concern (SSC) as a species, subspecies, or distinct population of an animal (bird, mammal, fish, reptile, and amphibian) native to California that currently satisfies one or more of the following (not necessarily mutually exclusive) criteria:

- is extirpated from the state or, in the case of birds, in its primary seasonal or breeding role;
- is listed as federally-, but not state-, threatened or endangered;

- meets the state definition of threatened or endangered but has not formally been listed;
- is experiencing, or formerly experienced, serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for state threatened or endangered status;
- has naturally small populations exhibiting high susceptibility to risk from any factor(s), which if realized, could lead to declines that would qualify it for state threatened or endangered status.

"Species of Special Concern" is an administrative designation and carries no formal legal status; however, SSCs should be considered during the environmental review process. CEQA requires state agencies, local governments, and special districts to evaluate and disclose impacts from "projects" in the state. Section 15380 of the CEQA Guidelines clearly indicates that SSCs should be included in an analysis of project impacts if they can be shown to meet the criteria of sensitivity outlined therein.

2.1.2.7. CDFW Fully Protected Species – California Fish and Game Code Sections 3511, 4700, 5050, and 5515

The classification of Fully Protected was the state's initial effort to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, amphibians and reptiles, birds, and mammals. Most of the species on these lists have subsequently been listed under the state and/or federal Endangered Species Acts. Sections 3511, 4700, 5050 and 5515 of the Fish and Game Code state that Fully Protected species (birds, mammals, fish, reptiles, amphibians) or parts thereof may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.

2.1.2.8. Native Plant Protection Act – California Fish and Game Code Sections 1900–1913

The Native Plant Protection Act includes measures to preserve, protect, and enhance rare and endangered native plants. The list of native plants afforded protection pursuant to the Native Plant Protection Act includes those listed as rare and endangered under CESA. The Native Plant Protection Act provides limitations that no person would import into this state—or take, possess, or sell within the State of California—any rare or endangered native plant, except in compliance with

provisions of the act. Where individual landowners have been notified by the CDFW that rare or native plants are growing on their land, the landowners are required to notify the CDFW at least 10 days in advance of changing land uses to allow the CDFW to salvage any rare or endangered native plant material.

2.1.2.9. STATE SENATE CONCURRENT RESOLUTION NO. 17 – RELATIVE TO OAK WOODLANDS

The State Senate Concurrent Resolution No. 17, filed with the Secretary of State on September 1, 1989, states that any state agencies having land use planning duties and responsibilities shall assess the effects of their land use decisions or actions within any oak woodlands containing blue oak (*Quercus douglasii*), Engelmann oak (*Q. engelmannii*), valley oak (*Q. lobata*), or coast live oak (*Q. agrifolia*). The State Senate defines "oak woodland" as a 5-acre circular area containing five or more oak trees per acre. This resolution requires that state agencies must preserve and protect native oak woodlands to the maximum extent feasible or provide for replacement plantings where blue, Engelmann, valley, or coast live oak are removed from oak woodlands.

In addition to the resources protected through the regulations outlined above, additional biological resources within the Proposed Project area may be considered sensitive pursuant to local regulations and ordinances. Examples of these local regulations include the County of Los Angeles Significant Ecological Areas (SEAs) and the protection of certain trees within the study area under one or more county or city ordinances (Appendix B, Tree Survey).

2.2. Studies Required

2.2.1. Literature and Database Search for Records of Biological Resources

Prior to conducting biological surveys, current documentation relevant to the BSA was reviewed. Literature and database records reviewed were:

- CNDDB information (RareFind 4, RareFind 5), administered by CDFW. This database inventories the status and locations of rare plants, animals, and natural communities in California.
- California Native Plant Society (CNPS) On-Line Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPSEI 2013).

- Calflora. Information on wild California plants for conservation, education, and appreciation. http://www.calflora.org/
- Consortium of California Herbaria. A gateway to information from California vascular plant specimens that are housed in participant herbaria. http://ucjeps.berkeley.edu/consortium/
- Baldwin, B.G., ed. 2012. The Jepson Manual: Higher Plants of California. 2nd Edition. Berkeley, CA: University of California Press.
- CDFW, Natural Diversity Database. April 2013. Special Vascular Plants, Bryophytes, and Lichens List. Quarterly publication. 73 pp.
- State of California. The Natural Resources Agency. Department of Fish and Game. Biogeographic Data Branch. CNDDB. Special Animals (898 taxa). January 2011
- The American Ornithologists' Union. Checklist of North American Birds. http://www.aou.org/checklist/north/
- Pasadena Audubon Society. Pasadena Audubon Society Yahoo Group. A listserv where members can post recent bird sightings. http://groups.yahoo.com/neo/groups/PasadenaAudubon/info?yguid=10339344
- eBird. A real-time online birdwatching checklist for reporting and accessing information about birds. http://ebird.org
- USFWS National Wetlands Inventory (NWI) database. http://www.fws.gov/wetlands
- Los Angeles Department of Public Works, Los Angeles County Storm Drain System. http://dpw.lacounty.gov/fcd/stormdrain/index.cfm
- California Log of Bridges on State Highways. District 7. January, 2013. http://www.dot.ca.gov/hq/structur/strmaint/brlog/logpdf/logd07.pdf

A letter was submitted to CDFW on September 16, 2013, requesting a list of special-status species potentially occurring in the vicinity of the Proposed Project. No response has been received as of June 5, 2014.

A letter was submitted to USFWS on September 16, 2013, requesting a list of special-status species potentially occurring in the vicinity of the Proposed Project. A letter was received from USFWS dated October 28, 2013, providing a list of proposed, threatened, or endangered species potentially occurring in the vicinity of the Proposed Project. A request to USFWS for an updated list was sent on October 24, 2014. An updated letter from USFWS was received on October 27, 2014.

In addition to the Pasadena, Los Angeles, El Monte, and Mt. Wilson 7.5-minute series United States Geological Survey (USGS) topographical quadrangles where the Proposed Project and BSA are located, the surrounding Burbank, Chilao Flat, Condor Peak, Waterman Mountain, Azusa, Baldwin Park, La Habra, Hollywood, Inglewood, South Gate, Sunland, and Whittier 7.5-minute series USGS topographical quadrangles were searched for CNDDB records due to their contiguity to the BSA. The same topographic quads were searched in the CNPSEI for plants with California Rare Plant Rank (CRPR) threat ranks of 1 or 2. Plants with CRPR threat ranks of 3 or 4 were not included in the search because the quad data for these plants has not been quality controlled; these plants are less rare than CRPR 1 and 2 plants. The CNPSEI was also used to identify the range and habitat preferences of sensitive plants identified in the CNDDB and CNPSEI searches. Additional sensitive plants and animals known to occur or with suitable habitat within the general area were also considered.

2.2.2. Botanical Surveys

2.2.2.1. PLANT COMMUNITY MAPPING

Plant communities within the BSA were mapped and classified in general accordance with *A Manual of California Vegetation* (Sawyer et al. 2009) in order to identify habitat values for plants and wildlife within the BSA, and to identify plant communities of conservation concern. Plant community boundaries were recorded in the field on a GPS unit with sub-meter accuracy, and are presented here as mapped to the nearest 0.1 acre. Plant communities dominated by native species and larger than the minimum 0.1-acre mapping unit were identified to alliance. Native-dominated plant communities smaller than 0.1 acres were grouped by type for mapping purposes (e.g., wetland complex), and the composite alliances present listed in the text. The majority of areas dominated by non-native species were classified as non-native woodland, or non-native grassland, because the *Manual of California Vegetation* focuses on native plant communities and includes only a few communities (called semi-natural stands) dominated by non-native species that replace native alliances. The great majority of areas in California dominated by non-native species do not have described alliances.

Plant community mapping was conducted as a two-phase effort consisting of initial site reconnaissance and verification and refinement of plant community mapping to the nearest 0.1 acre during subsequent site visits. Survey methods included pedestrian surveys of all accessible areas, which included the vast majority of the BSA. Where

foot access was not possible, biologists investigated the areas with the aid of binoculars. Initial reconnaissance and plant community mapping and follow-up verification and refinement were conducted by Sapphos Environmental, Inc. botanists and biologists. In March, 2013, Sapphos Environmental, Inc. biologists completed site reconnaissance within the BSA, noting general makeup of the BSA. A geographic information systems (GIS) specialist performed preliminary in-house mapping, which included noting possible plant communities observed during the site reconnaissance. The main field survey effort and refinement to the alliance level took place in late July and early August, 2013 (Appendix C, Botanical Survey). Plant community and cover types were recorded in the field on a GPS unit with sub-meter accuracy. The boundaries of each plant community were recorded by the GPS unit while the biologist walked the boundary of each community. A follow-up confirmation survey was conducted in October 2013 concurrently with visits to wetlands and riparian areas.

In addition to the plant communities mapped as described above, many areas of the BSA were mapped as the cover type disturbed/developed. Disturbed/developed included areas dominated by buildings, roads, and highly maintained landscaped vegetation such as yards and business parks.

2.2.2.2. BOTANICAL SURVEY

A botanical survey was conducted to identify all plants within the BSA, document any rare plant occurrences, and identify suitable habitat for plants potentially present. The survey was conducted in late July and early August 2013, concurrently with the main plant community mapping effort (Appendix C). The botanical surveys generally followed the CNPS and CDFW guidelines (CNPS 1983/2001; CDFW 2009). The surveys diverged from the guidelines in that availability of the designs for the proposed alternatives precluded surveys in the spring and early summer; therefore, multiple visits throughout the growing season were not conducted. Additionally, voucher specimens were not collected, and location data were recorded on GPS units with sub-meter accuracy, rather than marked on aerial maps.

Prior to conducting fieldwork, rare plant occurrences in the vicinity were compiled into a list of species potentially present based on a search of the CNDDB and CNPSEI in the 16 USGS topographic 7.5-minute quadrangles at and around the Proposed Project.

The survey was conducted during the blooming period for the majority of the sensitive plants considered potentially present. Observers searched for all plants,

whether blooming or not, during the survey. For those species that were not likely to be identifiable during the survey period, observers identified areas where the plants could occur. Those sensitive plants that may not have had aboveground identifiable parts, and which were not observed, were considered potentially present if suitable habitat was identified. In order to adequately search for special-status plants, survey methods included investigating all accessible areas within the BSA on foot. If foot access was not possible, biologists surveyed the areas with the aid of binoculars from an accessible vantage point. Plants recorded during wetland delineation efforts in August and October 2013 by Sapphos Environmental, Inc. were identified according to the methods outlined above and included in the floral compendium (Appendix D, Floral Compendium).

The survey was floristic in nature, in that all plants observed were identified to at least the taxonomic level necessary to make a determination of their rarity status (i.e., species, subspecies, or variety). All vascular plants encountered in the BSA that appeared to be living without care or maintenance in semi-natural environments (i.e., not growing in planters or highly maintained landscaped areas) were identified, as well as potential special-status plants. Plant nomenclature follows that of *The Jepson Manual*, 2nd Edition (Baldwin et al. 2012). All plant species identified during the surveys were noted and are listed in the floral compendium (Appendix D). Invasive plants were categorized following the classifications provided by the California Invasive Plant Council (Cal-IPC) (Appendix E, Invasive Plant Species Compendium). Botanical surveys and plant identification during wetland delineation efforts were conducted by Sapphos Environmental, Inc. botanists and biologists.

2.2.2.3. PROTECTED TREE SURVEY

Surveys were conducted by Sapphos Environmental, Inc. within the BSA to determine the presence or absence of trees protected by local ordinances. The tree survey was conducted in January, June, July, and August, 2013, by two or three Sapphos Environmental, Inc. biologists. The biologists mapped and inventoried all accessible trees that were covered by local city and county-wide tree ordinances. Tree surveys were conducted within the BSA by walking all accessible areas within the area under consideration to be included in the limits of disturbance; unlike the other biological surveys, this survey did not extend to a 200-ft buffer on that area (i.e., the entire BSA). Where foot access was not possible, the Sapphos Environmental, Inc. biologists surveyed the area via the use of binoculars, took a GPS point at the closest location to the tree(s) possible, and recorded the number and species of trees in the inaccessible area.

2.2.3. Wildlife Surveys

2.2.3.1. FOCUSED BIRD SURVEYS

Focused avian surveys were conducted within the BSA during the peak avian migration and local breeding season, between March and May 2013 by Sapphos Environmental, Inc. (Appendix F). These surveys utilized a combination of point counts, linear transect surveys, and reconnaissance observations to assess the avian community and bird use within the BSA. Twenty-one point count stations were established in potential impact areas of the BRT, LRT, and Freeway Tunnel Alternatives and each was surveyed three to four times between March 28 and May 15, 2013. The point counts were 10 minutes in duration, during which time all individual birds heard and seen were recorded. Four transects (1,669 to 4,402 ft in length) along linear areas of the Proposed Project, including the BRT, LRT and Freeway Tunnel Alternatives, were also surveyed by walking slowly while listening and looking for all birds. The potential impact area associated with the TSM/TDM Alternative was not identified until after the surveys were mostly complete and thus only reconnaissance surveys were conducted for this alternative. Any additional bird species not otherwise recorded, as well as sensitive or special status bird species observed at other times were recorded as reconnaissance observations. Areas comprising potential habitat for sensitive species dependent on particular habitat types were visited and a habitat assessment conducted of selected areas were incorporated to include searches for special-status birds. Habitat assessments in areas of potentially suitable habitat were conducted for burrowing owl (*Athene cunicularia*) and sensitive riparian birds, including southwestern willow flycatcher (*Empidonax traillii extimus*), and least Bell's vireo (*Vireo bellii pusillus*). Focused bird surveys were conducted by Sapphos Environmental, Inc. biologists.

2.2.3.2. FOCUSED BURROWING OWL SURVEY (HABITAT ASSESSMENT)

A habitat assessment for burrowing owls was conducted on June 21 and July 30, 2013, to determine whether suitable habitat was present within the BSA (Appendix F). The habitat assessment was conducted in compliance with the CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012). The surveys included visits to three areas identified as potentially suitable during initial site visits and/or from evaluation of aerial maps, all of which were located in the southerly section of the BSA near the existing SR 710/I-10 interchange. All three sites were covered on foot to assess habitat characteristics on site, and to search for burrowing owls, potentially suitable burrows, and diagnostic sign such as regurgitated pellets, whitewash, and feathers. Burrowing owl habitat assessment surveys were conducted by Sapphos Environmental, Inc. biologists.

2.2.3.3. FOCUSED RIPARIAN BIRD SURVEY (HABITAT ASSESSMENT)

Pedestrian surveys were conducted on March 29 and August 30, 2013, at locations with the potential to support habitat for special-status riparian bird species to occur within small areas of potential habitat identified within the BSA during reconnaissance surveys and sensitive plant surveys (Appendix F). Southwestern willow flycatcher and least Bell's vireo were specifically considered. The riparian bird habitat assessment focused on, but was not limited to, least Bell's vireo and southwestern willow flycatcher breeding habitat as described in the species-specific survey protocols (Bombay et al. 2003; USFWS 2001). Potential habitat for these species did not necessarily match the plant community types exactly. Breeding habitat for these species is typically dominated by willows (*Salix* spp.) and mulefat (*Baccharis salicifolia*) and contains both dense vegetative cover within 3.3 to 6.6 ft off the ground, the preferred habitat for nesting, and a dense stratified canopy, the preferred habitat for foraging. Riparian bird habitat assessments were conducted by a Sapphos Environmental, Inc. biologist.

2.2.3.4. FOCUSED BAT SURVEYS

The Freeway Tunnel Alternative and TSM/TDM Alternative would require bridge work involving 14 existing structures. This work would entail the widening or demolition of existing structures. On August 28 and September 30, 2013, Sapphos Environmental, Inc. biologists conducted initial bat use and habitat assessments on the 14 bridge structures proposed for widening or demolition as a result of the Proposed Project (Table 5, Bridges Assessed for Bat Use). Expansion joints, openings and gaps at abutments, crevices and openings along spans, and any other visible crevices were examined, photographed, and analyzed for evidence of bats or bat activity, such as urine stains and guano deposits.

Table 5: Bridges Assessed for Bat Use

Post Mile Marker	Bridge Number	Bridge Name	Alternative	Widen	Remove	Daytime Survey	Nighttime Survey
LA-021.42	53 1447G	N710-E&W10 Connector OC	*	X		X	X
LA-026.38	53 1459L	Ramona Blvcd UC	Freeway Tunnel–Dual Bore	X		X	X
LA-026.38	53 1459R	Ramona Blvd UC	*	X		X	X
LA-021.33	53 1459G	Ramona St UC (E10-S710)	*	X		X	X
LA-021.35	53 1445L	Route 710/10 Separation	Freeway Tunnel–Dual Bore	X		X	
LA-021.35	53 1445R	Route 710/10 Separation	*	X		X	
LA-R027.11	53 1708	Hellman Ave OC	Freeway Tunnel–Dual/Single Bore		X	X	
LA-T032.11	53 2262	Del Mar Blvd OC	Freeway Tunnel–Dual/Single Bore		X	X	X
LA-R032.37	53 2263	Green St OC	Freeway Tunnel–Dual/Single Bore		X	X	
LA-R032.45	53 2264	Colorado Blvd OC	*		X	X	
LA-R032.51	53 2537	Union St OC	*		X	X	
N/A	N/A	Saint John Pedestrian/Parking lot entrance bridge just west of bridge 53-2265	*		X	X	
LA-R013.23	53 2265	Saint John Ave/E134-S710 OC	*		X	X	
N/A	53C1669	Garfield Ave	TSM/TDM	X		X	

*Surveyed but no longer included in any of the Proposed Project Build Alternatives.

Subsequent to the initial field surveys, additional project refinements and associated potential impact areas were identified. Specifically, widening of the Garfield Avenue Bridge spanning a fenced section of the Southern Pacific Railroad which is managed by Union Pacific Railroad, located in the City of Alhambra, was identified for the TSM/TDM Alternative. A daytime assessment of the Garfield Avenue Bridge was conducted on September 30, 2013, but biologists were unable to visually inspect the

underside due to access limitations. Potential foraging and roosting sites were found within the BSA in proximity to five of the bridges. In early September, 2013, Sapphos Environmental, Inc. biologists conducted nighttime acoustic surveys at the five previously identified bridges as well as an additional foraging location at the Del Mar Pump Station immediately adjacent to the Del Mar Blvd Bridge in Pasadena (Table 5; Appendix G, Bat Surveys). Nighttime surveys included passive and active acoustic data collection using broadband frequency-dividing Anabat SD2 bat detectors (Titley Electronics, Ballina, NSW, Australia), and periods of active field observation during evening hours of typical bat emergence. These surveys were used to determine bat absence or presence, record the relative level of bat activity, and identify species that may use the area for roosting or foraging. Monitoring was conducted at each of the areas that Sapphos Environmental, Inc. had determined to be potential foraging grounds for bats during daytime surveys. Habitat assessments and nighttime acoustic surveys were conducted by Sapphos Environmental, Inc. biologists (Table 5).

2.2.4. General Reconnaissance Surveys

Reconnaissance-level surveys were conducted by Sapphos Environmental, Inc. within the BSA to identify the presence of special-status plants and wildlife species that were not the subject of the focused survey types described above. The reconnaissance surveys were also conducted to identify any additional potential communities, habitats, or populations of endangered, threatened, or rare species present. Reconnaissance surveys were conducted during all time spent within the BSA for the purposes of conducting focused surveys. Reconnaissance surveys were conducted in January, March, April, May, June, July, August, September, and October, 2013, by Sapphos Environmental, Inc. biologists (Appendix B; Appendix C; Appendix F; Appendix G; Appendix H, Biological Resources Survey for Geotechnical Investigation Sites; Appendix I, Jurisdictional Delineation Report: U.S. Army Corps of Engineers; Appendix J, Jurisdictional Delineation Report: Agencies of the State of California). Reconnaissance-level surveys were conducted within the BSA by walking all accessible areas within the area of potential effect and recording wildlife habitat and species observations. Where foot access was not possible, the Sapphos Environmental, Inc. biologists surveyed the area via the use of binoculars. All general reconnaissance surveys were conducted by Sapphos Environmental, Inc. biologists.

Wildlife observed during all reconnaissance and focused survey types were included in the Faunal Compendium (Appendix K, Faunal Compendium).

2.2.5. Jurisdictional Delineation

Sapphos Environmental, Inc. conducted a jurisdictional delineation that included a desktop review and field survey to determine the locations of all drainages, wetlands and associated habitats potentially subject to the jurisdiction of the Corps, CDFW, and/or the RWQCB pursuant to Sections 401 and 404 of the CWA and the State Fish and Game Code Sections 1600 to 1603 (Appendix I, Appendix J).

A review of literature, maps and databases was completed prior to conducting field surveys to identify the potential presence of drainages within the BSA, and provide regional information about hydrology, soils, and other physical conditions. Regional information on, hydrology and soils was also reviewed. In addition, aerial imagery of the BSA was reviewed to identify potential locations of any additional drainage features including small drainage ditches. Information from the plant community mapping was used to identify riparian plant communities that may be subject to CDFW jurisdiction (see Section 2.2.2.1).

Sapphos Environmental, Inc. conducted field surveys of potential drainage features and associated habitats between April and October 2013. All areas within the BSA that were identified as having potential drainage features or associated habitats were subject to field visits, and any features encountered were documented, delineated and mapped as appropriate. All potential drainages were checked for the presence of a channel, ordinary high water mark (OHWM), downstream connections to waters of the United States, a defined bed and bank, associated riparian vegetation, and the potential to carry water in response to a storm event or nuisance flows. Potential wetlands were delineated following the methods in the Corps Wetland Delineation Manual and the Regional Supplement for the Arid West (Corps 1987, 2008b). Plants identified at potential wetlands (between August and October 2013) were classified to their wetland indicator status using The National Wetland Plant List: 2013 Wetland Ratings (Lichvar 2013). Soils and hydrology indicators were also examined (Munsell 2012; USDA 2010). Photographs were taken at each drainage crossing and wetland. Field surveys were conducted by Sapphos Environmental, Inc. biologists.

2.3. Personnel and Survey Dates

Table 6 lists the surveys completed and the personnel who conducted the surveys.

Table 6: Survey Dates and Personnel

Survey Type	Dates (2013)	Personnel
Vegetation Mapping/Plant Community Surveys	March 7, July 29-31, August 1-2, 5-9, and October 14.	Brian Bielfelt, Lauren Dorough, John Ivanov, Thomas Kmett, Amariah Lebsock, Jolene Moroney, Jordan Zylstra
Protected Tree Surveys	June 4-7, 11-13, 20-21, 25, July 3, 9, 12, 17-18, 29-31, August 1-2, 5-9, 28, and 30.	Debra De La Torre, Lauren Dorough, Jorge Guzman, John Ivanov, Thomas Kmett, Amariah Lebsock, Angelica Mendoza, Pauline Roberts, Ryan Villanueva
Focused Bird Surveys	March 26-29, April 8-10, 22-24, May 6-7, and 15.	John Ivanov
Focused Plant Survey	July 29-31, August 1-2, and 5-9.	Lauren Dorough, Thomas Kmett, Jordan Zylstra
Burrowing Owl Habitat Suitability Assessment Surveys	June 21 and July 30.	John Ivanov, Thomas Kmett
Bat Habitat Suitability and Bridge Use Assessment, and Acoustic Surveys	August 28, September 4-10, and 30.	Lauren Dorough, David Lee, Amariah Lebsock
Biological Reconnaissance	January 28-29, March 7, 26-29, April 8-10, 22-24, May 6-7, 15, June 4-7, 11-13, 20-21, 25, July 3, 9, 12, 17-18, 29-31, August 1-2, 5-9, 21, 26, 28, and 30, September 4-10 25, and October 14, and 18.	Brian Bielfelt, Debra De La Torre, Lauren Dorough, Adam Furman, Jorge Guzman, John Ivanov, Thomas Kmett, Amariah Lebsock, David Lee, Angelica Mendoza, Jolene Moroney, Shelby Petro, Pauline Roberts, Margaret Schaap, Ryan Villanueva, Jordan Zylstra
Jurisdictional Delineation	April 9, August 21, 26, September 25, and October 18.	Brian Bielfelt, Lauren Dorough, Adam Furman, John Ivanov, Thomas Kmett, Jolene Moroney, Shelby Petro, Margaret Schaap, Ryan Villanueva

2.4. Agency Coordination and Professional Contacts

A letter requesting a list of proposed, threatened, or endangered species potentially occurring within the BSA was sent to the CDFW on September 16, 2013. A response to the request has not been received as of June 5, 2014.

A letter requesting a list of special-status species potentially occurring within the BSA was sent to the USFWS on September 16, 2013. A response to the request was received on October 28, 2013 (Appendix L, United States Fish and Wildlife Service Species List). A request for an updated species list from USFWS was sent on October 24, 2014. An updated species list was received from USFWS on October 27, 2014.

2.5. Limitations That May Influence Results

Considerable time may elapse between the submission of this document and the initiation and completion of this Proposed Project. The results presented here are contingent on the understanding that biological resources are variable and unpredictable in nature and that biological field data collection is subject to the limitations that environmental factors may impose. The detectability of living organisms can differ spatially and temporally based on a range of variables (blooming period, sensitivity to human disturbance, climatic conditions, migrations, etc.). No protocol level surveys were conducted that would impose specific time limits on the validity of the conclusions made in this study.

Surveys for plant species occurred outside of the traditional flowering period for some of the plant species identified as potentially present. In addition, unusually dry conditions during the previous two winters prior to the survey may have contributed to reduced or absent flowering periods for some plants of interest, and limited the emergence of herbaceous annuals. Although these plants may still have been identifiable, additional surveys earlier in the year or during a flowering period following a winter with increased rainfall, would have covered the flowering period of each plant and would have potentially increased the surveyors' opportunity for observation and identification of special-status species on the Proposed Project site. In addition, the results of the biological resource surveys are limited in areas where foot access was not available, not safe (i.e., inaccessibly steep slopes, proximity to high-speed traffic, occupied homeless encampments), and/or unauthorized. When foot access was unavailable, binoculars were used to best assess the resources. Information was gathered from the entire BSA; however this report addresses biological resources that fall within the Proposed Project's area of potential direct effect (Appendix A, Figure 8, Biological Study Area).

Chapter 3. Results: Environmental Setting

3.1. Description of the Existing Biological and Physical Conditions

The Proposed Project is located within the South Coast and San Gabriel Mountains subregions of the Southwestern California region of the California Floristic Province as described in *The Jepson Manual*, 2nd Edition (Baldwin et al. 2012). The South Coast and San Gabriel Mountains subregions within the BSA are characterized by valleys and small hills extending from the coast inland to the foothills of the Western Transverse Ranges. Much of the area is intensively developed for urban and suburban uses. The natural vegetation of the subregion prior to urbanization consisted primarily of chaparral and coastal sage scrub (CSS). Most of the current natural vegetation within the BSA in these subregions occurs in scattered, isolated patches on hillsides or in other areas not easily developed such as freeway edges and medians. The Proposed Project is located entirely in Los Angeles County, and is generally focused between the areas of the existing I-710/I-10 and I-210/SR 134 freeway interchanges.

3.1.1. Biological Study Area

The combined area of potential direct effect of all Proposed Project Build Alternatives includes portions of eight cities in the County of Los Angeles: (1) Los Angeles, (2) Monterey Park, (3) Alhambra, (4) San Gabriel, (5) Rosemead, (6) San Marino, (7) South Pasadena, and (8) Pasadena. The Proposed Project Build Alternatives also include unincorporated areas of Los Angeles County (to the east of Monterey Park and to the south of the City of Los Angeles) (Appendix A, Figure 8). The aboveground portions of the Proposed Project Build Alternatives are located in a variety of urban settings, including residential areas, industrialized warehouse, commercial businesses, and existing transportation systems that span the area between the I-710/I-10 and I-210 freeways. Additional more natural areas include vegetated highway berms and medians.

The Biological Study Area for the Proposed Project, referred to as the BSA, is inclusive of, and substantially larger than, the area within which direct impacts to biological resources may occur as a result of Proposed Project activities (Appendix A, Figure 8). Activities that would directly impact biological resources include ground-disturbing activities (clearing, construction, staging areas, etc.). Indirect effects may

result from dust, noise, and lighting; habitat degradation; increased littering from increased traffic; as well as other sources. The BSA was created to include an approximately 200-ft buffer around all of the areas under consideration to be included in the limits of disturbance as of July 2013. Off-site staging, borrow, and disposal sites were not included in the BSA. The BSA, at 3,410 acres, is much larger than the area where ground-disturbing permanent and temporary impacts may occur (approximately 570 acres for all of the alternatives combined). In some cases, the edge of the BSA is approximately 0.5 mi from the nearest temporary or permanent impact areas. The BSA does not include borrow sites.

Since the BSA was created, the build alternatives have been refined, but no expansions have been required to maintain a minimum 200-ft buffer around all areas where ground-disturbing activities may occur. The 200-ft buffer was established to ensure adequate analysis of impacts to biological resources, and to accommodate possible future minor refinements to the design of the proposed alternatives.

Biological resources present or potentially present within the BSA were considered in this report. With the exception of the protected tree survey, all types of surveys conducted for biological resources covered the entirety of the BSA (either on foot or through the use of binoculars in inaccessible areas). The protected tree survey was initiated in June 2013 prior to the establishment of the BSA, and was conducted in the area under consideration for inclusion in the limits of disturbance—without a 200-ft buffer.

The BSA for the Proposed Project comprises approximately 3,410 acres, located entirely within Los Angeles County. The BSA is distinct from the much larger Study Area, which is the general region within which proposed alternatives were designed and considered. The BSA extends south of I-10 along I-710 and north of I-210, as well as through residential and city street areas within Pasadena, South Pasadena, Alhambra, and Monterey Park. The BSA associated with the TSM/TDM Alternative extends beyond these boundaries to include additional city street areas in Rosemead, San Gabriel, San Marino, Pasadena, South Pasadena, Los Angeles, and Alhambra. The BSA extends approximately 11 linear miles (17.7 km) generally between the I-710/I-10 interchange and I-210 freeway. The westerly terminus of the BSA is located at the intersection of N. Figueroa St. and Colorado Blvd. in Pasadena. The BSA's easterly terminus is along Rosemead Blvd. (SR 19) between Lower Azusa Rd. and Glendon Way in Rosemead. The northerly terminus of the BSA is along I-210 between the Lincoln Ave. and Arroyo Blvd. exits in Pasadena. The southerly

terminus of the BSA is at the intersection of S. Atlantic Blvd. and E. Olympic Blvd. in unincorporated Los Angeles County. The BSA is located on the USGS Pasadena, Los Angeles, El Monte, and Mt. Wilson 7.5-minute series topographical quadrangles (Appendix A, Figure 8). A range of land uses exist adjacent to the BSA, including transportation, residential, commercial, industrial, infrastructure, and recreational land uses.

3.1.2. Physical Conditions

Areas of the BSA located north near the intersection of I-210 and SR 134 are adjacent to the foothills of mountains in a highly developed valley. Elements of the BSA in the south near the intersection of I-710 and I-10 have been developed within existing mountain passes and foothills. Elements located along Fremont Ave. and Atlantic Blvd. are located almost entirely within a developed valley. The BSA is located within the Los Angeles Basin, the alluvial fan of the San Gabriel Mountains, and areas of steep vegetated canyons and hillsides in Pasadena. Elevations range from approximately 187 to 1,015 ft above mean sea level (MSL). The elevation change throughout the BSA is gradual.

The entire BSA is located within the Los Angeles River Watershed, called the Los Angeles River Hydrologic Unit (HUC 18070105), which drains an 831-square-mi area. Two blue line drainages, the Arroyo Seco and the Laguna Channel (sometimes called the Dorchester Channel, or Luguna Channel), occur within the BSA, and include riverine, wetland and riparian drainages and habitats. Most of the drainages within the BSA are channelized and provide relatively limited habitat value for terrestrial and aquatic species. Outside of the BSA, approximately 324 square mi of the Los Angeles River Watershed are covered by forest or open space land including the area near the headwaters that originate in the Santa Monica, Santa Susana, and San Gabriel Mountains. The remainder of the watershed is highly developed in urbanized areas like those containing the Proposed Project Build Alternatives.

The region is characterized by a Mediterranean climate with the heaviest rainfall occurring during the winter months and the driest weather occurring during the summer months.

The Natural Resources Conservation Service (NRCS) has not mapped the soils within the BSA. The Los Angeles County Department of Public Works Water Resources Division describes the soil types expected to be found within Los Angeles County (Table 7, Soil Types in the BSA) (Los Angeles Department of Public Works 2004).

Table 7: Soil Types in the BSA

Soil Types	Acres
Altamont Clay Loam	548.3
Chino Silt Loam	48.7
Hanford Fine Sandy Loam	56.0
Hanford Gravelly Sandy Loam	41.8
Ramona Loam	1,526.7
Ramona Sandy Loam	906.5
Upper Los Angeles River	49.0
Yolo Clay Loam	136.1
Yolo Loam	97.0
Total	3,410.4*
*Note sum of acreages may vary due to rounding.	

3.1.3. Biological Conditions in the Biological Study Area

3.1.3.1. NATURAL AND VEGETATION COMMUNITIES AND COMMON PLANT SPECIES

Eleven plant communities and one non-vegetation cover type were identified within the BSA, and are discussed in further detail below (Appendix A, Figure 9.1–9.9, Plant Community Map). Note that areas of the BSA which were comprised entirely of the disturbed/developed cover type (much of the TSM/TDM and BRT Alternatives), are not shown explicitly on this map. Five communities, (1) *Alnus rhombifolia* Forest Alliance (white alder groves); (2) *Populus trichocarpa* Forest Alliance (black cottonwood forest); (3) *Malosma laurina* Shrubland Alliance (laurel sumac scrub); (4) *Salix lasiolepis* Shrubland Alliance (arroyo willow thickets); and (5) *Quercus agrifolia* Woodland Alliance (coast live oak woodland), with a *Q. agrifolia*/chaparral association; are vegetation community alliances dominated by native species and defined in *A Manual of California Vegetation* (Sawyer et al. 2009).

The white alder groves, black cottonwood forest, and arroyo willow thickets are all riparian communities and are collectively referred to as riparian habitat for the purposes of this report. Two additional riparian areas dominated by non-native species were identified, both near a stream in the southern end of the BSA. The first, *Arundo donax* semi-natural stand (giant reed breaks) is classified in *A Manual of California Vegetation*. The second, an area of non-native riparian woodland dominated by Mexican fan palm (*Washingtonia robusta*), with some arroyo willow present, does not match any vegetation alliance identified in *A Manual of California Vegetation* (Sawyer et al. 2009).

Three additional cover types were mapped: (1) non-native woodland, (2) non-native grassland, and (3) wetland complex, which are generalized cover types which contain vegetation community alliances that are not included in *A Manual of California Vegetation* because they are dominated by non-native species, and/or are comprised of multiple vegetation alliances smaller than the minimum mapping unit of 0.1 acres. A small portion of the BSA was mapped with the cover type labeled as streams. However, this cover type does not represent a vegetation community. The stream cover type represents areas within the BSA existing solely of flowing water and excludes adjacent vegetation communities such as riparian communities. Lastly, large portions of the BSA were mapped as the cover type disturbed/developed, which included maintained ornamental vegetation (at residences and businesses), and urban areas. The distribution of plant communities within the BSA is outlined below (Table 8, Vegetation Cover Types and Acreages in the BSA).

Table 8: Vegetation Cover Types and Acreages in the BSA

Vegetation Cover Type / Alliance	Riparian	CaCode	Rarity Ranking	Acres
Disturbed / Developed	No	N/A	N/A	3,223.2
Non-native Woodland	No	N/A	N/A	79.7
Non-native Grassland	No	N/A	N/A	85.8
Non-native Riparian Woodland	Yes	N/A	N/A	0.5
Wetland Complex	Yes	N/A	N/A	1.5
Giant Reed Semi-natural Stand	Yes	42.080.01	N/A	0.2
White Alder Groves	Yes	61.420.00	G4 S4	1.0
Black Cottonwood Forest	Yes	61.120.00	G5 S3	0.8
Arroyo Willow Thicket	Yes	61.201.00	G4 S4	2.3
Laurel Sumac Scrub	No	45.455.00	G4 S4	5.0
Coast Live Oak Woodland	No	71.060.29	G5 S4	5.9
Streams**	Yes	N/A	N/A	4.4
Total				3,410.4*

*Note sum of acreages may vary due to rounding.
**Streams is a non-vegetation cover type. The area for this cover type has been calculated in such a way to ensure zero overlap with vegetation cover types.
CaCodes = California Natural Community Code
State Rank
S3 = **Vulnerable:** Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4 = **Apparently Secure**: Uncommon but not rare; some cause for long-term concern due to declines or other factors.
Global Rank
G4 = **Apparently Secure**: Uncommon but not rare; some cause for long-term concern due to declines or other factors.
G5 = **Secure**: Common; widespread and abundant.

In general, very little natural vegetation remains in the area; the majority of vegetation present occurs as planted trees along sidewalks, as well as ruderal and ornamental vegetation and trees planted along the edges of freeways, and within freeway medians. Dominant tree species included non-native trees such as *Eucalyptus* spp., sweetgum, *Jacaranda* spp., Mexican fan palm, crape myrtle, and Brazilian peppertree (*Schinus terebinthifolius*), and native trees such as coast live oak and western sycamore. Common groundcover shrubs included primarily ornamental non-native species such as cyclops acacia (*Acacia cyclops*) and cape leadwort (*Plumbago auriculata*) with few areas containing native shrubs such as laurel sumac (*Malosma laurina*), sugar sumac (*Rhus ovata*), coyotebrush (*Baccharis pilularis*), mulefat, and toyon. A complete list of plants identified within the BSA can be found in the floral compendium (Appendix D).

Disturbed/Developed

The disturbed / developed cover type includes all areas of existing urbanization within the BSA, including buildings, residences, yards, gardens, ornamental landscaping, and road surfaces. These cover types have very low potential for rare or native plant occurrence. Even naturalized weedy pests are in low diversity under this cover type. The disturbed/developed cover type was the predominant cover type within the BSA (Appendix A, Figure 9).

Non-Native Woodland

Non-native woodland is a generalized cover type that includes several semi-natural vegetation alliances. Alliances under this cover type within the BSA consist of Eucalyptus (*E. globules, E. camaldulensis*) Semi-Natural Woodland Stands (*Eucalyptus* groves), *Schinus* (*S. molle, S. terebinthifolius*)–*Myoporum laetum* Semi-Natural Woodland Stands (pepper tree or *Myoporum* groves), as well as stands without formal alliance status, dominated by any of the following: Chinese elm (*Ulmus parvifolia*), blackwood (*Acacia melanoxylon*), Aleppo pine (*Pinus halepensis*), Canary Island pine, Mexican fan palm, and rosewood (*Tipuana tipu*).

The non-native woodland cover type is generally less maintained than the disturbed / developed cover type and has a higher diversity of plant species, although native plant diversity is still low. Native trees were often intermixed in these stands, including coast live oak and velvet ash (*Fraxinus velutina*). An understory shrub layer was typically present, indicating a low level of maintenance. This cover type was predominantly found along the margins of existing freeways within the BSA (Appendix A, Figure 9).

Non-Native Grassland

Non-native grassland is a generalized cover type that includes several semi-natural vegetation alliances. Alliances under this cover type within the BSA consist of *Bromus* (*B. diandrus, B. hordeaceus*)–*Brachypodium distachyon* semi-natural stands (annual brome grassland), *Lolium perenne* semi-natural stands (perennial rye grassfields), *Avena* (*A. barbata, A. fatua*) semi-natural stands (wild oats grasslands), *Brassica* (*B. nigra*), other mustards semi-natural stands (upland mustards), and *Centaurea* (*C. solstitialis, C. melitensis*) semi-natural stands (yellow star thistle fields).

The non-native grassland cover type is generally less maintained than the disturbed / developed cover type, although swaths of it are generally found to be mowed late in the season for fire abatement. Naturalized species are in relative abundance in non-native grassland fields, and native plants are often intermixed in small numbers. This cover type was predominantly found along the margins of existing freeways in the BSA (Appendix A, Figure 9). Rare plants can be present in this cover type; however, within the BSA the landscape is highly modified, such as along the banks of freeways, and the native soil and associated seed bank required for the presence of rare plants are likely absent.

Non-native Riparian Woodland

Non-native riparian woodland is a generalized cover type representing areas dominated by trees that occur in the riparian zone. Riparian habitats typically have higher biological productivity than non-riparian habitats, and often have high habitat value for plants and wildlife. No recognized semi-natural alliances occurred in this cover type within the BSA. In the BSA, this cover type was dominated by an overstory of Mexican fan palm, and is not regularly maintained. One area of this cover type (0.5 acres) occurred streamside in the southern end of the BSA, along the Laguna Channel (Appendix A, Figure 9). Rare plants can be present in this cover type; however, within the BSA the landscape is highly modified, and the native soil and associated seed bank of rare plants are likely absent.

Wetland Complex

Wetland complex is a generalized cover type that includes several alliances that are associated with wetlands and riparian areas. As a riparian habitat, it typically has higher biological productivity than non-riparian habitats, and high habitat value for plants and wildlife. Alliances under this cover type within the BSA include *Typha* species (*T. angustifolia*, *T. domingensis*, *T. latifolia*) Herbaceous Alliances (cattail marshes), *Lolium perenne* Semi-Natural Herbaceous Stands (perennial rye grass fields), *Distichlis spicata* Herbaceous Alliance (salt grass flats), Arroyo Willow Thickets, Giant Reed Semi-Natural Herbaceous Stands, and *Echinocloa* Undetermined Semi-Natural Stands (barnyard grass marshes).

The vegetation alliances within the wetland complex cover type are usually associated with periodic flooding, and are found in low-lying areas such as swales, ditches, and along low-gradient streams and channels. Both the landscape features and the presence of water can be either naturally occurring or the result of human

activities. This cover type occurred within the BSA at an isolated manmade wetland associated with the Del Mar Pump Station, and abutting the Laguna Channel at its southernmost location within the BSA (Appendix A, Figure 9; Appendix J). Alliances found at the Del Mar Pump Station included cattail marshes, perennial rye grass fields, salt grass flats, arroyo willow thickets, and barnyard grass marshes. Alliances found in the wetland at the Laguna Channel included cattail marshes, arroyo willow thickets, giant reed breaks, and barnyard grass marshes. The native-dominated alliances at both sites (cattail marsh, salt grass flats and arroyo willow thicket), were all smaller than the minimum mapping unit of 0.1 acres and therefore pooled into the wetland complex cover type. Rare plants can be present in this cover type; however, within the BSA the landscape is highly modified, such as along the banks of freeways, and the native soil and associated seed bank required for the presence of rare plants are likely absent.

Giant Reed Semi-Natural Stands

Giant reed is a large and fast-growing member of the grass family that can reach heights of 25 ft. This semi-natural alliance is characterized by at least 75% cover of giant reed. In riparian settings, giant reed often grows in dense virtually monotypic stands. One stand of this cover type (0.2 acres) occurred streamside in the southern end of the BSA, along the Laguna Channel (Appendix A, Figure 9). Rare plants can be present in this cover type; however, few native species can compete effectively with giant reed. In the BSA, the native soil and associated seed bank required for the presence of rare plants are likely absent.

White Alder Groves

White alder is a deciduous hardwood tree that can grow to 115 ft in height. In California, white alder stands are a riparian plant community that generally occurs in the inland foothills and lower montane zones as a narrow strip along river bottoms. Stands typically occur on seasonally flooded stream banks, but they can also occur on floodplains or permanently saturated seeps. Other co-dominant trees in the stands can include bigleaf maple (*Acer macrophylla*), western sycamore, and Fremont cottonwood.

One stand of white alder groves (1 acre) was identified under a bridge within the BSA where the SR 134 crosses the Arroyo Seco in Pasadena. The majority of this vegetation stand within the BSA occurs underneath the wide SR 134 overpass (Appendix A, Figure 9); however, sunlight penetration appears to be adequate to

maintain this riparian system. The river here is not channelized in concrete, and a moderate riparian understory is present, including some of the following species: California rose (*Rosa californica*), mugwort (*Artemisia douglasiana*), and mulefat. There is also a large component of non-native species here that degrades habitat quality, including eupatory (*Ageratina adenophora*), cape ivy (*Delairea odorata*), veldtgrass (*Ehrharta erecta*), and smilo grass (*Stipa miliacea*).

Black Cottonwood Forest

Black cottonwood is one of two species of cottonwood that commonly occur within riparian areas of Southern California and is a fast-growing tree that can be up to 164 ft tall. In California, black cottonwood forest is generally found in montane elevations or outer coastal regions but is replaced by Fremont cottonwood forests in hotter and drier climates. Like white alder groves, this is a riparian plant community. Other riparian trees that can be associated within this plant community can include Fremont cottonwood, willows, and western sycamore.

Within the BSA, approximately 0.8 acre of black cottonwood forest was delineated. The only stand of black cottonwood in the BSA was found north of where the SR 134 crosses the Arroyo Seco in Pasadena (Appendix A, Figure 9). This plant community abuts and intergrades with the White alder grove to the south. The river here is not channelized in concrete and other riparian vegetation is present including some of the following species: arroyo willow and white alder.

Arroyo Willow Thicket

Arroyo willow is a tall riparian shrub or tree that grows up to 26 ft tall. In California, arroyo willow thickets occur in seasonally or intermittently flooded locations, which include riparian areas. This plant community can be dominated by arroyo willow growing as trees or shrubs. Other riparian trees that can be associated within this plant community can include: black cottonwood, arroyo willow, and western sycamore.

Within the BSA, approximately 2.3 acres of arroyo willow thicket was delineated within riparian areas. The vegetation appeared to be planted and relatively young. A diversity of other plants were detected within this area, including Southern California black walnut, white alder, narrow-leaved willow (*S. exigua*), coast live oak, rose (*Rosa* spp.), and western sycamore. Understory was sparse in some areas as a result of trail maintenance and foot traffic, and mostly dominated by nonnative plants. The only stands of arroyo willow thickets in the BSA occurred south of where the SR 134

crosses the Arroyo Seco in Pasadena (Appendix A, Figure 9). A man-made dam helps maintain the community north of Colorado Street Bridge and the community continues through the area where water has been diverted.

Laurel Sumac Scrub

Laurel sumac is a large evergreen shrub that can grow to 16 ft in height. In California, Laurel sumac scrub is generally found on temperate slopes near the coast, and its extent is largely limited by its frost sensitivity. This species is often found to grow in steep slopes with shallow soils among California sagebrush (*Artemisia californica*), California brittlebush (*Encelia californica*), California buckwheat, and toyon, among others.

Within the BSA, approximately 5 acres of laurel sumac scrub was delineated. California buckwheat was found to dominate the interspaces between the large shrubbery, and prevalence of California sagebrush, toyon, and California brittlebush was relatively low. The stands of laurel sumac scrub in the BSA were found on a steep slope west of the SR 134/I-210 interchange in Pasadena, both north and south of the Colorado Street Bridge (Appendix A, Figure 9).

Coast Live Oak Woodland

Coast live oak is a drought-tolerant evergreen tree that can grow to 82 ft in height. In California, stands of coast live oak woodland occur in a range of settings from upland savannas to bottomlands and riparian forests. The plant association for this plant alliance in the BSA is the *Quercus agrifolia*/chaparral community, which is dominated by chaparral shrub species in the understory of coast live oak. Shrub and herbaceous layers are sparse to intermittent; chaparral species for this association include species that are more evergreen than typical coast sage scrub species. Chaparral species can include California buckwheat, toyon, chamise (*Adenostoma fasciculatum*), and sugarbush.

Within the BSA, approximately 5.9 acres of coast live oak woodland was delineated. Stands were present in the BSA where the SR 134 crosses the Arroyo Seco in Pasadena (Appendix A, Figure 9). This community typically dominated areas between the riparian plant communities and more upland areas such as nonnative grasslands and laurel sumac scrub.

Streams

The streams cover type is a generalized non-vegetation cover type that includes jurisdictional flowing streams present within the BSA. This cover type included water channels that are concrete-lined and provide little opportunity for plant establishment; aquatic and mesic vegetation were present in these channels, but vegetation development was not complex enough to qualify for any alliance-level classification. This cover type also included earthen bottom streams.

The streams cover type comprised 4.4 acres of the BSA consisting of the Arroyo Seco and the Laguna Channel. The Arroyo Seco is an 80-foot-wide, usually shallow stream with an earthen bottom, and it drains into the Los Angeles River and then the Pacific Ocean. The Laguna Channel, which is also a tributary of the Los Angeles River, is mostly channelized in a concrete-lined box channel within the BSA. The sole earthen bottom portion is associated with an abutting wetland.

3.1.3.2. COMMON WILDLIFE

Wildlife species that occur within the BSA are generally limited to species that are well-adapted to human-modified environments and are species typically associated with urbanized habitats. Common mammal species observed or expected to be present within the BSA were raccoon (*Procyon lotor*), Virginia opossum (*Didelphis virginiana*), eastern fox squirrel (*Sciurus niger*), house mouse (*Mus musculus*), brown rat (*Rattus norvegicus*), black rat (*Rattus rattus*), (feral) domestic cat (*Felis catus*), and striped skunk (*Mephitis mephitis*). Common reptiles observed or expected to be present within the BSA were western fence lizard (*Sceloporus occidentalis*) and common side-blotched lizard (*Uta stansburiana*). A number of bird species were observed within the BSA during focused bird surveys; however, the dominant bird species present within the BSA were house finch (*Haemorhous mexicanus*), house sparrow, northern mockingbird (*Mimus polyglottos*), mourning dove (*Zenaida macroura*), rock pigeon, and American crow (*Corvus brachyrhynchos*). A full list containing wildlife identified and expected to be present within the BSA can be found in the faunal compendium (Appendix K, Faunal Compendium).

3.1.3.3. MIGRATION CORRIDORS

There are no known migration corridors or wildlife linkages within the BSA; however, the area likely serves as a stopover site during bird migration. Trees and other vegetation within the BSA provide potential foraging and roosting sites for migrating birds, as do the trees and vegetation in the surrounding area. For example, some birds observed during focused avian surveys such as California gull (*Larus*

californicus), Townsend's warbler (*Setophaga townsendi*), Vaux's swift (*Chaetura vauxi*), and Wilson's warbler (*Cardinella pusilla*) were presumed to be using the Proposed Project area during migration as the BSA does not overlap with their breeding grounds. Historically, the Los Angeles River Watershed served as habitat to the federally endangered steelhead salmon (*Oncorhynchus mykiss*). However, due to the dramatic population decline of this species, as well as river modifications such as channelization and alterations associated with flood control and metropolitan development, it is very unlikely to be present within the BSA.

3.1.3.4. AQUATIC RESOURCES

Aquatic resources within the BSA were identified during the jurisdictional delineation and plant community mapping efforts. All aquatic resources have some value for biological resources even when highly degraded, because of their relative scarcity in the Arid West region. Two streams, the Arroyo Seco and the Laguna Channel, were identified, along with two wetlands, two areas of non-wetland riparian habitat, and several ditch features (Table 9, Potential Jurisdictional Features). In all, 27 features were identified in the BSA. The streams provide the only potential habitat value in the BSA for fish and other riparian aquatic species. However, habitat quality is limited by the fact that large portions of these streams have been channelized for flood control, like most streams and rivers in the Los Angeles region. Functions and values for the potential jurisdictional features were identified (Appendix M, Functions and Values of Waters and Wetlands in the BSA).

Table 9: Potential Jurisdictional Features

Feature Description					Jurisdictional Area (acres)			
					Corps CWA 404			
No.	Feature Type	Description	OHWM width (ft)1	Length (ft)	Non-Wetland	Wetland	CDFW	RWQCB
1	Ditch	4 ft wide; concrete lined v-ditch; drains hillside runoff; unvegetated; does not flow into or have any connection to a TNW or TNW tributary.	—	1,077	—	—	—	—
2	Ditch	4 ft wide; concrete lined v-ditch; drains hillside runoff; unvegetated; does not flow into or have any connection to a TNW or TNW tributary.	—	1,231	—	—	—	—
3	Ditch	4 ft wide; concrete lined v-ditch; drains hillside runoff; unvegetated; does not flow into or have any connection to a TNW or TNW tributary.	—	509	—	—	—	—
4	Ditch	Unnamed surface drainage. 5 ft wide; drains hillside runoff; unvegetated; does not flow into or have any connection to a TNW or TNW tributary.	—	915	—	—	—	—
5-A	Stream	Arroyo Seco, 80 ft wide; earthen lined; blue line; riparian vegetation; no flowing water during survey; standing water at 1 ft depth on 10/4/13; drains to Los Angeles River.	80	1,076	1.98	—	1.98	1.98
5-B	Stream	Arroyo Seco alternate channel; 10 ft wide; earthen lined; drains waters diverted from main channel of Arroyo Seco; flowing water present during visit on 10/4/13; originates from culvert at the northern end; flows into Arroyo Seco main channel.	10	287	0.07	—	0.07	0.07
6	Riparian non-wetland habitat	Along both sides of the Arroyo Seco, adjacent to Features 5-A and 5-B. Comprised of arroyo willow thickets, white alder groves, and black cottonwood forest.	—	—	—	—	4.12[1]	—
7	Ditch	4 ft wide; concrete lined v-ditch; drains hillside runoff; unvegetated; does not flow into or have any connection to a TNW or TNW tributary.	—	1,894	—	—	—	—
8	Wetland	At Del Mar Pump Station; up to 90 ft wide; earthen bottom, riparian vegetation present immediately around the pump station; isolated; does not flow into or have any connection to a TNW or TNW tributary.	—	—	—	—	—	—

Table 9: Potential Jurisdictional Features

Feature Description					Jurisdictional Area (acres)			
					Corps CWA 404			
No.	Feature Type	Description	OHWM width (ft)1	Length (ft)	Non-Wetland	Wetland	CDFW	RWQCB
9	Ditch	8 ft wide, concrete lined cobble ditch, unvegetated, drains commercial runoff, does not flow into or have any connection to a TNW or TNW tributary.	—	89	—	—	—	—
10	Ditch	8 ft wide; concrete lined ditch; drains hillside runoff; unvegetated; does not flow into or have any connection to a TNW or TNW tributary.	—	1,308	—	—	—	—
11-A	Stream	Laguna Channel; 20 ft wide, concrete lined channel and rock lined channel; blue line; mostly unvegetated; drains surface water runoff, water flowing during all site visits, drains south into the Los Angeles River.	20	1,419	0.65	—	0.65	0.65
12	Ditch	4 ft wide, concrete lined v-ditch, unvegetated, drains road and hillside runoff, does not flow into or have any connection to a TNW or TNW tributary.	—	920	—	—	—	—
13	Ditch	5 to 8 ft wide; concrete-lined v-ditch, drains hillside runoff; unvegetated; does not flow into or have any connection to a TNW or TNW tributary.	—	983	—	—	—	—
11-B	Stream	Laguna Channel; OHWM 10-24 ft wide, concrete bottom and riprap sides; drains south into the Los Angeles River.	10-24	1,740	0.57	—	0.57	0.57
14	Detention Basin	Surrounds the Laguna Channel (Feature 14); earthen bottom; no OHWM, riparian or wetland characteristics; terminus of ditch Feature 13; named the Laguna Regulating Basin.	—	—	—	—	—	—
11-C	Stream	Laguna Channel; 12 ft wide; concrete lined channel below grade; drains south into the Los Angeles River.	12	189	0.05	—	0.05	0.05
11-D	Stream	Laguna Channel; 12 ft wide; concrete lined open rectangular channel below grade; drains south into the Los Angeles River.	12	170	0.05	—	0.05	0.05
15	Ditch	4 ft wide; concrete lined v-ditch; unvegetated, drains hillside runoff, does not flow into or have any connection to a TNW or TNW tributary.	—	717	—	—	—	—

Table 9: Potential Jurisdictional Features

Feature Description					Jurisdictional Area (acres)			
					Corps CWA 404			
No.	Feature Type	Description	OHWM width (ft)1	Length (ft)	Non-Wetland	Wetland	CDFW	RWQCB
16	Ditch	3 ft wide; concrete lined v-ditch; unvegetated; drains hillside runoff; does not flow into or have any connection to a TNW or TNW tributary.	—	528	—	—	—	—
17	Ditch	3 ft wide; concrete lined v-ditch; drains hillside runoff; unvegetated , does not flow into or have any connection to a TNW or TNW tributary.	—	867	—	—	—	—
18	Ditch	Unnamed surface drainage, 5 to 25 ft wide, concrete and earthen lined ditch; native and non-native vegetation; originates from commercial runoff and precipitation events; also received flows from Feature 19; water flowing during site visit (10/2/13), flows into the Laguna Channel occasionally.	—	1,754	—	—	—	—
19	Ditch	Unnamed surface drainage, 4 ft wide; three separate, roughly parallel sections; concrete and earthen lined v-ditch; mostly unvegetated; drains hillside runoff into Feature 18, and then into the Laguna Channel.	—	882	—	—	—	—
11-E	Stream	Laguna Channel; 18 ft wide; concrete lined open rectangular channel below grade; drains south into the Los Angeles River.	18	2,104	0.87	—	0.87	0.87
20	Ditch	Unnamed surface drainage. 2 to 8 ft wide; concrete lined ditches; drains hillside runoff; unvegetated; flows drain into 12 ft wide concrete box channel; does not flow into or have any connection to a TNW or TNW tributary.	—	11,027	—	—	—	—
21	Ditch	5 to 25 ft wide; concrete lined ditches; drains hillside runoff; unvegetated; does not flow into or have any connection to a TNW or TNW tributary.	—	1,100	—	—	—	—
11-F	Stream	Laguna Channel; 6 ft wide channel; earthen bottom; drains south into the Los Angeles River; abutted by wetland (Feature 22); surrounded by detention basin (Feature 23).	6	1,387	0.19	—	0.19	0.19

Table 9: Potential Jurisdictional Features

Feature Description					Jurisdictional Area (acres)			
					Corps CWA 404			
No.	Feature Type	Description	OHWM width (ft)1	Length (ft)	Non-Wetland	Wetland	CDFW	RWQCB
22	Wetland	Abuts Laguna Channel stream (Feature 11-F); riparian vegetation present; surrounded by detention basin (Feature 23).	—	—	—	0.44	0.44	0.44
23	Riparian non-wetland habitat	Woodland comprised primarily of non-native trees in the riparian zone. Adjacent to Features 11-F and 22.	—	—	—	—	0.79	—
24	Detention Basin	Earthen bottom; no OHWM, riparian or wetland characteristics; surrounds Features 11-F, 22 and 23.	—	—	—	—	—	—
25	Ditch	Ditch: 3 ft wide; concrete lined v-ditch; drains hillside runoff; unvegetated; does not flow into or have any connection to a TNW or TNW tributary.	—	202	—	—	—	—
26	Ditch	3 ft wide; concrete lined v-ditch; drains hillside runoff; unvegetated; does not flow into or have any connection to a TNW or TNW tributary.	—	645	—	—	—	—
27	Ditch	Unnamed surface drainage; 3 ft wide; drains hillside runoff; unvegetated; does not flow into or have any connection to a TNW or TNW tributary.	—	1,736	—	—	—	—
Total					4.43	0.44	9.78	4.87

NOTES: 1. Features classified as ditches in this report did not exhibit an OHWM or riparian vegetation. Because these features did not exhibit an OHWM, the area of these features was not calculated. 2. Sum of acres may vary due to rounding.

KEY:
Corps = U.S. Army Corps of Engineers
CWA 404 = Clean Water Act Section 404
ft = feet
m = meters
OHWM = Ordinary high water mark
TNW = Traditional navigable water

The Arroyo Seco (Features 5-A and 5-B) is an 80-foot-wide, usually shallow stream with an earthen bottom, and it drains into the Los Angeles River and then the Pacific Ocean. Riparian plant communities occur along the Arroyo Seco within the BSA (Feature 6), providing potential habitat for riparian-associated plants and animals. The main channel of the Arroyo Seco provides habitat value for aquatic plants and animals that do not require deep pools.

The Laguna Channel (Features 11-A through 11-F), which is also a tributary of the Los Angeles River, is mostly channelized in a concrete-lined rectangular channel within the BSA. The sole earthen bottom portion of this stream in the BSA (feature 11-F) is associated with an abutting wetland (Feature 22) that provides potential habitat for plants and wildlife, and with riparian non-wetland habitats (Feature 23).

A second, 1.09-acre, wetland (Feature 8), associated with the Del Mar Pump Station, was also identified. This apparently isolated wetland is man-made due to pumping of storm water into the area, and the vegetation lacks a shrub or canopy layer. Habitat for plants and wildlife is present, although limited due to the artificial and maintained (mowed) nature of the habitat.

A number of excavated ditches were identified in the BSA (Features 1–4, 7, 9–10, 20–21, 25–27), created to drain stormwater, hillside runoff and nuisance flows, and most of which were concrete-lined. These features rarely carry water, support little vegetation, and have very limited habitat value. None of these ditch features were identified as subject to the jurisdiction of the Corps, CDFW, or RWQCB.

3.1.3.5. INVASIVE SPECIES

Invasive plants were prominent within the BSA and primarily span regions of the BSA that fall along the edges of freeways and within freeway medians. Invasive plants are particularly concentrated within the Proposed Project impact area of the Freeway Tunnel Alternative. Common invasive plants found within the BSA are: ripgut brome (*Bromus diandrus*), wild oat (*Avena fatua*), slender oat (*Avena barbata*), hottentot fig (*Carpobrotus edulis*), castor bean (*Ricinus communis*), Italian plumeless thistle (*Carduus pycnocephalus*), Brazilian peppertree, and tree of heaven (*Ailanthus altissima*). A full compendium of invasive plants located within the BSA can be found in the Invasive Plant Species Compendium (Appendix E). The Cal-IPC ranking distributions of the invasive species located within the Proposed Project area are described in detail in section 5.5.

3.2. Regional Species and Habitats of Concern

The area of potential direct effect within the BSA is highly developed and disturbed. However, the BSA does contain small areas (less than 6 acres) of four sensitive natural communities: coast live oak woodland, and riparian wetland and non-wetland communities of black cottonwood forest, white alder groves, and arroyo willow thickets. The only other identified area of natural vegetation included small areas of laurel sumac scrub.

The Proposed Project is not located within any Significant Ecological Areas, which are identified as ecological important land and water systems by the County of Los Angeles. The nearest SEAs are: (1) Puente Hills, 2.5 mi to the east, (2) Griffith Park, 6 mi to the west, (3) Verdugo Mountains, 4.3 mi to the northwest, (4) Altadena Foothills and Arroyos Proposed SEA, 1.3 mi to the north, and (5) San Gabriel Canyon, 8 mi to the northeast (Appendix A, Figure 10, Significant Ecological Areas within the Proposed Project Vicinity). Other protected lands (i.e. wildlife refuges, state parks, etc.) that occur within or adjacent to the BSA include several recreational city parks, and the Lower Arroyo Seco Park in Pasadena, which is a city park containing native and naturalized vegetation that provides habitat for local wildlife (Appendix A, Figure 11, Parks within the Proposed Project Vicinity).

Several special-status species are reported by the CNDDB for the four USGS 7.5-minute series topographical quadrangles of Pasadena, Los Angeles, El Monte, and Mt. Wilson that encompass the BSA, and the surrounding 12 USGS 7.5-minute series topographical quadrangles of Burbank, Chilao Flat, Condor Peak, Waterman Mountain, Azusa, Baldwin Park, La Habra, Hollywood, Inglewood, South Gate, Sunland, and Whittier (Figure 12, California Natural Diversity Database Search Area). However, as previously noted, the BSA's habitats are degraded to such a degree that they provide little value for native plants or wildlife.

Most of the special-status species identified by the CNDDB within the relevant quadrangles are not likely to be present due to a lack of species-specific habitat requirements, and the fact that many of these species are not tolerant of disturbance or proximity to human activities that are currently present in the BSA. Furthermore, the CNDDB search included quadrangles that extend into areas of the Angeles National Forest up to 7,100 ft in elevation, which support plant and wildlife species unlikely to be present within the BSA which is primarily within the alluvial fan of the Los Angeles Basin.

3.2.1. Plants

After a thorough literature and database review, it was determined that a total of 54 sensitive plant species had the potential to occur on or within the vicinity of the BSA. Twelve of these sensitive plant species are federally and/or state-listed endangered, threatened, rare, or candidate species. Further information on these species, including status, habitat requirements, and potential for occurrence, is summarized below (Table 10, Listed, Proposed, and Special-Status Plants Potentially Occurring or Known to Occur within and in the Vicinity of the BSA). Species that were observed or have habitat present within the BSA are discussed further in Chapter 4. Additional sensitive plants may have the potential to occur in the BSA, but were not discovered during the literature and database review or field surveys.

3.2.2. Wildlife

After a thorough literature and database review, it was determined that 71 special-status wildlife species had the potential to occur within the BSA. A total of 19 of these species are listed as federally and/or state-listed endangered or threatened, or proposed endangered or threatened, or are considered Fully Protected species by the State of California. Further information on these species, including status, habitat requirements, and potential for occurrence, is summarized below (Table 11, Listed, Proposed, and Special-Status Wildlife Potentially Occurring or Known to Occur within and in the Vicinity of the BSA). Species that were observed or have habitat present within the BSA are discussed further in Chapter 4. Additional sensitive wildlife may have the potential to occur within the BSA, but were not discovered during the literature and database review or field surveys.

Table 10: Listed, Proposed, and Special-Status Plants Potentially Occurring or Known to Occur within and in the Vicinity of the BSA

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Habitat Present or Absent	Rationale
Alkali mariposa-lily	*Calochortus striatus*	CRPR: 1B.2	Perennial bulbiferous herb; Chaparral, chenopod scrub, desert wash, meadow and seep, Mojavean desert scrub, wetland, alkaline, mesic; occurs 230–5,233 ft above MSL.	April - June	A	No native alkali soils or other suitable mesic habitat occurs within the BSA.
Brand's star phacelia	*Phacelia stellaris*	FC, CRPR: 1B.1	Annual herb; Coastal dunes, coastal scrub; occurs 3–1,312 ft above MSL.	March - June	A	No coastal dunes or coastal scrub habitat occurs within the BSA.
Braunton's milk-vetch	*Astragalus brauntonii*	FE, CRPR: 1B.1	Perennial herb; Chaparral, closed-cone coniferous forest, coastal scrub, limestone, valley and foothill grassland; often in recent burned or disturbed areas; usually in sandstone soil with carbonate layers; occurs 13–2,100 ft above MSL.	January - August	A	No limestone soils or other suitable habitat occurs within the BSA. Not observed during botanical surveys.
California muhly	*Muhlenbergia californica*	CRPR: 4.3	Perennial rhizomatous herb; Chaparral, coastal scrub, lower montane coniferous forest, meadow and seep, in mesic soils along seeps and streambanks; wetlands; occurs 328–6,562 ft above MSL.	June - September	HP	Low quality habitat exists within the wetland complex habitats in the BSA (Appendix A, Figure 9). Not observed during botanical surveys.
California Orcutt grass	*Orcuttia californica*	FE, SE, CRPR: 1B.1	Annual herb; Vernal pool, wetland; occurs 49–2,165 ft above MSL	April - August	A	No vernal pools or other suitable habitat occur within the BSA. Not observed during botanical surveys.

Table 10: Listed, Proposed, and Special-Status Plants Potentially Occurring or Known to Occur within and in the Vicinity of the BSA

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Habitat Present or Absent	Rationale
California satintail	*Imperata brevifolia*	CRPR: 2.1	Perennial rhizomatous herb; Occurs in chaparral, coastal scrub, meadow and seep (often alkali), Mojavean desert scrub, riparian forest, wetland, on mesic soils; occurs 0–3,986 ft above MSL.	September - May	A	No suitable habitat in mesic soils occurs in the BSA. This plant may have been conspicuous outside of the appropriate blooming period if present as it is a perennial rhizomatous herb.
California saw-grass	*Cladium californicum*	CRPR: 2.2	Perennial rhizomatous herb; Alkali marsh, freshwater marsh, meadow and seep, wetland; occurs 197–2,838 ft in elevation.	June - September	HP	Low quality habitat exists in the wetland complex habitats in the BSA (Appendix A, Figure 9). Not observed during botanical surveys.
Coastal dunes milk-vetch	*Astragalus tener* var. *titi*	FE, SE, CRPR: 1B.1	Annual herb; Coastal bluff scrub (sandy), coastal dunes, coastal prairie (mesic), often in vernally mesic areas; occurs 3–164 ft above MSL.	March – May	A	No coastal bluff scrub, coastal dunes, coastal prairie, or other suitable habitat occur within the BSA.
Coulter's goldfields	*Lasthenia glabrata* ssp. *coulteri*	CRPR: 1B.1	Annual herb; Alkali playa, marsh and swamp, salt marsh, valley and foothill grassland, vernal pool, wetland; occurs 3–4,003 ft above MSL.	February - June	HP, O	A population of Coulter's goldfields was observed in the BSA during botanical surveys. The population was in atypical disturbed/developed habitat next to the I-10 freeway near the I-710/I-10 interchange (Appendix A, Figure 9). Population may have been planted. No other typical suitable habitat occurs in the BSA.
Davidson's bush-mallow	*Malacothamnus davidsonii*	CRPR: 1B.2	Perennial deciduous shrub; Chaparral, cismontane woodland, coastal scrub, riparian woodland; occurs 607–2,805 ft above MSL.	June - January	HP	Marginal suitable habitat exists in the BSA in the coast live oak woodland and laurel sumac scrub habitats at the SR 134 bridge over the Arroyo Seco (Appendix A, Figure 9); however this plant was not observed during botanical surveys.
Davidson's saltscale	*Atriplex serenana* var. *davidsonii*	CRPR: 1B.2	Annual herb; Coastal bluff scrub, coastal scrub, alkaline; occurs 33–656 ft above MSL.	April - October	A	No native alkali soils or other suitable habitat occurs in the BSA. Not observed during botanical surveys.

Table 10: Listed, Proposed, and Special-Status Plants Potentially Occurring or Known to Occur within and in the Vicinity of the BSA

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Habitat Present or Absent	Rationale
Engelmann oak	*Quercus engelmannii*	CRPR: 4.2	Perennial deciduous tree; Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland; occurs 164–4,265 ft above MSL.	March - June	HP, O	A single Engelmann oak individual was observed at the boundary of two plant communities: distiurbed/developed and non-native grassland, just west of the SR 134 overpass in Pasadena (Appendix A, Figure 9).
Gambel's water cress	*Nasturtium gambelii*	FE, ST, CRPR: 1B.1	Perennial rhizomatous herb; Brackish marsh, freshwater marsh, marsh and swamp, wetlands; occurs 16–1,083 ft above MSL.	April - October	HP	Small spots of wetland complex habitat in the BSA located in Pasadena and Monterey Park are marginally suitable and are not of sufficient quality (Appendix A, Figure 9). Not observed during botanical surveys.
Greata's aster	*Symphyotrichum greatae*	CRPR: 1B.3	Rhizomatous herb; Occurs in chaparral, broadleaf upland forest, cismontane woodland, lower montane coniferous forest, and riparian woodland on mesic soils; occurs 985–6,595 ft above MSL.	June - October	HP	Marginal suitable mesic habitat exists in the riparian habitat and the coast live oak woodland habitat at the SR 134 bridge over the Arroyo Seco (Appendix A, Figure 9). Not observed during botanical surveys.
Intermediate mariposa-lily	*Calochortus weedii* var. *intermedius*	CRPR: 1B.2	Perennial bulbiferous herb; Chaparral, coastal scrub, valley and foothill grassland, rocky, calcareous; occurs 344–2,805 ft above MSL.	May - July	A	No suitable rocky soils present within the BSA. Not observed during botanical surveys.
Lemon lily	*Lilium parryi*	CRPR: 1B.2	Perennial bulbiferous herb; Lower montane coniferous forest, meadows and seeps, riparian forest, upper montane coniferous forest; mesic; occurs 4,002–9,006 ft above MSL.	July - August	A	The BSA is outside of the known elevation range of the species. Not observed during botanical surveys.
Los Angeles sunflower	*Helianthus nuttallii* ssp. *parishii*	CRPR: 1A	Perennial rhizomatous herb; Freshwater marsh, marsh and swamp, salt marsh, wetlands; occurs 33–5,495 ft above MSL.	August - October	HP	Low quality habitat exists in the wetland complex habitats in the BSA (Appendix A, Figure 9). Not observed during botanical surveys.

Table 10: Listed, Proposed, and Special-Status Plants Potentially Occurring or Known to Occur within and in the Vicinity of the BSA

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Habitat Present or Absent	Rationale
Many-stemmed dudleya	*Dudleya multicaulis*	CRPR: 1B.2	Perennial herb; Chaparral, coastal scrub, valley and foothill grassland, often clay; occurs 164–2,592 ft above MSL.	April - July	A	No suitable clay soils present in the BSA. Not observed during botanical surveys.
Marsh sandwort	*Arenaria paludicola*	FE, SE, CRPR: 1B.1	Perennial stoloniferous herb; Freshwater marsh, marsh and swamp, wetland, sandy, openings; occurs 10–558 ft above MSL.	May - August	HP	Low quality habitat exists in the wetland complex habitats in the BSA (Appendix A, Figure 9). Not observed during botanical surveys.
Mesa horkelia	*Horkelia cuneata* var. *puberula*	CRPR: 1B.1	Perennial herb; Chaparral, cismontane woodland, coastal shrub; occurs 230–2,657 ft above MSL.	February - September	A	No suitable sandy chaparral habitat present in the BSA. Not observed during botanical surveys.
Mt. Gleason paintbrush	*Castilleja gleasoni*	SR, CRPR: 1B.2	Hemiparasitic perennial herb; Chaparral, lower montane coniferous forest, pinyon and juniper woodland; occurs 3,806–7,119 ft above MSL.	May - September	A	The BSA is outside of the known elevation range of the species. Not observed during botanical surveys.
Nevin's barberry	*Berberis nevinii*	FE, SE, CRPR: 1B.1	Perennial evergreen shrub; Chaparral, cismontane woodland, coastal scrub, riparian scrub, in sandy or gravelly soils; occurs 899–2,707 ft above MSL.	March - June	A	No suitable sandy or gravelly soils occur in the BSA. This species would have been conspicuous outside of its blooming period if present, as it is a perennial evergreen shrub. Not observed during botanical surveys.
Palmer's mariposa-lily	*Calochortus palmeri* var. *palmeri*	CRPR: 1B.2	Bulbiferous herb; Chaparral, lower montane coniferous forest, meadows, and seeps; occurs 3,280–7,841 ft above MSL.	May - July	A	The BSA is outside of the known elevation range of the species. Not observed during botanical surveys.

Table 10: Listed, Proposed, and Special-Status Plants Potentially Occurring or Known to Occur within and in the Vicinity of the BSA

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Habitat Present or Absent	Rationale
Parish's brittlescale	*Atriplex parishii*	CRPR: 1B.1	Annual herb; Alkali playa, chenopod scrub, meadow and seep, vernal pool, wetland; occurs 82–6,234 ft above MSL.	June - October	A	No alkali soils or other suitable habitat occurs in the BSA. Not observed during botanical surveys.
Parish's gooseberry	*Ribes divaricatum* var. *parishii*	CRPR: 1A	Perennial deciduous shrub; Riparian woodland, moist woodland; occurs 213–984 ft above MSL.	February - April	HP	Marginally suitable habitat present in the BSA in the riparian habitats at the SR 134 bridge over the Arroyo Seco (Appendix A, Figure 9). This plant would have been conspicuous outside of its blooming period if present within the BSA as it is a perennial deciduous shrub. Not observed during botanical surveys. This species is presumed extinct. The last known population of Parish's gooseberry was observed in 1980 at the Whittier Narrows Nature Center, approximately three miles southeast of the BSA.
Parry's spineflower	*Chorizanthe parryi* var. *parryi*	CRPR: 1B.1	Annual herb; Sandy or rocky openings, chaparral, cismontane woodland, coastal scrub, valley and foothill grassland; occurs 902–4,003 ft above MSL.	April - June	A	No suitable sandy or rocky soils occur in the BSA. Areas of the BSA that match this plant's elevation range contain only disturbed/developed and non-native woodland habitats that are not suitable.Not observed during botanical surveys.
Peirson's lupine	*Lupinus peirsonii*	CRPR: 1B.3	Perennial herb; Joshua tree woodland, lower montane coniferous forest, pinyon and juniper woodland, upper montane coniferous forest; gravelly or rocky soils; occurs 3,280–8,202 ft above MSL	April - June	A	The BSA is outside of the known elevation range of the species. No suitable woodland or forest habitat occurs in the BSA. Not observed during botanical surveys.
Peruvian dodder	*Cuscuta obtusiflora* var. *glandulosa*	CRPR: 2.2	Annual parasitic vine; Freshwater marsh and swamp, wetland; occurs 49–919 ft above MSL.	July - October	HP	Low quality habitat exists in the wetland complex habitats in the BSA (Appendix A, Figure 9). Not observed during botanical surveys.

Table 10: Listed, Proposed, and Special-Status Plants Potentially Occurring or Known to Occur within and in the Vicinity of the BSA

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Habitat Present or Absent	Rationale
Plummer's mariposa-lily	*Calochortus plummerae*	CRPR: 4.2	Perennial bulbiferous herb; Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, valley and foothill grassland, in granitic rocky soil; occurs 328–5,577 ft above MSL.	May - July	A	No suitable rocky soils present in the BSA. Not observed during botanical surveys.
Prostrate vernal pool navarretia	*Navarretia prostrata*	CRPR: 1B.1	Annual herb; Mesic, coastal scrub, meadows and seeps, valley and foothill grassland (alkaline), vernal pool, wetland; occurs 49–3,970 ft above MSL.	April - July	A	No vernal pools or other suitable habitat occur in the BSA. Not observed during botanical surveys.
Robbins' nemacladus	*Nemacladus secundiflorus* var. *robbinsii*	CRPR: 1B.2	Annual herb; Chaparral, valley and foothill grassland; found in openings; occurs 1,148–5,577 ft above MSL.	April - June	A	The BSA is outside the known elevation range of the species. No suitable chaparral or grassland habitat is present within elevation range of this species in the BSA.
Robinson's pepper-grass	*Lepidium virginicum* var. *robinsonii*	CRPR: 1B.2	Annual herb; Chaparral, coastal scrub; occurs 3–2,904 ft above MSL.	January - July	HP	Marginally suitable habitat is present in the BSA in the laurel sumac scrub habitat on a steep slope west of the SR 134/I-210 interchange. Not observed during botanical surveys.
Rock Creek broomrape	*Orobanche valida* ssp. *Valida*	CRPR: 1B.2	Perennial parasitic herb; Chaparral, pinyon and juniper woodlands, granitic; occurs 4,101–6,562 ft above MSL.	May - September	A	The BSA is outside the known elevation range of the species. Not observed during botanical surveys.
Round-leaved filaree	*California macrophylla*	CRPR: 1B.1	Annual herb; Cismontane woodland, valley and foothill grassland; clay soils; occurs 49–3,937 ft above MSL.	March - May	A	No suitable clay soils are present in the BSA.

Table 10: Listed, Proposed, and Special-Status Plants Potentially Occurring or Known to Occur within and in the Vicinity of the BSA

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Habitat Present or Absent	Rationale
San Bernardino aster	*Symphyotrichum defoliatum*	CRPR: 1B.2	Perennial rhizomatous herb; Cismontane woodland, coastal scrub, lower montane coniferous forest, marsh and swamp, meadow and seep, valley and foothill grassland, wetland, near ditches, streams, springs; occurs 7–6,693 ft above MSL.	July - November	HP	Marginally suitable grassland habitat exists in the BSA in fallow grasslands in flat areas or shallow basins along freeway edges in the non-native grassland habitats (Appendix A, Figure 9). Not observed during botanical surveys.
San Fernando Valley spineflower	*Chorizanthe parryi* var. *fernandina*	FC, SE, CRPR: 1B.1	Annual herb; Coastal scrub in sandy soil, valley and foothill grassland; occurs 492–4,003 ft above MSL.	April - July	A	No suitable sandy soils occur within the BSA. Not observed during botanical surveys.
San Gabriel bedstraw	*Galium grande*	CRPR: 1B.2	Perennial deciduous shrub; Broadleaved upland forest, chaparral, cismontane woodland, lower montane coniferous forest; occurs 1,394–4,921 ft above MSL.	January - July	A	The BSA is outside the known elevation range. Not observed during botanical surveys.
San Gabriel linanthus	*Linanthus concinnus*	CRPR: 1B.2	Annual herb; Lower montane coniferous forest, upper montane coniferous forest, chaparral, rocky openings; 4,987–9,186 ft above MSL.	April - July	A	The BSA is outside the known elevation range. Not observed during botanical surveys.
San Gabriel manzanita	*Arctostaphylos glandulosa* ssp. *gabrielensis*	CRPR: 1B.2	Perennial evergreen shrub; Chaparral, rocky; occurs 1,952–4,921 ft above MSL.	March	A	The BSA is outside the known elevation range. This species would have been conspicuous outside the blooming period if it had been present, as it is a perennial evergreen shrub. Not observed during botanical surveys.

Table 10: Listed, Proposed, and Special-Status Plants Potentially Occurring or Known to Occur within and in the Vicinity of the BSA

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Habitat Present or Absent	Rationale
San Gabriel Mountains dudleya	*Dudleya densiflora*	CRPR: 1B.1	Perennial herb; Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland; granitic soils, cliffs and canyon walls; occurs 801–2,001 ft above MSL.	March - June	A	No suitable granitic soil or rocky outcrop habitat occurs within the BSA. Not observed during botanical surveys.
San Gabriel River dudleya	*Dudleya cymosa* ssp. *crebrifolia*	CRPR: 1B.2	Perennial herb; Chaparral on granitic soil; occurs 902–1,831 ft above MSL.	April - July	A	No suitable granitic soil occurs within the BSA. Not observed during botanical surveys.
Santa Barbara morning-glory	*Calystegia sepium* ssp. *binghamiae*	CRPR: 1B.1	Perennial rhizomatous herb; Marsh and swamp (coastal), salt marsh, wetland, riparian scrub (alluvial); occurs 0–722 ft above MSL.	April - May	HP	Low quality habitat exists within the wetland complex habitats in the BSA (Appendix A, Figure 9). Botanical surveys conducted outside the blooming period, but plant is readily identifiable with aboveground parts year-round. Not observed during botanical surveys.
Short-joint beavertail	*Opuntia basilaris* var. *brachyclada*	CRPR: 1B.2	Perennial stem succulent; Chaparral, Joshua Tree woodland, Mojavean desert scrub, pinyon and juniper woodlands, riparian woodland; occurs 1,394–5,906 ft above MSL.	April - August	A	The BSA is outside the known elevation range of the species. Not observed during botanical surveys.
Slender mariposa-lily	*Calochortus clavatus* var. *gracilis*	CRPR: 1B.2	Perennial bulbiferous herb; Chaparral, coastal scrub, valley and foothill grassland; occurs 1,050–3,281 ft above MSL.	March - June	HP	Marginally suitable chaparral / coastal scrub habitat is present within the BSA in the laurel sumac scrub habitat on a steep slope west of the SR 134/I-210 interchange (Appendix A, Figure 9). However this species is not known to occur away from the lower slopes of the Transverse Range. Not observed during botanical surveys.

Table 10: Listed, Proposed, and Special-Status Plants Potentially Occurring or Known to Occur within and in the Vicinity of the BSA

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Habitat Present or Absent	Rationale
Slender silver moss	*Anomobryum julaceum*	CRPR: 2.2	Moss; Broadleaf upland forest, lower montane coniferous forest, north coast coniferous forest; damp rock and soil on outcrops, usually on roadcuts; occurs 328–3,281 ft above MSL.	N/A	A	No suitable mesic habitat exists within the BSA. Not observed during botanical surveys.
Slender-horned spineflower	*Dodecahema leptoceras*	FE, SE, CRPR: 1B.1	Annual herb; Chaparral, cismontane woodland, coastal scrub (alluvial fan); often in sandy soil; occurs 656–2,493 ft above MSL.	April - June	HP	Marginally suitable alluvial sandy soils occur in the laurel sumac scrub and coast live oak woodland habitats near the SR-134 bridge in the BSA (Appendix A, Figure 9). Not observed during botanical surveys.
Sonoran maiden fern	*Thelypteris puberula* var. *sonorensis*	CRPR: 2.2	Perennial rhizomatous herb; Meadow and seep, streams, wetland; occurs 164–2,001 ft above MSL.	January - September	HP	Low quality habitat exists in the wetland complex habitats in the BSA (Appendix A, Figure 9). Not observed during botanical surveys.
Southern California black walnut	*Juglans californica var. californica*	CRPR: 4.2	Perennial deciduous tree; Chaparral, cismontane woodland, coastal scrub; alluvial soils; occurs 164–2,953 ft above MSL	March - August	HP, O	A single young Southern California black walnut was found in a stand of unmaintained Aleppo pine woodland, upslope from the westbound I-210 freeway (Appendix A, Figure 9).
Southern mountains skullcap	*Scutellaria bolanderi* ssp. *austromontana*	CRPR: 1B.2	Perennial rhizomatous herb; Chaparral, cismontane woodland, lower montane coniferous forest, mesic; occurs 1,394–6,561 ft above MSL.	June - August	A	No suitable mesic habitat occurs in the BSA. The BSA is outside the known elevation range for this plant. Not observed during botanical surveys.
Southern tarplant	*Centromadia parryi* ssp. *australis*	CRPR: 1B.1	Annual herb; Marsh and swamp, salt marsh, valley and foothill grassland, wetland, vernal pools; occurs 0–1,394 ft above MSL.	May - November	HP	Marginally suitable grassland habitat exists in the BSA in fallow grasslands in flat areas or shallow basins along freeway edges in the non-native grassland and disturbed/developed habitats (Appendix A, Figure 9). Not observed during botanical surveys.

Table 10: Listed, Proposed, and Special-Status Plants Potentially Occurring or Known to Occur within and in the Vicinity of the BSA

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Habitat Present or Absent	Rationale
Spreading navarretia	*Navarretia fossalis*	FT, CRPR: 1B.1	Annual herb; Alkali playa, chenopod scrub, marsh and swamp, vernal pool, wetland; occurs 98–2,149 ft above MSL.	April - June	A	No alkali soils or other suitable habitat occurs within the BSA. Not observed during botanical surveys.
Thread-leaved brodiaea	*Brodiaea filifolia*	FT, CRPR: 1B.1	Perennial bulbiferous herb; Chaparral (openings), cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools, often in clay soils; occurs 82–3,675 ft above MSL.	March – June	HP	Marginally suitable alluvial sandy soils occur in the laurel sumac scrub and coast live oak woodland habitats near the SR-134 bridge in the BSA (Appendix A, Figure 9). Not observed during botanical surveys.
White rabbit-tobacco	*Pseudognaphalium leucocephalum*	CRPR: 2.2	Perennial herb; Chaparral, cismontane woodland, coastal scrub, riparian woodland, in sandy/gravely soil; occurs 0–6,890 ft above MSL.	July - December	HP	Very marginal habitat present in the BSA in the laurel sumac scrub habitat on a steep slope west of the SR 134/I-210 interchange (Appendix A, Figure 9). Not observed during botanical surveys.
Woolly mountain-parsley	*Oreonana vestita*	CRPR: 1B.3	Perennial herb; Lower montane coniferous forest, subalpine coniferous forest, upper montane coniferous forest; found in gravel or talus; occurs 5,298–11,483 ft above MSL.	March - September	A	The BSA is outside the known elevation range. No montane or other suitable habitat present within the BSA. Not observed during botanical surveys.

FE = Federally endangered; SE = State endangered; FT = Federally threatened; ST = State threatened, SCE = State Candidate (Endangered), FC = Federal Candidate, SR = State Rare, MSL = mean sea level, BSA = Biological Study Area, CRPR = California Rare Plant Rank
CRPR Rankings:
List 1A: Presumed extinct in California
List 1B: Rare, threatened, or endangered in California and elsewhere. 0.1: Seriously threatened in California.
List 1B: Rare, threatened, or endangered in California and elsewhere. 0.2: Fairly threatened in California.
List 1B: Rare, threatened, or endangered in California and elsewhere. 0.3: Not very threatened in California.
List 2: Rare, threatened, or endangered in California, but more common elsewhere. 0.1: Seriously threatened in California.
List 2: Rare, threatened, or endangered in California, but more common elsewhere. 0.2: Fairly threatened in California.
List 4: Limited distribution (Watch List). 0.2: Fairly endangered in California.
List 4: Limited distribution (Watch List). 0.3: Not very threatened in California.

Table 10: Listed, Proposed, and Special-Status Plants Potentially Occurring or Known to Occur within and in the Vicinity of the BSA

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Habitat Present or Absent	Rationale
Absent [A] - no habitat present and no further work needed. Habitat Present [HP] -habitat is, or may be present. The species may be present. Observed [O] - the species was observed during focused surveys.						

Table 11: Listed, Proposed, and Special-Status Wildlife Potentially Occurring or Known to Occur within and in the Vicinity of the BSA

Common Name	Scientific Name	Status	Habitat and Comments	Habitat Present or Absent	Rationale
Invertebrates					
Busck's gallmoth	*Carolella busckana*	CSA*, SH	Coastal dunes, coastal scrub.	A	No coastal dunes or coastal scrub occurs in the BSA. Species is presumed extirpated, last observation was in 1929 near the Beverly Terrace Hotel in Beverly Hills, approximately 12 mi west of the BSA.
Monarch butterfly	*Danaus plexippus*	CSA	Grassland/herbaceous, old field, sand/dune, shrubland/chaparral, suburban/orchard, woodland–hardwood, woodland–mixed, coastal California conifer or eucalyptus groves. Adults rely on coastal non-native woodlands (especially Eucalyptus) for winter roosting aggregations, larval (caterpillar) stage forages exclusively on milkweed (*Asclepias* spp.), which occurs in grassland, wetland and riparian areas.	HP	Marginal winter roosting habitat exists in areas of non-native woodland, coast live oak woodland, and laurel sumac scrub habitats throughout the BSA. Ornamental trees in the disturbed/developed habitat may also provide habitat (Appendix A, Figure 9). Proposed Project is farther inland than any known winter roost sites. Milkweed plants provide potential habitat for larval stages. This species was not observed during 2013 general reconnaissance surveys.
Palos Verdes blue butterfly	*Glaucopsyche lygdamus palosverdesensis*	FE	Habitat confined to coastal sage scrub community on the seaward side of Palos Verdes Hills in Los Angeles County. Found on patches of brush and "locoweed."	A	No coastal sage scrub occurs within the BSA. The BSA is approximately 20 miles northeast of the Palos Verdes Hills.
Fish					
Arroyo chub	*Gila orcuttii*	SSC	Aquatic, south coast flowing waters; freshwater; benthic; headwaters, creeks, intermittent streams, small to medium rivers; spawns in stream pools; diet primarily aquatic invertebrates.	A	No suitable habitat is present in the BSA. Existing aquatic habitats in the BSA primarily contain urban runoff, are highly disturbed, and are unlikely to provide suitable habitat.
Santa Ana speckled dace	*Rhinichthys osculus* ssp. *3*	SSC	Aquatic, south coast flowing waters; freshwater creeks, shallow gravel and cobble riffles.	A	No suitable habitat is present within the BSA. Existing aquatic habitats in the BSA primarily contain urban runoff, are highly disturbed, and are unlikely to provide suitable habitat.

Table 11: Listed, Proposed, and Special-Status Wildlife Potentially Occurring or Known to Occur within and in the Vicinity of the BSA

Common Name	Scientific Name	Status	Habitat and Comments	Habitat Present or Absent	Rationale
Santa Ana sucker	*Catostomus santaanae*	FT, SSC	Aquatic, south coast flowing waters; clear cool ponds, creeks, small to medium rivers with generally coarse substrates; benthic, freshwater.	A	No suitable habitat is present in the BSA. Existing aquatic habitats in the BSA primarily contain urban runoff, are highly disturbed, and are unlikely to provide suitable habitat.
Amphibians					
Arroyo toad	*Anaxyrus californicus*	FE, SSC	Desert wash, riparian scrub, riparian woodland, south coast flowing waters, south coast standing waters; mating and egg-laying at shallow stream margins from March to July; adults require overflow pools adjacent to the inflow channel of 3rd- to greater-order streams that are free of predatory fishes in which to breed; occurs 0–2,953 ft above MSL.	A	No suitable habitat is present in the BSA. No overflow pools adjacent to inflow channels of high order streams occur in the BSA. Existing aquatic habitats in the BSA are highly disturbed, and are unlikely to provide suitable habitat.
California red-legged frog	*Rana draytonii*	FT, SSC	Dense shrubby riparian areas; common vegetation includes willows, cattails, and bulrushes; populations maintained in permanent streams and ponds.	A	Existing aquatic habitats in the BSA are highly disturbed, lack shrubby understory, and are unlikely to provide suitable habitat. This species is extirpated from the Los Angeles Basin. No CNDDB records for this species exist in the Los Angeles Basin, the closest record is in the Angeles National Forest approximately 19 mi from the BSA
Coast Range newt	*Taricha torosa*	SSC	Valley-foothill hardwood, valley-foothill conifer, coastal scrub, mixed chaparral; breeding occurs in ponds, reservoirs, and streams; eggs are attached to sticks, stones, or vegetation in flowing or non-flowing water; fast-moving streams and rivers are used more often in southern California mountains than elsewhere in the range; benthic, burrowing in or using soil, fallen log/debris; creek, medium river, pool, riffle.	HP	Limited marginally suitable habitat (highly disturbed) occurs in the wetland complex, coast live oak woodland, and riparian areas of the BSA (Appendix A, Figure 9). Species is unlikely to occur due to degraded nature of the habitat that is present.

Table 11: Listed, Proposed, and Special-Status Wildlife Potentially Occurring or Known to Occur within and in the Vicinity of the BSA

Common Name	Scientific Name	Status	Habitat and Comments	Habitat Present or Absent	Rationale
Sierra Madre yellow-legged frog	*Rana muscosa*	FE, SCE, SSC	Aquatic; eggs usually laid in shallow water attached to gravel or rocks; associated with streams lakes and ponds in montane riparian habitat. Occurs 1,220–7,560 ft above MSL.	A	No suitable habitat is present in the BSA in the correct elevation range. The aquatic potential habitat is below 900 ft in elevation.
Western spadefoot	*Spea hammondii*	SSC	Cismontane woodland, coastal scrub, valley and foothill grassland, vernal pool, wetland; benthic, burrowing in or using soil; it prefers shortgrass plains, sandy or gravelly soil (e.g., alkali flats, washes, alluvial fans). It is fossorial and breeds in temporary rain pools and slow-moving streams.	HP	Limited marginally suitable habitat (highly disturbed) occurs in the wetland complex, laurel sumac scrub, non-native grassland, and riparian habitats of the BSA (Appendix A, Figure 9). Species is unlikely to occur due to the degraded nature of the habitat that is present.
Reptiles					
California legless lizard	*Anniella pulchra*	SSC	Chaparral, coastal dunes, coastal scrub; burrows in loose soil, especially in semi-stabilized sand dunes and also in other areas with sandy soil, in areas vegetated with oak or pine-oak woodland, or chaparral; also wooded stream edges, and occasionally desert-scrub; bush lupine often is an indicator of suitable conditions; often found in leaf litter, under rocks, logs, and driftwood.	HP	Limited marginally suitable habitat (highly disturbed) occurs in the coast live oak woodland and riparian habitats of the BSA (Appendix A, Figure 9). Species is unlikely to occur due to the degraded nature of the habitat that is present.
Coast horned lizard	*Phrynosoma blainvillii*	SSC	Found in a variety of vegetation types, including coastal scrub, coastal bluff scrub, valley and foothill grassland, chaparral, cismontane woodland, pinyon and juniper woodlands, riparian scrub, riparian woodland and desert wash; in inland areas, this species is restricted to areas with pockets of open microhabitat, created by disturbance.	HP	Limited marginally suitable habitat occurs in the riparian and laurel sumac scrub areas of the BSA (Appendix A, Figure 9). However, this species is unlikely to occur due to the degraded nature of the habitat that is present.

Table 11: Listed, Proposed, and Special-Status Wildlife Potentially Occurring or Known to Occur within and in the Vicinity of the BSA

Common Name	Scientific Name	Status	Habitat and Comments	Habitat Present or Absent	Rationale
Coast patch-nosed snake	*Salvadora hexalepis virgultea*	SSC	Chaparral, canyons and rocky hillsides, plains, in semi-arid brushy areas. Occurs from below sea level to 7,000 ft above MSL.	HP	Limited marginally suitable habitat occurs in the laurel sumac scrub areas of the BSA (Appendix A, Figure 9). However, the species is unlikely to occur due to the degraded nature of the habitat that is present.
Coastal whiptail	*Aspidoscelis tigris stejnegeri*	CSA	Occurs in habitats that are primarily hot and dry open areas with sparse foliage. Found in chaparral, woodland, and riparian areas.	HP	Limited marginally suitable habitat (highly disturbed) occurs in the coast live oak woodland, laurel sumac scrub, and riparian habitats of the BSA (Appendix A, Figure 9). Species is unlikely to occur due to the degraded nature of the habitat present.
Rosy boa	*Charina trivirgata*	CSA	Inhabits rock outcrops and rocky shrublands in the southwestern U.S. and Mexico. Habitats are diverse and include desert, arid scrub, brushland, sandy plains, rocky slopes, and chaparral-covered foothills, particularly where moisture is available, as around springs, streams, and canyon floors.	HP	Limited marginally suitable habitat (highly disturbed) occurs in the coast live oak woodland, laurel sumac scrub, and riparian habitats of the BSA (Appendix A, Figure 9). Species is unlikely to occur due to the degraded nature of the habitat that is present.
San Bernardino ring-necked snake	*Diadophis punctatus modestus*	CSA	Wet meadows, rocky hillsides, gardens, farmland, grassland, chaparral, mixed coniferous forest, woodlands. Moist habitats from Santa Barbara to San Diego County.	HP	Limited marginally suitable habitat (highly disturbed) occurs in the coast live oak woodland, laurel sumac scrub, non-native grassland, and riparian habitats of the BSA (Appendix A, Figure 9). The habitat present is highly degraded. This species may occur in the disturbed/developed areas of the BSA as it is adaptable to suburban environments.

Table 11: Listed, Proposed, and Special-Status Wildlife Potentially Occurring or Known to Occur within and in the Vicinity of the BSA

Common Name	Scientific Name	Status	Habitat and Comments	Habitat Present or Absent	Rationale
South coast garter snake	*Thamnophis sirtalis* ssp.	SSC	Marsh and upland habitats; high quality riparian habitats near permanent water.	HP	Limited marginally suitable habitat (highly disturbed and primarily containing urban runoff) occurs in the riparian habitats of the BSA (Appendix A, Figure 9). Species is unlikely to occur due to the degraded nature of the habitat that is present.
Two-striped garter snake	*Thamnophis hammondii*	SSC	Marsh and swamp, riparian scrub, riparian woodland, wetland; generally found in or near permanent fresh water, often along streams with rocky beds bordered by willows and other riparian vegetation, including mountain slopes and desert oases; requires dense riparian vegetation; burrowing in or using soil.	HP	Limited marginally suitable habitat (highly disturbed)occurs in the wetland complex and riparian habitats of the BSA (Appendix A, Figure 9). Species is unlikely to occur due to the degraded nature of the habitat that is present.
Western pond turtle	*Emys marmorata*	SSC	Aquatic, artificial flowing waters, marsh and swamp, south coast flowing waters, south coast standing waters, wetland; habitat includes permanent and intermittent waters of rivers, creeks, small lakes and ponds, man-made stock ponds and sewage-treatment ponds; nesting sites on sandy banks and bars, in fields, or sunny spots up to a few hundred feet from water.	HP	Limited marginally suitable habitat (highly disturbed) occurs in the wetland complex and riparian habitats of the BSA (Appendix A, Figure 9). Species is unlikely to occur due to the degraded nature of the habitat that is present.
Birds					
Allen's hummingbird	*Selasphorus sasin*	CSA	Riparian, shrubland/chaparral, suburban/orchard, conifer woodland; often in ravines and canyons; nests on twig or fork of tree or shrub.	HP, O	Suitable habitat is present throughout the BSA. Species was observed during 2013 focused avian surveys but no nests were found.

Table 11: Listed, Proposed, and Special-Status Wildlife Potentially Occurring or Known to Occur within and in the Vicinity of the BSA

Common Name	Scientific Name	Status	Habitat and Comments	Habitat Present or Absent	Rationale
American peregrine falcon	*Falco peregrinus anatum*	CFP	Terrestrial: Bare rock/talus/scree, cliff, shrubland/chaparral, urban/edificarian, woodland - conifer, woodland - hardwood, woodland - mixed; Estuarine: bay/sound, herbaceous wetland, lagoon, river mouth/tidal river, tidal flat/shore.	HP	Suitable artificial nesting habitat is present within the BSA. This species has been observed nesting over the past six years on a tall building less than 0.5 mi from the BSA. Species was not observed during 2013 focused avian surveys.
Bank swallow	*Riparia riparia*	ST	Riparian scrub, riparian woodland; nests in steep sand, dirt, or gravel banks, in burrows dug near the top of the bank, along the edge of inland water, along coast, in gravel pits, or road embankments; diet primarily flying insects.	A	No suitable roosting/nesting habitat is present in the BSA. Riparian areas in BSA are marginal in quality and lack the steep banks required for nesting. Species was not observed during 2013 focused avian surveys.
Black swift	*Cypseloides niger*	SSC	Coastal bluffs, canyons with waterfalls; aerial; forages over forests and in open areas; may forage far from nesting sites; nests behind or next to waterfalls and wet cliffs, on sea cliffs and in sea caves, and occasionally in limestone caves; nests in dark inaccessible sites with unobstructed flight path; nest is a cup-like structure of mud, mosses and algae.	A	No suitable roosting/nesting habitat is present in the BSA. No caves, canyons, or waterfalls are present in the BSA. Species was not observed during 2013 focused avian surveys.
Burrowing owl	*Athene cunicularia*	SSC	Found in open grasslands, agricultural and range lands, and desert habitats and often are associated with burrowing animals, specifically the California ground squirrel; can also inhabit grass, forbs, and shrub stages of pinyon and ponderosa pine habitats.	A	No suitable habitat is present in the BSA as determined through 2013 burrowing owl habitat assessment. The BSA lacks the undisturbed flat ground with available burrows required for burrowing owl. Species was not observed during 2013 focused avian surveys.
California horned lark	*Eremophila alpestris actia*	CSA	Grassland/herbaceous; open areas with sparse low herbaceous vegetation or scattered low shrubs; agricultural fields; nests in hollow on ground next to grass tuft, manure, or clod of soil.	A	No suitable nesting or foraging habitat is present in the BSA. The BSA lacks the open grasslands, agricultural fields, and meadows that this species requires for foraging and nesting. Species was not observed during 2013 focused avian surveys.

Table 11: Listed, Proposed, and Special-Status Wildlife Potentially Occurring or Known to Occur within and in the Vicinity of the BSA

Common Name	Scientific Name	Status	Habitat and Comments	Habitat Present or Absent	Rationale
California least tern	*Sterna antillarum browni*	FE, SE	Beaches, mudflats, sand dunes; nests along the coast from San Francisco Bay south to northern Baja California. Feeds in shallow estuaries and lagoons.	A	No suitable nesting or foraging habitat is present in the BSA. The BSA lacks the coastal habitat that this species requires for nesting and the lagoon and estuary habitat that this species requires for foraging. Species was not observed during 2013 focused avian surveys.
Coastal cactus wren	*Campylorhynchus brunneicapillus sandiegensis*	SSC	Coastal scrub; Almost always nests in tall Opuntia cactus; prefers areas dominated by California sagebrush and flat-top buckwheat.	A	No suitable habitat is present in the BSA. The BSA lacks suitable cactus, sagebrush, and flat-top buckwheat habitat. This subspecies' range is in coastal San Diego, Riverside, and Orange Counties. CNDDB contains two records in the search area, but occurrence in Los Angeles County would be extra-limital and extremely rare. The BSA is well outside of the range of this subspecies. Species was not observed during 2013 focused avian surveys.
Coastal California gnatcatcher	*Polioptila californica californica*	FT, SSC	Coastal bluff scrub, coastal scrub; dry coastal slopes, washes, and mesas; cone-shaped nests built in shrubs; areas of low plant growth (about 3 ft high); strongly associated with sage scrub; generally avoids crossing unsuitable habitat.	A	No suitable nesting or foraging habitat is present in the BSA. No sage scrub dominated plant communities exist in the BSA. Species was not observed during 2013 focused avian surveys.
Cooper's hawk	*Accipiter cooperii*	CSA	Cismontane woodland, riparian forest, riparian woodland, upper montane coniferous forest, urban areas; nests in tall trees; usually builds new nest on horizontal limb near trunk or in crotch, 20–59 ft above ground; may use virtually all habitats for foraging.	HP, O	Suitable habitat is present throughout the BSA, primarily in non-native woodland habitats along freeway edges (Appendix A, Figure 9). Species observed during 2013 surveys but no nests were found.
Costa's hummingbird	*Calypte costae*	CSA	Riparian, desert, shrubland, chaparral, open meadows, gardens. Nests in trees, shrubs, vines and cactus.	HP	Nesting and foraging habitat is present throughout the BSA, with the exception of the non-native grassland habitat. Species was not observed during 2013 focused avian surveys.

Table 11: Listed, Proposed, and Special-Status Wildlife Potentially Occurring or Known to Occur within and in the Vicinity of the BSA

Common Name	Scientific Name	Status	Habitat and Comments	Habitat Present or Absent	Rationale
Lark sparrow	*Chondestes grammacus*	CSA	Cropland/hedgerow, grassland/herbaceous, old field, savanna, shrubland/chaparral, suburban/orchard, conifer woodland, hardwood woodland, mixed woodland. Nests on or close to the ground in woody vegetation, often at base of a plant.	A	No suitable nesting or foraging habitat is present in the BSA. The level of urban development in the BSA is too dense to support this species. Species was not observed during 2013 focused avian surveys.
Lawrence's goldfinch	*Spinus lawrencei*	CSA	Riparian, cropland/hedgerow, shrubland/chaparral, conifer woodland, hardwood woodland, mixed woodland, oak woodland. Nests in oaks, conifers, or deciduous trees.	HP	Limited suitable nesting habitat is present in the BSA, in non-native woodland, oak woodland, and riparian habitats along freeway edges throughout the BSA (Appendix A, Figure 9). Could occur throughout the BSA during non-breeding season, but is not likely to occur in the disturbed/developed habitat. Species was not observed during 2013 focused avian surveys.
Least Bell's vireo	*Vireo bellii pusillus*	FE, SE	Riparian forest, riparian scrub, riparian woodland, scrub with thick understory, esp. with some standing water; normal occurrence in the area only during the breeding season or migration; may forage outside of riparian habitats; dense riparian understory shrubbery required for nesting; nests usually 3 ft above ground.	HP	Habitat that is moderately suitable for use outside the breeding season is present in the BSA at two riparian sites along the Arroyo Seco and the Laguna Channel. The sites are not suitable nesting habitat due to the lack of a dense understory with riparian canopy, as well as intensive human use in the area. Species was not observed during 2013 focused avian surveys.
Light-footed clapper rail	*Rallus longirostris levipes*	FE, SE	Coastal salt marshes, lagoons, cordgrass-pickleweed saltmarsh; this species primarily feeds on salt-marsh invertebrates. Nesting habitat includes tall dense cordgrass and occasionally pickleweed.	A	No suitable nesting or foraging habitat is present in the BSA. The BSA lacks the salt-marsh and lagoon habitats that this species requires for nesting and foraging. Species was not observed during 2013 focused avian surveys.

Table 11: Listed, Proposed, and Special-Status Wildlife Potentially Occurring or Known to Occur within and in the Vicinity of the BSA

Common Name	Scientific Name	Status	Habitat and Comments	Habitat Present or Absent	Rationale
Loggerhead shrike	*Lanius ludovicianus*	SSC	Cropland/hedgerow, desert, grassland/herbaceous, old field, savanna, shrubland/chaparral. Nests in shrubs or small trees.	A	No suitable nesting or foraging habitat is present in the BSA. The level of urban development in the BSA is too dense to support this species, and the BSA lacks substantial open space. Species was not observed during 2013 focused avian surveys.
Long-eared owl	*Asio otus*	SSC	Conifer forest, hardwood forest, mixed forest, old field, shrubland/chaparral, conifer woodland, hardwood woodland, mixed woodland. Nests in trees, often in old squirrel, crow, heron, or hawk nests.	A	No suitable nesting habitat is present in the BSA. The level of urban development in the BSA is too dense to support this species, and the BSA lacks substantial open space.
Merlin	*Falco columbarius*	CSA	Nonbreeding habitat includes marshes, deserts, coastal areas, open woodlands, fields, urban areas.	HP	No suitable nesting habitat is present in the BSA. This species may occur in the BSA during the non-breeding season. Species was not observed during 2013 focused avian surveys.
Nuttall's woodpecker	*Picoides nuttallii*	CSA	Riparian, hardwood forest, shrubland/chaparral, hardwood woodland, oak forest and woodland. Nests in tree cavities.	HP, O	Nesting and foraging habitat is present throughout the BSA, with the exception of the non-native grassland habitat. Species was observed during 2013 focused avian surveys.
Oak titmouse	*Baeolophus inornatus*	CSA	Hardwood forest, mixed forest, shrubland/chaparral, suburban/orchard, hardwood woodland, mixed woodland, oak and pine-oak woodland. Nests in natural tree cavities.	HP, O	Suitable nesting and foraging habitat is present throughout the BSA, with the exception of the non-native woodland and non-native grassland habitats (Appendix A, Figure 9). Species was observed during 2013 reconnaissance surveys.

Table 11: Listed, Proposed, and Special-Status Wildlife Potentially Occurring or Known to Occur within and in the Vicinity of the BSA

Common Name	Scientific Name	Status	Habitat and Comments	Habitat Present or Absent	Rationale
Purple martin	*Progne subis*	SSC	Cropland/hedgerow, desert, grassland/herbaceous, savanna, shrubland/chaparral, suburban/orchard, conifer woodland, hardwood woodland. Nests in tree cavities.	A	No suitable nesting or foraging habitat is present in the BSA. The level of urban development in the BSA is too dense to support this species and the BSA lacks substantial open space. Species was not observed during 2013 focused avian surveys.
Southern California rufous-crowned sparrow	*Aimophila ruficeps canescens*	SSC	Shrubland/chaparral, coastal sage dominated by sagebrush, coastal bluff scrub. Nests on the ground or low in the branches of trees or shrubs.	A	No suitable nesting or foraging habitat is present within the BSA. The level of urban development in the BSA is too dense to support this species and the BSA lacks substantial open space. Species was not observed during 2013 focused avian surveys.
Southwestern willow flycatcher	*Empidonax traillii extimus*	FE, SE	Riparian woodland; breeds in relatively dense riparian tree and shrub communities associated with rivers, swamps, and other wetlands including lakes and reservoirs; habitat patches must be at least 0.25 acres in size and at least 30 ft wide.	HP	Habitat that is moderately suitable for use outside the breeding season is present in the BSA at two riparian sites along the Arroyo Seco and the Laguna Channel. The sites are not suitable nesting habitat due to the lack of a dense understory with riparian canopy, as well as intensive human use in the area. Species was not observed during 2013 focused avian surveys.
Western snowy plover	*Charadrius nivosus ssp. nivosus*	FT	Nests on sandy beaches, sand spits, dune-backed beaches, creek and river mouths, salt pond levees, and shores of large alkali lakes. Winters on beaches used for nesting and not used for nesting, in man-made salt ponds, and on estuarine sand and mud flats.	A	No suitable nesting or foraging habitat is present in the BSA. The BSA lacks sandy beach, salt pond, and other coastal habitats that this species requires for nesting and foraging. Species was not observed during 2013 focused avian surveys.

Table 11: Listed, Proposed, and Special-Status Wildlife Potentially Occurring or Known to Occur within and in the Vicinity of the BSA

Common Name	Scientific Name	Status	Habitat and Comments	Habitat Present or Absent	Rationale
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	FC, SE	Riparian forest; dense riparian understory important for nest site selection; cottonwood trees important foraging habitat; nests in dense trees, shrubs, vines.	HP	Habitat that is moderately suitable for use outside the breeding season is present in the BSA at two riparian sites along the Arroyo Seco and the Laguna Channel. The sites are not suitable nesting habitat due to the lack of a dense understory with riparian canopy, as well as intensive human use in the area. Species was not observed during 2013 focused avian surveys.
White-tailed kite	*Elanus leucurus*	CFP	Cropland/hedgerow, grassland/herbaceous, savanna, hardwood woodland. Nests in trees.	A	No suitable nesting or foraging habitat is present in the BSA. Non-territorial individuals likely occasionally overfly the BSA during the non-breeding season. The level of urban development in the BSA is too dense to support this species and the BSA lacks substantial open space. No open grasslands or woodlands are present within the BSA. Species was not observed during 2013 focused avian surveys.
Yellow-breasted chat	*Icteria virens*	SSC	Riparian Forest, riparian scrub, riparian woodland; nests in bushes, brier tangles, vines, and low trees, generally in dense vegetation less than 7 ft above ground.	HP	Habitat that is moderately suitable for use outside the breeding season is present in the BSA at two riparian sites along the Arroyo Seco and the Laguna Channel. The sites are not suitable nesting habitat due to the lack of a dense understory with riparian canopy, as well as intensive human use in the area. Species was not observed during 2013 focused avian surveys.

Table 11: Listed, Proposed, and Special-Status Wildlife Potentially Occurring or Known to Occur within and in the Vicinity of the BSA

Common Name	Scientific Name	Status	Habitat and Comments	Habitat Present or Absent	Rationale
Yellow warbler	*Dendroica petechia*	SSC	Riparian woodland. Commonly in open to medium-density woodlands and forests with a heavy brush understory in breeding season. Nests often placed in deciduous saplings or shrubs 2-16 ft above ground. Territory includes tall trees for foraging and dense understory for nesting.	HP, O	Habitat that is moderately suitable for use outside the breeding season is present in the BSA at two riparian sites along the Arroyo Seco and the Laguna Channel. The sites are not suitable nesting habitat due to the lack of a dense understory with riparian canopy, as well as intensive human use in the area. Two individuals were observed during 2013 focused avian surveys, however not within available riparian habitat.
Mammals					
American badger	*Taxidea taxus*	SSC	Found in arid, open habitats, particularly grasslands, savannahs, mountain meadows, and desert scrub openings; needs friable soils for digging and open, uncultivated ground; occurs at low to moderate slopes; has been associated with Joshua tree woodland and pinyon-juniper habitats.	A	No suitable habitat is present in the BSA. The level of urban development in the BSA is too dense to support this species and the BSA lacks substantial open space. This species and/or signs of this species were not observed during 2013 general reconnaissance surveys.
Big free-tailed bat	*Nyctinomops macrotis*	SSC	Rocky terrain; bare rock/talus/scree, cliff, desert, woodland - hardwood; roosts in rock crevices (vertical or horizontal) in cliffs; also in buildings, caves, and occasionally tree holes.	HP	Limited marginally suitable foraging habitat is present in the BSA, primarily in non-native woodland, laurel sumac scrub and oak woodland habitats (Appendix A, Figure 9). This species was not detected during 2013 bat surveys.
Fringed myotis	*Myotis thysanodes*	CSA	Primarily at elevations of 3,937–7,054 ft above MSL in desert, grassland, and woodland habitats and at low elevations along Pacific Coast.; roosts in caves, mines, rock crevices, buildings; nursery colonies occur in caves, mines, and sometimes buildings.	HP	The BSA is outside the typical elevation range. Limited marginally suitable foraging habitat is present in the BSA, primarily in non-native woodland and oak woodland habitats (Appendix A, Figure 9). This species was not detected during 2013 bat surveys.

Table 11: Listed, Proposed, and Special-Status Wildlife Potentially Occurring or Known to Occur within and in the Vicinity of the BSA

Common Name	Scientific Name	Status	Habitat and Comments	Habitat Present or Absent	Rationale
Hoary bat	*Lasiurus cinereus*	CSA	Forages over a wide range of habitats, but prefers open habitats with access to trees for roosting, and water. Primarily roosts in trees and foliage. Ranges throughout most of California.	HP	Limited marginally suitable foraging habitat is present in the BSA, primarily within non-native woodland, laurel sumac scrub and oak woodland habitats (Appendix A, Figure 9). This species was not detected during 2013 bat surveys.
Lodgepole chipmunk	*Neotamias speciosus speciosus*	CSA	Chaparral, upper montane coniferous forest; usually found in open-canopy forests. Southern California elevation range 16,398 to 9,688 ft above MSL.	A	Outside of the known elevation range of the species. Limited marginally suitable habitat is present in the BSA. This species and/or signs of this species were not observed during 2013 general reconnaissance surveys.
Long-eared myotis	*Myotis evotis*	CSA	Conifer forest, hardwood forest, mixed forest, grassland/herbaceous, shrubland/chaparral, conifer woodland, hardwood woodland, mixed woodland. Roosts in buildings, caves, hollow trees, and mines.	HP	Limited marginally suitable foraging habitat is present in the BSA, primarily in non-native woodland, laurel sumac scrub and oak woodland habitats (Appendix A, Figure 9). This species was not detected during 2013 bat surveys.
Long-legged myotis	*Myotis volans*	CSA	Upper montane coniferous forest most often at 6,562–9,843 ft above MSL; riparian and desert habitats; uses caves and mines as hibernacula; roosts in abandoned buildings, rock crevices, under bark.	HP	The BSA is outside the typical elevation range of this species. Limited marginally suitable foraging habitat is present in the BSA, primarily within riparian habitats (Appendix A, Figure 9). This species was not detected during 2013 bat surveys.
Nelson's bighorn sheep	*Ovis canadensis nelsoni*	CFP	Alpine, alpine dwarf scrub, chaparral, chenopod scrub, great basin scrub, Mojavean desert scrub, pinyon and juniper woodlands, riparian woodland, sonoran desert scrub. This species prefers steep and rocky habitat on or near mountainous terrain above the desert floor.	A	No suitable habitat is present in the BSA. The BSA does not contain any desert habitat and lacks the steep mountainous terrain required by this species. The nearest recorded occurrence was in 1986 in the San Gabriel Mountains, approximately 15 mi northeast of the BSA.

Table 11: Listed, Proposed, and Special-Status Wildlife Potentially Occurring or Known to Occur within and in the Vicinity of the BSA

Common Name	Scientific Name	Status	Habitat and Comments	Habitat Present or Absent	Rationale
Pacific pocket mouse	*Perognathus longimembris pacificus*	FE, SSC	Occurs on fine-grain, sandy or gravelly substrates in the immediate vicinity of the Pacific Ocean. Occurs on coastal strand, coastal dunes, river alluvium, and coastal sage scrub habitats on marine terraces.	A	No suitable habitat is present in the BSA. The BSA is located approximately 17 mlles from the Pacific Ocean and does not contain any coastal scrub or dune habitats. This species and/or signs of this species were not observed during 2013 general reconnaissance surveys.
Pallid bat	*Antrozous pallidus*	SSC	Occurs throughout the American west; chaparral, coastal scrub, desert wash, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, riparian woodland, Sonoran desert scrub, upper montane coniferous forest, valley and foothill grassland; roosts in rock crevices, caves, mineshafts, under bridges, in buildings, and within hollow trees; consumes insects and other invertebrates; roosts in small colonies of 10 to 100 and emerges late at night to forage on the ground; forms nursery colonies, and gives birth usually in June	HP	Limited marginally suitable foraging habitat is present in the BSA, primarily in non-native woodland, laurel sumac scrub and oak woodland habitats (Appendix A, Figure 9). This species was not detected during 2013 bat surveys.
Pocketed free-tailed bat	*Nyctinomops femorosaccus*	SSC	Pinyon-Juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, palm oasis; usually associated with rugged canyons, high cliffs, and rock outcroppings; roosts in rock crevices and caves during the day; may also roost in buildings or under roof tiles.	HP	Limited marginally suitable foraging habitat is present in the BSA, primarily in non-native woodland, laurel sumac scrub and oak woodland habitats (Appendix A, Figure 9). This species was not detected during 2013 bat surveys.

Table 11: Listed, Proposed, and Special-Status Wildlife Potentially Occurring or Known to Occur within and in the Vicinity of the BSA

Common Name	Scientific Name	Status	Habitat and Comments	Habitat Present or Absent	Rationale
Ring-tailed cat	*Bassariscus astutus*	CFP	Bare rock/talus/scree, cliff, desert scrub, shrubland/chaparral, mixed woodland, desert scrub, pine-oak and conifer woodland. Dens usually in rock shelter, in tree hollow, under tree roots, in burrow dug by other animal, in remote building, or under brush pile.	A	No suitable habitat is present in the BSA. The level of urban development in the BSA is too dense to support this species. The BSA lacks the canyons and rocky outcroppings that support this species. This species and/or signs of this species were not observed during 2013 general reconnaissance surveys.
San Diego black-tailed jackrabbit	*Lepus californicus bennettii*	SSC	Coastal scrub; open country with scattered thickets or patches of shrubs. Rests by day in shallow depression.	A	No suitable habitat is present in the BSA. The level of urban development in the BSA is too dense to support this species. The BSA lacks substantial open space and coastal scrub habitat required of this species. This species and/or signs of this species were not observed during 2013 general reconnaissance surveys.
San Diego desert woodrat	*Neotoma lepida intermedia*	SSC	Coastal scrub; sagebrush scrub; chaparral; often associated with large cactus patches; also found in rocky outcroppings and boulder hillsides within chaparral and oak woodland habitats.	A	No suitable coastal scrub habitat is present in the BSA. The BSA lacks large cactus patches. This species and/or signs of this species were not observed during 2013 general reconnaissance surveys.
Silver-haired bat	*Lasionycteris noctivagans*	CSA	Primarily forested areas adjacent to lakes, ponds, or streams, including areas that have been altered by humans. Summer roosts and nursery sites are in tree foliage, cavities, or under loose bark, sometimes in buildings.	HP	Limited marginally suitable habitat is present in the BSA primarily within non-native woodland and riparian habitats (Appendix A, Figure 9). This species was not detected during 2013 bat surveys.
South coast marsh vole	*Microtus californicus stephensi*	SSC	Riparian, annual grassland, wet meadow; occupies underground burrows and surface runways through grass. The south coast marsh vole occurs in a narrow band of wetland communities and associated grasslands in the immediate coastal zone from southern Ventura County to northern Orange County.	A	The BSA is outside the taxon's known range. No suitable habitat is present in the BSA. The BSA does not fall into the coastal zone of Los Angeles County. This species and/or signs of this species were not observed during 2013 general reconnaissance surveys.

Table 11: Listed, Proposed, and Special-Status Wildlife Potentially Occurring or Known to Occur within and in the Vicinity of the BSA

Common Name	Scientific Name	Status	Habitat and Comments	Habitat Present or Absent	Rationale
Southern grasshopper mouse	*Onychomys torridus ramona*	SSC	Chenopod scrub; consumes soft-bodied insects including cutworms and grasshoppers; lives in arid habitats but requires no open water sources; the species forages under and within shrubs and crosses open areas.	A	No suitable habitat is present in the BSA. The BSA does not contain chenopod scrub. This species and/or signs of this species were not observed during 2013 general reconnaissance surveys.
Townsend's big-eared bat	*Corynorhinus townsendii*	SCT, SSC	Cliff, desert, conifer forest, hardwood forest, mixed forest, grassland/herbaceous, old field, savanna, shrubland/chaparral, conifer woodland, hardwood woodland, mixed woodland. Roosts in caves and mine tunnels.	HP	Limited marginally suitable foraging habitat is present in the BSA primarily within non-native woodland, laurel sumac scrub and oak woodland habitats (Appendix A, Figure 9). No suitable roosting habitat is present within the BSA. This species was not detected during 2013 bat surveys.
Western mastiff bat	*Eumops perotis californicus*	SSC	Found in the southwestern United States, generally away from human development; this species can utilize a variety of habitat types including chaparral, oak woodland, pine forests, agricultural areas and desert washes; roosts primarily in vertical rock crevices on cliffs; common in open habitats when foraging.	HP	Limited marginally suitable foraging habitat is present in the BSA primarily in non-native woodland, laurel sumac scrub and oak woodland habitats, but may forage throughout the entire BSA (Appendix A, Figure 9). No suitable roosting habitat is present in the BSA. This species was not detected during 2013 bat surveys.
Western yellow bat	*Lasiurus xanthinus*	SSC	Valley-foothill riparian, desert riparian, desert wash, palm oasis; preferentially roosts in trees, generally palms in the southern U.S.	HP	Limited marginally suitable foraging and roosting habitat is present in the BSA primarily in non-native woodland and riparian habitats (Appendix A, Figure 9). This species was not detected during 2013 bat surveys.
Western red bat	*Lasiurus blossevillii*	SSC	Inhabits forest and woodland communities from sea level up through mixed conifer forests. Roosts primarily in trees. Forages in habitats including grasslands, shrublands, open woodlands and forests, and croplands.	HP, O	Limited marginally suitable foraging and roosting habitat is present in the BSA primarily in non-native woodland and riparian habitats (Appendix A, Figure 9). This species was detected at the Colorado Street bridge during 2013 bat surveys.

Table 11: Listed, Proposed, and Special-Status Wildlife Potentially Occurring or Known to Occur within and in the Vicinity of the BSA

Common Name	Scientific Name	Status	Habitat and Comments	Habitat Present or Absent	Rationale
Western small-footed myotis	*Myotis ciliolabrum*	CSA	Bare rock/talus/scree, cliff, grassland/herbaceous, shrubland/chaparral, conifer woodland, mixed woodland. Roosts primarily in caves and trees, and is extremely sensitive to the disturbance of roosting sites; will abandon the maternity roost if disturbed.	HP	Limited marginally suitable foraging and roosting habitat is present in the BSA primarily within non-native woodland and laurel sumac scrub habitats (Appendix A, Figure 9). This species was not detected during 2013 bat surveys.
Yuma myotis	*Myotis yumanensis*	CSA	Inhabits juniper and riparian woodlands to desert regions in proximity to open water. Roosts in caves, attics, buildings, mines, and bridges.	HP	Limited marginally suitable foraging and roosting habitat is present in the BSA primarily within non-native woodland and riparian habitats (Appendix A, Figure 9). This species was not detected during 2013 bat surveys.

*California Special Animal (CSA) is a general term that refers to all of the taxa the CNDDB is interested in tracking, regardless of their legal or protection status. The Department of Fish and Wildlife considers the taxa on this list to be those of greatest conservation need. For those species with statuses identified by USFWS and/or CDFW, the status is noted. Those species included on the list due to identification by other governmental agencies and/or non-governmental conservation organizations are listed as CSA.

FE = Federally Endangered, FT = Federally Threatened, FC = Federal Candidate Species (The western yellow-billed cuckoo is the only federal wildlife candidate species with the potential to occur within the BSA. At the time of document preparation, the western yellow-billed cuckoo was on the USFWS candidate species list; however, on October 3, 2013, the USFWS issued a proposed rule to list this distinct population segment (DPS) as a threatened species under the Endangered Species Act. SE = State Endangered, ST = State Threatened, SCE = State Candidate Endangered, SCT = State Candidate Threatened, SH = All sites are historical; the species has not been seen in at least 20 years, but suitable habitat still exists, SSC = California Department of Fish and Wildlife Species of Special Concern, CSA = California Special Animal, CFP = California Fully Protected Species, BSA = Biological Study Area .
Absent [A] - no habitat present and no further work needed. Habitat Present [HP] -habitat is, or may be present. The species may be present. Observed [O] - the species was observed during focused surveys.

Chapter 4. Results: Biological Resources, Discussion of Impacts and Mitigation

The results of surveys; avoidance and minimization/mitigation measures; project effects; and cumulative effects for listed, special-status, and locally important plant communities, plants, and wildlife are discussed in this chapter. Impacts to biological resources were considered for each alternative individually (Appendix A, Figure 13, TSM/TDM Alternative Impacts to Plants and Plant Communities; Figure 14, BRT Alternative Impacts to Plants and Plant Communities; Figure 15, LRT Alternative Impacts to Plants and Plant Communities; Figure 16, Freeway Tunnel Alternative Impacts to Plants and Plant Communities).

Impacts to plant communities by alternative were considered in the evaluation of impacts to biological resources, including impacts to natural communities, as well as plants and wildlife that may be present in the plant communities (Table 12, *Impacts to Plant Communities by Alternative*).

Table 12: Impacts to Plant Communities by Alternative

	Acres of Impacts														
Plant Communities within the BSA	**TSM/TDM**			**BRT**			**LRT**			**Freeway Tunnel Alternative Single Bore**			**Freeway Tunnel Alternative Dual Bore**		
	Perm	**Temp**	**Total**	**Perm**	**Temp**	**Total**	**Perm**	**Temp**	**Total**	**Perm**	**Temp**	**Total**	**Perm**	**Temp**	**Total**
Riparian non-wetland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Coast live oak woodland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Laurel sumac scrub	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wetland complex	0	0	0	0	0	0	0	0	0	1.09	0	1.09	1.09	0	1.09
Non-native grassland	0.6	0.3	0.9	1.9	0	1.9	12.6	2.1	14.7	25.2	2.9	28.1	25.2	2.2	27.4
Non-native woodland	<0.1	0	<0.1	0	0	0	3.9	8.0	11.9	31.6	<0.1	31.7	32.4	1.1	33.5
Disturbed/developed	0.7	0.5	1.2	123.8	0.6	124.4	93.6	29.7	123.3	244.9	53.4	298.3	244.9	51.7	296.6
Total	1.4	0.8	2.2	125.7	0.6	126.3	110.1	39.8	149.9	302.79	56.4	359.19	303.59	55.0	358.59

4.1. Sensitive Natural Communities

CDFW designates certain natural communities as being of special concern, based on a state rarity ranking of S1 (the rarest), S2, or S3. Communities ranked as S4, S5, or S6, are not included as natural communities of special concern. Black cottonwood forest was the sole natural community of special concern in the BSA, with a state ranking of S3. Additional natural communities and habitats are considered sensitive based on other criteria, and merit consideration when evaluating the potential effects of projects on the environment as required by CEQA.

Natural communities in the BSA that are considered sensitive include (1) riparian wetland habitats, (2) riparian non-wetland habitats, (3) coast live oak woodland, and (4) black cottonwood forest (Appendix A, Figure 9). These communities are discussed further below. Of these, only riparian wetland habitats are within areas where ground-disturbing activities (permanent or temporary) are planned as part of one or more of the proposed alternatives.

In addition to the riparian habitats and coast live oak woodland, only one native-dominated plant community, laurel sumac scrub, was identified in the BSA (Appendix A, Figure 9). While the presence of the laurel sumac scrub community does not warrant avoidance and minimization efforts, it did stand out as one of the few natural communities in the BSA, which was dominated by disturbed/developed areas. This area is notable in the larger regional context where few remnant native plant communities occur.

4.1.1. Discussion of Riparian, Wetland and Riverine Communities

Riparian communities such as those present within the BSA are uncommon and declining in southern California, and provide important habitat for specialized plants and animals. Riparian communities are often associated with drainages and streambeds, resulting in the protection of these communities by the California Department of Fish and Game Code Sections 1600 through 1603, as well as the CWA to a certain degree. Riparian habitats contain water, nesting areas, shelter, and important food resources for several species that are riparian obligates, and often serve as wildlife migration corridors for non-obligate species. As a result, the high quality habitats that are often associated with riparian areas are considered sensitive by CDFW.

4.1.1.1. SURVEY RESULTS

Three types of riparian and riverine communities are present within the BSA, as detailed in Section 3.1.3.4 and in the jurisdictional delineation reports (Appendix I, Appendix J): (1) riparian non-wetland habitats, (2) wetlands, and (3) riverine (streams). In total, 4.9 acres of riparian non-wetland habitats, 1.5 acres of wetlands, and 4.4 acres of stream habitats were identified. These areas were located along two streams, the Arroyo Seco and the Laguna Channel, and one wetland was located in the median of the I-210 in the City of Pasadena.

The riparian and riverine communities present in the BSA are not considered to be of high quality due to the presence of invasive species, high human disturbance (foot traffic, litter, etc.), and minimal signs of reproduction (few saplings, seedlings etc.), as is typical in an urban environment.

4.1.1.2. AVOIDANCE AND MINIMIZATION EFFORTS

Should the Freeway Tunnel Alternative (single or dual bore) be selected, the following measures would be required to avoid and minimize impacts to riparian and riverine communities in the BSA:

- Prior to any construction or ground-disturbing activities, a highly visible barrier such as Environmentally Sensitive Area (ESA) fencing or other marker would be placed around any riparian or riverine habitats to be preserved. No grading or fill activities would be authorized within the marked area. No structure of any kind, or incidental storage of equipment or supplies, would be allowed within the marked area. Silt fence barriers would be installed along the ESA boundary to prevent inadvertent deposition of fill.
- Designated areas in developed or non-sensitive upland habitat areas would be identified where all equipment maintenance, staging, fueling and other related activities would be conducted. Such areas would be selected such that spills and runoff would not enter riparian or riverine habitats.
- A Storm Water Pollution Prevention Plan and soil erosion and sedimentation plan would be developed to minimize erosion and identify measures that would reduce or eliminate any point and non-point pollution sources on site during and after construction.
- A weed abatement program would be developed to minimize the introduction and spread of non-native plant material. This program would include monitoring and eradication measures during and after construction.

- A qualified biologist would monitor during construction in the vicinity of riparian and riverine areas to ensure that all avoidance and minimization measures are properly applied and followed.

4.1.1.3. PROJECT IMPACTS

The Proposed Project has been refined to avoid and minimize impacts to wetlands and other waters. Specifically, the Freeway tunnel Dual-Bore and Single-Bore Alternatives have minimized impacts to the northernmost section of the Laguna Channel, near the tunnel portal (Feature 11-A in Table 9). Additional segments of the Laguna Channel (Features 11-C and 11-E in Table 9) have been completely eliminated from the impact areas.

Should the Freeway Tunnel Alternative (single or dual bore) be selected, the Proposed Project would result in permanent and temporary impacts to riparian and/or riverine habitats. Permanent impacts would result from the disturbance and/or removal of existing wetland vegetation at the Del Mar Pump Station in the City of Pasadena (Table 13, Impacts to Riparian, Wetland, and Riverine Habitats by Alternative; Appendix A, Figure 17, LRT Alternative Impacts to Potentially Jurisdictional Features; Appendix A, Figure 18, Freeway Tunnel Alternative Impacts to Potentially Jurisdictional Features), and from construction in and over channelized sections of the Laguna Channel stream.

Table 13: Impacts to Riparian, Wetland, and Riverine Habitats by Alternative

Alternative and Option	Acres of Impacts						
	Non-wetland Waters			Wetland Waters			Riparian Non-wetland Habitats
	Perm	Temp	Total	Perm	Temp	Total	
TSM/TDM	0	0	0	0	0	0	0
BRT	0	0	0	0	0	0	0
LRT	0	0	0	0	0	0	0
Freeway Tunnel, Single-Bore	0.06	0.02	0.08	1.09	0	1.09	0
Freeway Tunnel, Dual-Bore	0.51	0.22	0.73	1.09	0	1.09	0

[1] Riparian non-wetland habitats include (1) white alder groves, (2) black cottonwood forest, (3) arroyo willow thickets, (4) giant reed semi-natural stands, and (5) non-native riparian woodland.

The Freeway Tunnel Alternative (single and dual bore) and the LRT Alternative would result in indirect temporary impacts to riparian and riverine habitats. The distance of 180 ft between the southern riparian habitat and the impact areas of the LRT means that this proposed alternative would have indirect impacts only if the avoidance and minimization measures are not successful at limiting the extent of impacts. Temporary indirect impacts may include construction noise, dust, lighting, litter, and vibration, as well as personnel and vehicle activities outside designated areas. Permanent indirect impacts are not anticipated.

4.1.1.4. COMPENSATORY MITIGATION

Compensatory mitigation for impacts to riparian and riverine habitats is required for impacts to waters and habitats subject to the jurisdiction of the Corps and/or CDFW. Both agencies have a no net loss policy, and therefore require compensatory mitigation ratios greater than one-to-one (1:1). This may be implemented by the project proponent, or in-lieu fees may be paid to a mitigation bank.

4.1.1.5. CUMULATIVE IMPACTS

Implementation of the Proposed Project, specifically the Freeway Tunnel Alternative (single and dual bore) and the LRT Alternative would result in adverse effects on riparian and riverine habitats in the BSA. However, compensatory mitigation would

result in the creation or restoration of more habitat than is lost, and is likely to completely offset any impacts from the Proposed Project, especially considering that the functions and values of the habitats that would be impacted are relatively low (Appendix M). Therefore, the Proposed Project would not likely contribute substantially to cumulative effects on riparian, wetland or riverine communities.

4.1.2. Discussion of Coast Live Oak Woodland Community

The coast live oak woodland community is diverse in structure with a coast live oak dominated tree canopy. This community provides important habitat and food resources to a variety of wildlife and is considered an important community by CDFW and Caltrans. The State Senate Concurrent Resolution No. 17 recognizes the importance of coast live oak woodland communities in California and requires that state agencies proposing project activities within oak woodland habitats shall preserve and protect native oak woodlands to the maximum extent feasible. For these reasons, the coast live oak woodland community is considered a natural community of special concern.

4.1.2.1. Survey Results

One small area (5.9 acres) of the coast live oak woodland community was identified within the BSA during the plant community mapping of the 2013 botanical surveys (Appendix A, Figure 9). This community was found in the area of the BSA where the SR 134 crosses the Arroyo Seco in Pasadena. This community abuts and intergrades with the black cottonwood forest and laurel sumac scrub communities in the same region of the BSA. This community was determined to have a chaparral community association with an understory dominated by chaparral shrub species such as California buckwheat, toyon, chamise, and sugarbush.

4.1.2.2. Avoidance and Minimization Efforts

While present within the BSA, this community does not fall within any temporary or permanent impact areas for the Proposed Project. As a result, no impacts to this community are anticipated, and no avoidance and minimization efforts would be required.

4.1.2.3. Project Impacts

It is not anticipated that the Proposed Project would have any direct, indirect, permanent, or temporary impacts to the coast live oak woodland community as this community exists well outside the zones in which construction activities are planned (Table 12; Appendix A, Figures 13–16).

4.1.2.4. COMPENSATORY MITIGATION

Unless project impacts extend beyond what is anticipated, no compensatory mitigation for this natural community of special concern would be required as a result of implementation of the Proposed Project.

4.1.2.5. CUMULATIVE IMPACTS

The Proposed Project would not appreciably affect or change current land use patterns in the BSA or substantially modify any existing environmental conditions. Therefore, the Proposed Project would not be likely to contribute incrementally to cumulative effects on this community.

4.2. Special Status Plant Species

A total of 12 of the 54 special-status plants with potential of occurring within the BSA are federally and/or state listed as endangered, threatened, rare, or candidate species: (1) California orcutt grass, (2) coastal dunes milk-vetch, (3) marsh sandwort, (4) Nevin's barberry, (5) slender-horned spineflower, (6) Gambel's water cress, (7) Braunton's milk-vetch, (8) spreading navarretia, (9) San Fernando Valley spineflower, (10) Brand's star phacelia, (11) Mt. Gleason paintbrush, and (12) Thread-leaved brodiaea. As noted in Chapter 3, suitable habitat for eight of these species is not present within the BSA: California orcutt grass, coastal dunes milk-vetch, Nevin's barberry, Braunton's milk-vetch, spreading navarretia, San Fernando Valley spineflower, Brand's star phacelia, and Mt. Gleason paintbrush. Therefore, these species are not discussed further here. Discussion of individual plants below is organized by severity of federal and/or state listing. In addition to federally and/or state listed plants, other special status plants with the potential to occur within the BSA, or observed within the BSA, are discussed below. The presence or absence of suitable habitat for these plants was identified in the evaluation of the environmental setting (Table 10).

4.2.1. Discussion of Marsh Sandwort

Marsh sandwort is a perennial stoloniferous herb in the family Caryophyllaceae that blooms from May to August (CNPS 2013). Marsh sandwort occurs in freshwater marsh, marsh and swamp, and wetland habitats (CNPS 2013). It is often found in openings on sandy soils between 10 and 558 ft in elevation (CNPS 2013). This species is federally and state listed as endangered. It also has a CRPR of 1B.1, indicating that it is seriously threatened in California (CNPS 2013).

4.2.1.1. SURVEY RESULTS

Botanical surveys conducted throughout the entire BSA in 2013 during the appropriate blooming period for this species were negative. Only one other plant in the family Caryophyllaceae, red sandspurry (*Spergularia rubra*), which is readily distinguishable from marsh sandwort, was observed during the surveys. Neither blooming nor seeded individuals were observed as a result of surveys. The wetland complex habitat present in the BSA was marginally suitable for this species due to its low quality (Table 10; Appendix A, Figure 9). The CNDDB includes one recorded observation of marsh sandwort in this area from 1900 in the Cienega community of Los Angeles County, approximately 8.5–9.5 mi southwest of the BSA, an area that is now urban with no remaining habitat. As there was only marginally suitable habitat, there are no known occurrences of this species within 8.5–9.5 mi of the BSA, and it was not observed as a result of focused surveys during the appropriate blooming period, the potential for the species to be present but not observed is low. Therefore, the species is considered absent from the BSA.

4.2.1.2. AVOIDANCE AND MINIMIZATION EFFORTS

Botanical surveys were conducted to determine what, if any, impacts to the species might result from the Proposed Project. Due to the absence of marsh sandwort from the BSA, no avoidance or minimization efforts would be necessary.

4.2.1.3. PROJECT IMPACTS

The Proposed Project would not have any indirect, direct, permanent, or temporary impacts on any known populations of marsh sandwort due to the absence of the species from the BSA, as determined through botanical surveys.

4.2.1.4. COMPENSATORY MITIGATION

Unless project impacts extend beyond what is anticipated, no compensatory mitigation for marsh sandwort would be required as a result of implementation of the Proposed Project.

4.2.1.5. CUMULATIVE IMPACTS

Marsh sandwort was determined to be absent from the BSA as a result of botanical surveys. The Proposed Project would not appreciably affect or change current land use patterns in the BSA or substantially modify any existing environmental conditions. Therefore, the Proposed Project would not be likely to contribute incrementally to cumulative effects on this species.

4.2.2. Discussion of Slender-Horned Spineflower

Slender-horned spineflower is an annual herb in the family Polygonaceae that blooms from April to June (CNPS 2013). Slender-horned spineflower occurs in chaparral, cismontane woodland, and coastal scrub habitats (CNPS 2013). It is often found on alluvial fans in sandy soils between 656 and 2,493 ft in elevation (CNPS 2013). This species is federally and state listed as endangered. It also has a CRPR of 1B.1, indicating that it is seriously threatened in California (CNPS 2013).

4.2.2.1. SURVEY RESULTS

Botanical surveys conducted throughout the entire BSA in 2013 were negative for this species. Neither blooming nor seeded individuals were observed as a result of surveys. However, as the surveys were conducted approximately one month later than the appropriate flowering period for slender-horned spineflower, it is possible that individuals were present but not seen or were unidentifiable. There is marginally suitable habitat present on site within the laurel sumac scrub and coast live oak woodland areas of the BSA (Table 10; Appendix A, Figure 9).

The CNDDB includes five records of slender-horned spineflower observations near the BSA. The nearest 20th century occurrence was documented in 1920 near the Rubio Wash in Altadena, approximately 3 mi from the BSA; this population has since been extirpated as a result of urbanization. The nearest 21st century occurrence was documented in 2006 at the Big Tujunga Wash near Sunland, approximately 11.5 mi from the BSA. This species is normally associated with Riversidean or Venturan CSS on alluvial terraces adjacent to natural rivers and streams. There are no known extant occurrences of this species within 11.5 mi of the BSA, and it was not observed as a result of focused surveys, therefore the potential for the species to be present is low. However, due to botanical surveys being conducted outside of the appropriate blooming period for this species, the absence of this species from the BSA cannot be confirmed.

4.2.2.2. AVOIDANCE AND MINIMIZATION EFFORTS

Suitable habitat for slender-horned spineflower was identified within the BSA. However, no construction impacts (permanent or temporary) are planned within this habitat as the boundaries of these habitats are completely contained within areas of the BSA where no impacts are planned. Due to the absence of impacts to suitable habitat for this species, no avoidance or minimization efforts would be necessary.

4.2.2.3. PROJECT IMPACTS

The Proposed Project would not have any direct, indirect, permanent, or temporary impacts on any suitable habitat for this species (Appendix A, Figures 13–16). Therefore, it is not anticipated that the Proposed Project would have any direct or indirect impacts, either permanent or temporary, on the slender-horned spineflower.

4.2.2.4. COMPENSATORY MITIGATION

Unless project impacts extend beyond what is anticipated, no compensatory mitigation for slender-horned spineflower would be required as a result of implementation of the Proposed Project.

4.2.2.5. CUMULATIVE IMPACTS

No suitable habitat for slender-horned spineflower is anticipated to be impacted by the Proposed Project. The Proposed Project would not appreciably affect or change current land use patterns in the BSA or substantially modify any existing environmental conditions. Therefore, the Proposed Project would not be likely to contribute incrementally to cumulative effects on this species.

4.2.3. Discussion of Gambel's Watercress

Gambel's watercress is a perennial rhizomatous herb in the family Brassicaceae that blooms from April to October (CNPS 2013). Gambel's watercress occurs in brackish marsh, freshwater marsh, marsh and swamp, and wetland habitats (CNPS 2013). It occurs between 6 and 1,083 ft in elevation (CNPS 2013). This species is federally listed as endangered and state listed as threatened. It also has a CRPR of 1B.1, indicating that it is seriously threatened in California (CNPS 2013).

4.2.3.1. SURVEY RESULTS

Botanical surveys conducted throughout the entire BSA in 2013 during the appropriate blooming period for this species were negative. Neither blooming nor seeded individuals were observed as a result of surveys. The two wetland complex habitats present within the BSA in Pasadena and Monterey Park were marginally suitable but not ideal habitat due to high human disturbance (Table 10, Appendix A, Figure 9). This species is nearly extinct in the United States. The CNDDB includes one recorded observation of Gambel's watercress in this area from 1904 in the Cienega community of Los Angeles County, approximately 8.5–9.5 mi southwest of the BSA, an area that is now urban with no remaining habitat. As there is only low quality marginally suitable habitat present in the BSA, there are no known occurrences of this species within 8.5–9.5 mi of the BSA, and it was not observed as

a result of focused surveys during the appropriate blooming period, the potential for the species to be present but not observed is low. Therefore, the species is considered absent from the BSA.

4.2.3.2. AVOIDANCE AND MINIMIZATION EFFORTS

Botanical surveys were conducted to determine what, if any, impacts to the species might result from the Proposed Project. Due to the absence of Gambel's watercress from the BSA, no avoidance or minimization efforts would be necessary.

4.2.3.3. PROJECT IMPACTS

The Proposed Project would not have any direct, indirect, permanent, or temporary impacts on any known populations of Gambel's watercress due to the absence of the species from the BSA, as determined through botanical surveys.

4.2.3.4. COMPENSATORY MITIGATION

Unless project impacts extend beyond what is anticipated, no compensatory mitigation for Gambel's watercress would be required as a result of implementation of the Proposed Project.

4.2.3.5. CUMULATIVE IMPACTS

Gambel's watercress was determined to be absent from the BSA as a result of botanical surveys. The Proposed Project would not appreciably affect or change current land use patterns in the BSA or substantially modify any existing environmental conditions. Therefore, the Proposed Project would not be likely to contribute incrementally to cumulative effects on this species.

4.2.4. Discussion of Thread-Leaved Brodiaea

Thread-leaved brodiaea is a perennial bulbiferous herb in the family Themidaceae that blooms from March to June (CNPS 2013). Thread-leaved brodiaea occurs in chaparral, cismontane woodland, coastal scrub, playa, valley and foothill grassland, and vernal pool habitats (CNPS 2013). It is often found in clay soils soils between 82 and 3,675 ft in elevation (CNPS 2013). This species is federally listed as threatened. It also has a CRPR of 1B.1, indicating that it is seriously threatened in California (CNPS 2013).

4.2.4.1. SURVEY RESULTS

Botanical surveys conducted throughout the entire BSA in 2013 were negative for this species. Neither blooming nor seeded individuals were observed as a result of surveys. However, as the surveys were conducted approximately one month later than

the appropriate flowering period for thread-leaved brodiaea, it is possible that individuals were present but not seen or were unidentifiable. There is marginally suitable habitat present on site within the laurel sumac scrub and coast live oak woodland areas of the BSA (Table 10; Appendix A, Figure 9).

The CNDDB includes six records of thread-leaved brodiaea observations near the BSA. The nearest 21st-century occurrence was documented in 2013 in the City of Glendora, approximately 12.7 mi from the BSA. There are no known extant occurrences of this species within 12.7 mi of the BSA, and it was not observed as a result of focused surveys; therefore, the potential for the species to be present is low. However, due to botanical surveys being conducted outside of the appropriate blooming period for this species, the absence of this species from the BSA cannot be confirmed.

4.2.4.2. AVOIDANCE AND MINIMIZATION EFFORTS

Suitable habitat for thread-leaved brodiaea was identified within the BSA. However, no construction impacts (permanent or temporary) are planned within this habitat as the boundaries of these habitats are completely contained within areas of the BSA where no impacts are planned. Due to the absence of impacts to suitable habitat for this species, no avoidance or minimization efforts would be necessary.

4.2.4.3. PROJECT IMPACTS

The Proposed Project would not have any direct, indirect, permanent, or temporary impacts on any suitable habitat for this species (Appendix A, Figures 13–16). Therefore, it is not anticipated that the Proposed Project would have any direct or indirect impacts, either permanent or temporary, on thread-leaved brodiaea.

4.2.4.4. COMPENSATORY MITIGATION

Unless project impacts extend beyond what is anticipated, no compensatory mitigation for thread-leaved brodiaea would be required as a result of implementation of the Proposed Project.

4.2.4.5. CUMULATIVE IMPACTS

No suitable habitat for thread-leaved brodiaea is anticipated to be impacted by the Proposed Project. The Proposed Project would not appreciably affect or change current land use patterns in the BSA or substantially modify any existing environmental conditions. Therefore, the Proposed Project would not be likely to contribute incrementally to cumulative effects on this species.

4.2.5. Discussion of Coulter's Goldfields

Coulter's goldfields is an annual herb in the sunflower family (Asteraceae) that is generally found in saline places, such as on the margins of marshes, playas, and vernal pools (Baldwin 2012). Coulter's goldfields blooms from February to June (CNPS 2013). This species has been recorded as far north as Chico; however, it is typically found in Southern California from Bakersfield to San Diego in areas below 3,281 ft in elevation (Baldwin 2012). Coulter's goldfields has no state or federal listing status however, it has a CRPR of 1B.1, indicating that it is seriously threatened in California (CNPS 2013). Coulter's goldfields is occasionally found outside of its typical habitat due to its inclusion in native wildflower seed mixes distributed by certain seed suppliers (e.g., Theodore Payne Foundation). Therefore populations occurring in revegetated areas may be cultivated and not be naturally occurring, and thus may not meet the definition of a "native plant" pursuant to California Fish and Game Code Section 1901, which is limited to plants "growing in a wild uncultivated state."

4.2.5.1. SURVEY RESULTS

Botanical surveys conducted throughout the entire BSA in 2013 resulted in the identification of a small population (approximately 300 individuals) of Coulter's goldfields within a freeway edge along the I-10 freeway near the I-710/I-10 interchange. This population was located directly within the permanent impact area of the single and dual bore Freeway Tunnel Alternatives (Appendix A, Figure 16), within 247 ft of the permanent impact area for the LRT Alternative, and within 167 ft of the temporary impact area for the LRT Alternative. Individuals of the population were blooming out of season with other spring annuals near a leaking irrigation system in an area that appeared to have been recently hydro-seeded, most likely during highway maintenance.

It is not anticipated that other areas within the BSA classified as disturbed/developed contain the similar unique conditions for supporting this species. No other suitable habitat for Coulter's goldfields occurs within the BSA. The wetland complex habitats within the BSA do not contain the alkaline features required for naturally occurring populations of this species.

The apparent seeding of this population and the fact that the population is being sustained by a non-natural water source would suggest that these individuals would not be considered "native plants" by the CDFW. However, unless documentation is provided that the population was indeed planted, the assumption and treatment would

be that of it is a naturally occurring population. In order for this population to be excluded from any avoidance, minimization, and mitigation measures, documentation such as the bill of lading for the seed mix, the date(s) of seeding, and the contents and supplier of the seed mix used must be verified. In the event that the Freeway Tunnel Alternative or the LRT Alternative is selected, and sufficient documentation of the anthropogenic origin of the population is not provided, the avoidance and minimization efforts outlined below would apply.

4.2.5.2. AVOIDANCE AND MINIMIZATION EFFORTS

Should the LRT or Freeway Tunnel Alternatives be selected, and documentation of the planting efforts of this population be unavailable, then the following avoidance and minimization efforts for this population of Coulter's goldfields would be required:

- The removal of this population would be avoided to the greatest extent possible.
- Prior to any construction or ground-disturbing activities near the population, a highly visible barrier such as Environmentally Sensitive Area (ESA) fencing or other marker would be placed near or around any proportion of the population that would not be directly impacted in order to avoid any negative effects on the species. No access or work would be authorized within the marked area.
- A biologist would monitor construction within the vicinity of the portion of the population that would not be directly impacted for the duration of the time when any ground-disturbing activities in the area take place to ensure that all avoidance and minimization measures are properly constructed and followed.

Coulter's goldfields does not have the potential to be impacted by any other Build Alternatives as temporary and permanent impact areas for these alternatives are well outside of the location of this population. Due to the absence of Coulter's goldfields from the remainder of the BSA, no additional avoidance or minimization efforts, beyond what is outlined for the population above, would be required.

4.2.5.3. PROJECT IMPACTS

Should the Freeway Tunnel Alternative (single or dual bore) be selected, and the implementation of the avoidance and minimization efforts described above not be possible, the Proposed Project has the potential to have a permanent direct impact on the entire population of Coulter's goldfields at this location through disturbance and/or removal of the population (Figure 16). As a result, the selection of the Freeway Tunnel Alternative would not have any temporary or indirect impacts on this population. This population of Coulter's goldfields is currently highly impacted by

the level of development (freeeways, infrastructure, etc.) within its vicinity. The LRT Alternative has the potential to result in additional indirect impacts through the increase in proximity of development to the vicinity of the population and the adverse impacts associated with that development; these impacts would be minimized by the implementation of the avoidance and minimization efforts outlined above. No other Proposed Project Build Alternatives would have any direct, indirect, temporary, or permanent impacts on this population.

If it is determined that this population exists as a result of the species' inclusion in a seed mix during planting, then this species would not be considered impacted by the Proposed Project because it would not be considered a naturally occurring population.

4.2.5.4. COMPENSATORY MITIGATION

As Coulter's goldfields is not a federal or state-listed species, and is often included in hydroseed mixes applied to highway margins, the removal of this population is not likely to warrant compensatory mitigation. Should the removal of this population of Coulter's goldfields be necessary due to the selection of the Freeway Tunnel Alternative for the Proposed Project, coordination with CDFW would take place to ensure appropriate mitigation actions are taken.

4.2.5.5. CUMULATIVE IMPACTS

Due to this plant's frequent seeding along highway margins, the cumulative impacts to this subspecies from the removal of this population would be limited. The Proposed Project would not appreciably affect or change current land use patterns in the BSA or substantially modify any existing environmental conditions. Therefore, the Proposed Project would not be likely to substantially contribute to cumulative effects on this species.

4.2.6. Discussion of Southern California Black Walnut

Southern California black walnut is a relatively small deciduous tree in the walnut family (Juglandaceae) that is generally found on hillsides and canyons in the coastal and inland valleys of Southern California (Baldwin 2012). This species blooms from March to August and is usually found at elevations between 64 and 2,953 ft above MSL (CNPS 2013). This species has no federal or state listing status, but has a CRPR of 4.2, indicating that it is uncommon and moderately threatened in California (CNPS 2013). In addition, this tree is protected by the City of Pasadena Trees and Tree Protection Ordinance.

4.2.6.1. SURVEY RESULTS

During 2013 botanical surveys of the entire BSA, a single young Southern California black walnut was observed growing in the understory of a stand of unmaintained Aleppo pine woodland, upslope from the westbound I-210 freeway in the city of Pasadena (Appendix A, Figure 16). The individual was approximately 15 ft tall, with four main stems of about 1 in diameter each, and without fruits or flowers. Other associated species in the vicinity were coast live oak and blackwood.

No other individuals of this species were identified within the BSA. Due to the conspicuous nature of trees such as the Southern California black walnut during botanical surveys, the potential for the species to be present but not observed is low. Therefore, with the exception of the individual described above, the species is considered absent from the BSA.

4.2.6.2. AVOIDANCE AND MINIMIZATION EFFORTS

Should the Freeway Tunnel Alternative be selected, then the following avoidance and minimization efforts for this Southern California black walnut tree would be required:

- The removal and/or disturbance of this individual would be avoided to the greatest extent possible.
- Prior to any construction or ground-disturbing activities, ESA fencing would be placed around the outside of the dripline or trunk of this tree in order to avoid any negative effects on the species. No access or work would be authorized within the fenced area.
- A biologist would monitor construction within the vicinity of this tree for the duration of the time when any ground-disturbing activities in the area take place to ensure that all avoidance and minimization measures are properly constructed and followed.

Southern California black walnut does not have the potential to be impacted by any other Build Alternatives as temporary and permanent impact areas for these alternatives are well outside of the location of this tree. Due to the absence of Southern California black walnut from the remainder of the BSA, no additional avoidance or minimization efforts, beyond what is outlined for the tree above, would be required.

4.2.6.3. PROJECT IMPACTS

Should the Freeway Tunnel Alternative be selected, and encroachment on the tree be avoided through the avoidance and minimization efforts described above, the impacts

to this tree would be considered temporary. Should avoidance of the tree not be possible, the Proposed Project has the potential to have a permanent direct effect on this Southern California black walnut individual through disturbance of the tree. Direct effects are anticipated because of the tree's location approximately 4 ft outside of the permanent and temporary impact zones of the Freeway Tunnel Alternative (both single and dual bore) (Appendix A, Figure 16). Parts of the canopy and root system of this tree likely overlap with the permanent impacts zone. The selection of this alternative would likely result in the impacts to all or part of this individual. At this time, no temporary impacts are anticipated for the tree as a result of the implementation of the Proposed Project. No other Proposed Project Build Alternatives would have any direct, indirect, temporary, or permanent impacts on this population.

The Proposed Project would not directly impact any other known populations of Southern California black walnut due to the absence of the species from the remainder of the BSA, as determined through botanical surveys.

4.2.6.4. COMPENSATORY MITIGATION

Southern California black walnut is not a federal or state-listed species, and because only one individual was determined to be present within the BSA, the impacts to this individual are not likely to warrant compensatory mitigation. Should the removal of this individual Southern California black walnut be necessary due to the selection of the Freeway Tunnel Alternative for the Proposed Project, coordination with CDFW would take place to determine what, if any, appropriate mitigation actions are required, and to ensure that the actions are carried out.

4.2.6.5. CUMULATIVE IMPACTS

Impacts on Southern California black walnut from the Freeway Tunnel Alternative construction activities would be limited to the existing tree discovered during botanical surveys. The contribution to cumulative impacts to this species takes into account the avoidance and minimization efforts described above. The cumulative impacts resulting from the removal of this individual tree would not likely reduce the viability of the local or global population of this species. Therefore, the Proposed Project would not be likely to substantially contribute to cumulative effects on this species.

4.2.7. Discussion of Engelmann Oak

Engelmann oak is an evergreen tree in the oak family (Fagaceae) that is generally found on foothill slopes below 4,265 ft in elevation (Baldwin 2012). It typically blooms between March and June (CNPS 2013). Engelmann oak is known only from the coastal and inland valleys of Southern California south of the Transverse Range, and Baja California (Baldwin 2012). This oak has distinctive dull blue-green leaves with entire or wavy-dentate margins (Baldwin 2012). Engelmann oak has no federal or state listing status, but has a CRPR of 4.2, indicating that it is uncommon and moderately threatened in California (CNPS 2013). In addition, this tree is protected by the City of Pasadena City Trees and Tree Protection Ordinance.

4.2.7.1. SURVEY RESULTS

During 2013 botanical survey of the entire BSA, a single Engelmann oak individual was found within the BSA, in the City of Pasadena (Appendix A, Figure 16). The individual was found along Arroyo Boulevard, just west of the SR 134 overpass, and appears to potentially be a planted street tree, among several coast live oak trees. The tree is approximately 15 ft tall with a 6 in diameter trunk. At the time of survey the tree had many immature acorns forming.

No other individuals of this species were identified within the BSA. Due to the conspicuous nature of trees such as the Engelmann oak during botanical surveys, the potential for the species to be present but not observed is low. Therefore, with the exception of the individual described above, the species is considered absent from the BSA.

4.2.7.2. AVOIDANCE AND MINIMIZATION EFFORTS

Although present within the BSA, this individual Engelmann oak is not located within any impact areas for the Proposed Project. The tree is more than 0.5 mi from the nearest impact area, and no indirect impacts are anticipated. As a result, this individual would not be impacted by the Proposed Project, and no avoidance and minimization efforts would be required.

4.2.7.3. PROJECT IMPACTS

It is not anticipated that the Proposed Project would have any direct, indirect, permanent, or temporary impacts to this Engelmann oak as this tree exists well outside the zones in which Proposed Project construction activities are planned (Appendix A, Figure 16).

4.2.7.4. COMPENSATORY MITIGATION

Unless project impacts extend beyond what is anticipated, no compensatory mitigation for this Engelmann oak would be required as a result of implementation of the Proposed Project.

4.2.7.5. CUMULATIVE IMPACTS

The Proposed Project would not appreciably affect or change current land use patterns in the BSA or substantially modify any existing environmental conditions. The Proposed Project activities would not reduce the viability of the local or global population of this species. Therefore, the Proposed Project would not be likely to contribute incrementally to cumulative effects on this species.

4.2.8. Discussion of Other Special-Status Plants

Other special-status plants with the potential to occur within the BSA include alkali mariposa-lily, California muhly, California satintail, California saw-grass, Davidson's bush-mallow, Davidson's saltscale, Greata's aster, intermediate mariposa-lily, lemon lily, Los Angeles sunflower, many-stemmed dudleya, mesa horkelia, Palmer's mariposa-lily, Parish's brittlescale, Parish's gooseberry, Parry's spineflower, Peirson's lupine, Peruvian dodder, Plummer's mariposa-lily, prostrate vernal pool navarretia, Robbins' nemacladus, Robinson's pepper-grass, rock creek broomrape, round-leaved filaree, San Bernadino aster, San Gabriel bedstraw, San Gabriel linanthus, San Gabriel manzanita, San Gabriel Mountains dudleya, San Gabriel River dudleya, short-joint beavertail, slender mariposa-lily, slender silver moss, Sonoran maiden fern, southern mountains skullcap, southern tarplant, white rabbit-tobacco, and woolly mountain-parsley.

As noted in Chapter 3, suitable habitat for 25 of these species is not present within the BSA: alkali mariposa-lily, California satintail, Davidson's saltscale, intermediate mariposa-lily, lemon lily, many-stemmed dudleya, mesa horkelia, Palmer's mariposa-lily, Parish's brittlescale, Parry's spineflower, Peirson's lupine, Plummer's mariposa-lily, prostrate vernal pool navarretia, Robbins' nemacladus, rock creek broomrape, round-leaved filaree, San Gabriel bedstraw, San Gabriel linanthus, San Gabriel manzanita, San Gabriel Mountains dudleya, San Gabriel River dudleya, short-joint beavertail, slender silver moss, southern mountains skullcap, and woolly mountain-parsley. Therefore, these species are not discussed further here.

The remaining 14 potentially present special-status species with habitat present within the BSA are discussed below.

4.2.8.1. SURVEY RESULTS

Focused botanical surveys during 2013 determined that suitable habitat was present for the following special-status plants: California muhly, California saw-grass, Davidson's bush-mallow, Greata's aster, Los Angeles sunflower, Parish's gooseberry, Peruvian dodder, Robinson's pepper-grass, San Bernadino aster, Santa Barbara morning-glory, slender mariposa-lily, Sonoran maiden fern, southern tarplant, white rabbit-tobacco (Table 14, Potential Special-Status Plant Occurrence Areas by Plant Community Type).

Table 14: Potential Special-Status Plant Occurrence Areas by Plant Community Type

Species	Plant Community Type						
	Riparian	Coast live oak woodland	Laurel sumac scrub	Wetland complex	Non-native grassland	Non-native woodland	Disturbed/ developed
California muhly	N	N	N	Y	N	N	N
California saw-grass	N	N	N	Y	N	N	N
Davidson's bush-mallow	N	Y	Y	N	N	N	N
Greata's aster	Y	Y	N	N	N	N	N
Los Angeles sunflower	N	N	N	Y	N	N	N
Parish's gooseberry	Y	N	N	N	N	N	N
Peruvian dodder	N	N	N	Y	N	N	N
Robinson's pepper-grass	N	N	Y	N	N	N	N
San Bernadino aster	N	N	N	N	Y	N	N
Slender mariposa-lily	N	N	Y	N	N	N	N
Sonoran maiden fern	N	N	N	Y	N	N	N
Southern tarplant	N	N	N	N	Y	N	Y
White rabbit-tobacco	N	N	Y	N	N	N	N

None of these species were found in the BSA during botanical surveys conducted throughout the entire BSA in 2013. Botanical surveys were conducted during the appropriate blooming period for all of these plants with the exception of Parish's gooseberry, Santa Barbara morning-glory, and slender mariposa-lily. Therefore, California muhly, California saw-grass, Davidson's bush-mallow, Greata's aster, Los Angeles sunflower, Peruvian dodder, Robinson's pepper-grass, San Bernardino aster, Santa Barbara morning glory, Sonoran maiden fern, southern tarplant, and white rabbit-tobacco are considered absent from the BSA. Although not likely blooming, Santa Barbara morning-glory has readily identifiable parts aboveground year-round, and it is therefore also considered absent. Parish's gooseberry and slender mariposa-lily are considered potentially present.

4.2.8.2. AVOIDANCE AND MINIMIZATION EFFORTS

No avoidance and minimization efforts are warranted for California muhly, California saw-grass, Davidson's bush-mallow, Greata's aster, Los Angeles sunflower, Peruvian dodder, Robinson's pepper-grass, San Bernardino aster, Sonoran maiden fern, southern tarplant, or white rabbit-tobacco because these species are considered absent from the BSA.

While suitable habitat is present within the BSA for Parish's gooseberry and slender mariposa-lily, these habitats do not fall within any temporary or permanent impact areas for the Proposed Project. As a result, even though these species are potentially present in other areas of the BSA, they would not occur in impact areas. Therefore, no impacts to these species are anticipated, and no avoidance and minimization efforts would be required.

4.2.8.3. PROJECT IMPACTS

The Proposed Project would not have any direct, indirect, permanent, or temporary impacts on any known populations of California muhly, California saw-grass, Davidson's bush-mallow, Greata's aster, Los Angeles sunflower, Peruvian dodder, Robinson's pepper-grass, San Bernardino aster, Sonoran maiden fern, southern tarplant, or white rabbit-tobacco due to the current absence of these species from the BSA, as determined through botanical surveys.

The Proposed Project would not have any direct, indirect, permanent, or temporary impacts on the plant communities that provide suitable habitat for Parish's gooseberry or slender mariposa-lily. Therefore, it is not anticipated that the Proposed Project would have any impacts on these species (Appendix A, Figures 13–16).

4.2.8.4. COMPENSATORY MITIGATION

Unless project impacts extend beyond what is anticipated, no compensatory mitigation for California muhly, California saw-grass, Davidson's bush-mallow, Greata's aster, Los Angeles sunflower, Peruvian dodder, Robinson's pepper-grass, San Bernardino aster, Santa Barbara morning-glory, Sonoran maiden fern, southern tarplant, or white rabbit-tobacco would be required as a result of implementation of the Proposed Project as these species are considered absent from the BSA.

Unless project impacts extend beyond what is anticipated, no compensatory mitigation for Parish's gooseberry or slender mariposa-lily would be required as a result of implementation of the Proposed Project as no impacts are anticipated for suitable habitat within the BSA for these species.

4.2.8.5. CUMULATIVE IMPACTS

California muhly, California saw-grass, Davidson's bush-mallow, Greata's aster, Los Angeles sunflower, Peruvian dodder, Robinson's pepper-grass, San Bernardino aster, Santa Barbara morning-glory, Sonoran maiden fern, southern tarplant, and white rabbit-tobacco were determined to be currently absent from the BSA as a result of botanical surveys; therefore, the Proposed Project would not have a cumulative impact on these species.

As no impacts are planned within areas of suitable habitat for Parish's gooseberry and slender mariposa-lily, the Proposed Project would not have a cumulative impact on these species.

The Proposed Project would not appreciably affect or change current land use patterns in the BSA or substantially modify any existing environmental conditions. Therefore, the Proposed Project would not be likely to contribute incrementally to cumulative effects on these species.

4.3. Special-Status Animal Species Occurrences

A total of 19 of the 71 special-status animal species with the potential to occur within the BSA are federally and/or state listed as endangered or threatened, or proposed/candidate endangered or threatened, or are considered to be a Fully Protected species by the State of California: Palos Verdes blue butterfly, Santa Ana sucker, California red-legged frog, Sierra Madre yellow-legged frog, arroyo toad, American peregrine falcon, California least tern, least Bell's vireo, light-footed clapper rail, southwestern willow flycatcher, coastal California gnatcatcher, western snowy plover, western yellow-billed cuckoo, bank swallow, white-tailed kite, pacific pocket mouse, ring-tailed cat, Townsend's big-eared bat, and Nelson's bighorn sheep.

As described in Chapter 3, suitable habitat for 14 of these species is not present within the BSA: Palos Verdes blue butterfly, Santa Ana sucker, California red-legged frog, Sierra Madre yellow-legged frog, arroyo toad, California least tern, coastal California gnatcatcher, bank swallow, light-footed clapper rail, western snowy plover, white-tailed kite, pacific pocket mouse, ring-tailed cat, and Nelson's bighorn sheep. Therefore, these species are not discussed further. The results of surveys, avoidance, minimization and mitigation measures, project effects, and cumulative effects for the remaining listed wildlife species are discussed in this section. In addition, other special-status wildlife, including bats, burrowing owls, and riparian birds with

potential of occurring in the BSA are discussed in this section. The presence or absence of suitable habitat for these species was identified in the evaluation of the environmental setting (Table 11).

4.3.1. Discussion of American Peregrine Falcon

The American peregrine falcon was listed as endangered pursuant to FESA, but was delisted in 2009 due to its recovered populations. It is currently listed as Fully Protected in California, and is covered under the federal MBTA, as are most native North American birds. The range of the American peregrine falcon extends throughout most of the western United States (NatureServe 2013). It occurs in cliff, shrubland/chaparral, urban/edificarian, conifer woodland, hardwood woodland, mixed woodland, estuarine, bay/sound, herbaceous wetland, lagoon, river mouth/tidal river, and tidal flat/shore habitats (CDFW 2013). American peregrine falcons typically nest on cliff ledges, but other nesting sites can include electricity transmission towers, tall buildings, and bridges (NatureServe 2013). Breeding pairs exhibit high fidelity to nesting sites used previously, and rarely establish new nest sites. Urban nesting locations for American peregrine falcon are typically known to local recreational birdwatchers, and it is not anticipated that unrecorded pairs occur in the BSA.

4.3.1.1. Survey Results

No American peregrine falcons were observed in the BSA during focused bird surveys conducted in 2013. The nearest previously observed nesting location of this species was located at the AT&T building in Pasadena at the northwest corner of E. Colorado Blvd. and S. Marengo Ave. approximately 0.25 mi from the BRT Alternative, 0.8 mile from the LRT Alternative, and 0.35 mile from the Freeway Tunnel Alternative (Pasadena Audubon Society Yahoo Group 2013; Los Angeles Times 2005). This nest site has been used repeatedly for several years. In general, the BSA does contain tall buildings, in downtown Pasadena, that provide additional nesting habitat for American peregrine falcon.

4.3.1.2. Avoidance and Minimization Efforts

Focused avian surveys were conducted to determine what, if any, impacts to American peregrine falcon might result from the Proposed Project. Due to the low probability of the American peregrine falcon nesting in and near the BSA, the lack of any proposed impacts to tall buildings with potential nest sites within the Proposed Project, and habituation of urban nesting American peregrine falcons to noise and human activity, no additional avoidance or minimization efforts were taken or are recommended.

4.3.1.3. PROJECT IMPACTS

While suitable nesting habitat for this species is present, known nesting locations in the region are not located within the BSA, and establishment of new nest sites within the BSA during Proposed Project construction is not anticipated. Any currently available suitable nesting habitat within the BSA is not expected to be affected by Proposed Project construction.

4.3.1.4. COMPENSATORY MITIGATION

Unless project impacts extend beyond what is anticipated, no compensatory mitigation for American peregrine falcon would be required as a result of implementation of the Proposed Project

4.3.1.5. CUMULATIVE IMPACTS

The Proposed Project would not appreciably affect or change current land use patterns in the BSA or substantially modify any existing environmental conditions. Therefore, the Proposed Project would not be likely to contribute incrementally to cumulative effects on this species or its habitat.

4.3.2. Discussion of Special-Status Riparian Bird Species

Riparian obligate birds depend on riparian habitat types, which are a limited resource in California. Three state- and/or federally listed riparian obligate birds, least Bell's vireo, southwestern willow flycatcher, and western yellow-billed cuckoo have the potential to occur, as migrants, in the BSA. Least Bell's vireo and southwestern willow flycatcher are both federally and state-listed as endangered; western yellow-billed cuckoo is listed as a federal candidate and as state endangered. All three species are protected pursuant to the federal MBTA.

Least Bell's vireo is a riparian obligate during the breeding season and is typically associated with early successional riparian habitat that is structurally diverse (Kus 2002). The least Bell's vireo can occupy a range of riparian vegetation types (e.g., cottonwood willow and oak woodland) and vegetation age classes, but is most often associated with a dense understory (Franzreb et al. 1992). The southwestern willow flycatcher requires riparian woodland habitats for all or portions of its life cycle, and during the breeding season is a riparian obligate (Sogge et al. 2010). Southwestern willow flycatcher breeding habitat generally has vegetation that includes dense tree or shrub cover, dense twig structure, and high levels of live green foliage (Sogge et al. 2010). For western yellow-billed cuckoo, habitat criteria includes: large blocks of riparian woodlands (particularly those composed of cottonwoods and willows),

sufficient patch size (10-acre average in California), and presence of low woody vegetation (Halterman et al. 2009).

Two riparian obligate California SSCs also have the potential to be present with the BSA: yellow-breasted chat and yellow warbler.

4.3.2.1. SURVEY RESULTS

A habitat assessment for riparian obligate birds was conducted in March and August 2013, to determine whether suitable habitat for special-status riparian birds was present within the BSA (Appendix F). Two areas of potentially suitable streamside vegetation within the BSA were identified during pedestrian surveys and plant community mapping (Appendix A, Figure 9) and were then the subject of the focused habitat assessment.

Site 1 was located along the Laguna Channel stream adjacent to the eastern edge of I-710 and north of Floral Drive in the City of Alhambra, and the vegetation at Site 1 was classified as Wetland Complex, Non-Native Riparian Woodland, and Giant Reed Semi-Natural Stands. Vegetation at this site was determined to be unsuitable for use by breeding riparian obligate birds, as the riparian woodland was dominated by Mexican fan palm, which does not provide the complex structure or humid microclimate needed by breeding riparian birds. Some arroyo willows were present at this site, but too few (less than 0.1 acres combined cover) to support a breeding territory. The site is not readily accessible to the public, but does contain an unauthorized encampment, informal paths, clearings, and substantial amounts of trash. Site 1 was determined to be suitable for use during the non-breeding season on occasion by riparian obligate birds.

Site 2 was located along the Arroyo Seco drainage, where it is spanned by SR 134 in the northern end of the BSA. Site 2 was comprised of 4.1 acres of contiguous native-dominated vegetation alliances, including stands of Arroyo Willow Thicket, Black Cottonwood Forest, and White Alder Groves. In certain circumstances these vegetation alliances would be suitable for use by breeding riparian birds. At this site, however, the Arroyo Willow Thicket's early successional stage limits its density and structural complexity, thereby limiting its habitat value for riparian birds. All three vegetation alliances abutted a heavily used recreational trail, and are otherwise regularly disturbed by human activity. Due to the limited structural complexity and disturbances from human activity, this area was determined to be unsuitable for use by breeding riparian obligate birds, but suitable for use outside the breeding season.

The CNDDB does not include any records for least Bell's vireo, southwestern willow flycatcher, or yellow-billed cuckoo in or close to the BSA within the past 50 years. The closest 20th century CNDDB record for southwestern willow flycatcher was located 20.8 mi to the northeast of the Proposed Project, and was recorded in 1997. Two records for yellow-breasted chat are reported in the CNDDB, both from 2001. One was in Fullerton, approximately 17 mi southeast of the BSA, and the other was in Irwindale, approximately 6.5 mi west of the BSA.

The CNDDB did not include any records of nesting yellow warblers within Los Angeles County; however, two individual yellow warblers were observed in the course of transect surveys during the focused avian survey. However, these individuals were not observed within the marginally suitable habitat previously identified. As optimal suitable breeding habitat is not present and only minor substandard riparian habitat for breeding exists within the BSA, yellow warbler is not expected to nest within and/or adjacent to the BSA.

While the CNDDB contains few recent records for these birds, eBird, a database aimed at compiling casual observations of all bird species, includes several records of least Bell's vireo, willow flycatcher (records do not identify as southwestern or other subspecies; field differentiation of subspecies is extremely difficult), yellow warbler, and yellow-breasted chat in the area, including locations along approximately 5 miles of the Arroyo Seco both upstream and downstream from the BSA (eBird 2013). These records are closest to Site 2 in the BSA, where the SR 134 crosses the Arroyo Seco. There are no records near Site 1, which is not a recreational area and not accessible to the public. There are no records of yellow-billed cuckoo near the BSA, and only three records within Los Angeles County. Of the five species, only yellow warbler was observed during the habitat assessment or any other surveys, and it was not observed within the available riparian habitat. It is unlikely that least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo, yellow warbler, and/or yellow-breasted chat breed within and/or adjacent to the BSA, although sporadic use outside the breeding season by non-territorial individuals of least Bell's vireo, southwestern willow flycatcher, yellow warbler, and yellow-breasted chat likely does occur.

4.3.2.2. AVOIDANCE AND MINIMIZATION EFFORTS

While habitat suitable for use outside the breeding season is present within the BSA for least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo,

yellow warbler, and/or yellow-breasted chat, no impacts to these areas are planned Therefore, no avoidance and minimization efforts would be required.

4.3.2.3. PROJECT IMPACTS

The Proposed Project would not directly impact any known populations of least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo, yellow warbler, and/or yellow-breasted chat, or habitats known to be used by these species.

The Freeway Tunnel Alternative (single and dual bore) and the LRT Alternative would have indirect temporary impacts on the potential non-breeding habitat provided by the riparian areas through noise, lighting, dust, etc., and therefore have indirect temporary impacts on any sensitive riparian bird species, if present. Direct impacts to sensitive riparian birds, should they use the sites outside the breeding season, are not anticipated because they may leave the vicinity during construction and forage elsewhere.

Site 1 would be subject to indirect impacts, due to the proximity of the LRT Alternative approximately 180 ft from the riparian habitat. Because no suitable nesting habitat was identified at Site 1, this distance is sufficient to ensure that any non-breeding riparian birds occupying the site are not subject to direct impacts.

Site 2 would not be impacted by the Proposed Project because it is located more than 850 ft from the nearest areas of permanent impacts (the Freeway Tunnel Alternative; Appendix A, Figure 16). Site 2 was also identified as unsuitable for breeding use, but suitable for use by non-breeding birds. Because Site 2 is located more than 850 ft from the closest ground-disturbing impacts; no impacts to riparian obligate birds are expected.

Both sites are located near areas of the BSA which are not considered ground-disturbing include lane restriping, installation of temporary signage and other daytime work within the existing highway on existing pavement; these would not create a disturbance level greater than already exists on the SR 134 or I-710, and are not expected to impact riparian birds using these riparian habitats.

4.3.2.4. COMPENSATORY MITIGATION

Unless impacts extend beyond what is anticipated, no compensatory mitigation for least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo, yellow warbler, and/or yellow-breasted chat would be required as a result of

implementation of the Proposed Project as at most, only temporary, indirect impacts on habitat for non-breeding individuals are anticipated.

4.3.2.5. CUMULATIVE IMPACTS

The Proposed Project would not appreciably affect or change current land use patterns in the BSA or substantially modify any existing environmental conditions. Temporary indirect impacts are anticipated, which would contribute to cumulative impacts on a temporary basis. However, because no permanent impacts are anticipated, the Proposed Project would not be likely to contribute substantially to cumulative effects on these species after the completion of construction.

4.3.3. Discussion of Burrowing Owl

The burrowing owl is classified as a California SSC and is covered under the federal MBTA. The burrowing owl is a year-round resident throughout much of Southern California, with an incursion of visitors retreating from higher elevations and more northerly latitudes in the winter months (Garrett and Dunn 1981; Small 1994). In the past, burrowing owls nested in small numbers throughout southern Los Angeles County south of the San Gabriel Mountains, but now are (nearly) extirpated as breeders (CDFW 2012). Burrowing owl habitat can be found in annual and perennial grasslands, deserts, and scrublands characterized by low-growing vegetation and flat to moderate slopes with less than 30 percent canopy cover of trees and shrubs. Burrows are the essential component of burrowing owl habitat. Both natural and artificial burrows provide protection, shelter, and nests for burrowing owls. Burrowing owls typically use burrows made by fossorial mammals, such as ground squirrels or badgers, but also may use manmade structures, such as cement culverts; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement.

4.3.3.1. SURVEY RESULTS

Surveys were conducted in June and July, 2013, to determine whether the burrowing owl is located within, or has the potential to occur within, the Proposed Project site (Appendix F). Habitat within the BSA was assessed for burrowing owl suitability. Three sites included expanses of open low vegetation, and were considered to have the potential to be suitable for burrowing owls. These sites were visited by an avian biologist to evaluate their potential to provide habitat. The habitat assessment resulted in the determination that no suitable burrowing owl habitat is present within the BSA. Although the areas were all open grassy areas with few trees and shrubs, there was no evidence of small mammal burrows or colonies that would provide a suitable prey

base. Further, no burrowing owls, suitable burrows, or burrowing owl signs were observed during surveys. It is unlikely that burrowing owls occur within and adjacent to the BSA. Therefore, burrowing owl is considered absent from the BSA.

4.3.3.2. AVOIDANCE AND MINIMIZATION EFFORTS

A focused burrowing owl habitat assessment was conducted to determine what, if any, impacts to the species might result from the Proposed Project. Due to the absence of suitable habitat for burrowing owl at the Proposed Project site, no additional avoidance or minimization efforts are necessary.

4.3.3.3. PROJECT IMPACTS

The Proposed Project would not directly impact any habitat for, or known populations of, burrowing owl due to the absence of the species from the BSA, as determined through a focused burrowing owl habitat assessment.

4.3.3.4. COMPENSATORY MITIGATION

Unless project impacts extend beyond what is anticipated, no compensatory mitigation for burrowing owl would be required as a result of implementation of the Proposed Project.

4.3.3.5. CUMULATIVE IMPACTS

Burrowing owl was determined absent from the BSA as a result of focused burrowing owl habitat assessment surveys; therefore, the Proposed Project would not have a cumulative impact on burrowing owl. The Proposed Project would not appreciably affect or change current land use patterns in the BSA or substantially modify any existing environmental conditions. Therefore, the Proposed Project would not be likely to contribute incrementally to cumulative effects on this species.

4.3.4. Discussion of Special-Status Bat Species

One potentially present bat species, Townsend's big-eared bat, has recently (June 26, 2013) been listed as a state candidate threatened species. In addition, there are 13 special-status bats with the potential to occur within the BSA (CDFW 2011). Six bats are designated as California SSCs: (1) pallid bat, (2) pocketed free-tailed bat, (3) western mastiff bat (4) western yellow bat, (5) big free-tailed bat, and (6) western red bat. An additional seven bats are designated as California Special Animals due to their local importance: (1) fringed myotis, (2) hoary bat, (3) long-legged myotis (4) silver-haired bat, (5) long-eared myotis, (6) western small-footed myotis, and (7) Yuma myotis. Locally important species are species that are not monitored by the

resource agencies but are monitored by private organizations or local municipal governments such as the Western Bat Working Group. All of these potentially occurring bat species primarily roost in caves, rock crevices, and/or trees (Caltrans 2004). All but the western yellow bat and western red bat have been reported to utilize human developed structures such as bridges and buildings for roosting.

4.3.4.1. SURVEY RESULTS

Focused bat habitat assessment surveys and passive and active night-time acoustic monitoring surveys were conducted in 2013 to determine whether any bat species were roosting on or within, or have the potential to roost on or within, any of the bridges in the BSA proposed for demolition or widening under the TSM/TDM Alternative (Garfield Avenue Bridge), or the Freeway Tunnel Alternative (the other 13 bridges). Habitat at and near the bridge locations was assessed for bat use suitability. Five of the bridges and one nearby foraging area were identified as having characteristics suitable for bat roosting, and passive and active acoustic bat surveys were conducted at these locations to determine bat presence (Appendix G). All five bridges were identified as concrete slab design with drainage holes and crevices at spans and abutments providing marginally suitable roosting habitat. The nearest foraging habitat at the four bridges in the southern portion of the BSA was a golf course approximately 0.25 mi to the southeast. The nearest foraging habitat at the bridge in the northern portion of the BSA was the wetland associated with the Del Mar Pump Station, immediately adjacent to the bridge. In addition, large trees located throughout the entire BSA may provide roosting sites for tree-roosting bat species.

Passive acoustic bat surveys were also conducted at a reference site (a non-impacted bridge that is partly inside and partly outside the BSA) to determine what species may potentially be foraging in the BSA. While bats were detected acoustically near all bridge locations, no evidence of roosting bat use at the bridges was observed. None of the bat species positively identified via acoustic surveys at the bridge locations were special-status species. One California SSC, the western red bat, was detected at the nearby reference site. In addition, bat calls recorded at the bridge locations that were identified to the phonic group level did indicate that the following special-status species may be foraging near the bridges: hoary bat, long-legged myotis, Yuma myotis, pocketed free-tailed bat, and silver-haired bat. Because the surveys did not indicate use of the bridges for roosting, it was determined that the widening and/or demolition of 14 bridges within the Proposed Project area is unlikely to result in substantial adverse impacts to bat species in the area.

4.3.4.2. AVOIDANCE AND MINIMIZATION EFFORTS

Focused bat habitat assessment surveys and passive and active night-time acoustic monitoring surveys were conducted to determine what, if any, impacts to bat species might result from the Proposed Project. Due to the presence of marginally suitable roosting habitat within the Freeway Tunnel and TSM/TDM Alternatives, the following avoidance and minimization efforts should be implemented:

- It is recommended that proposed construction on any bridge structures be scheduled outside of the maternity season. Gestating female bats have a heightened sensitivity to disturbance factors, such as noise and vibration, which would result from bridge construction activities.
- Should the TSM/TDM or Freeway Tunnel Alternative be selected, pre-construction bat surveys would be conducted by a qualified bat biologist prior to ground-disturbing and/or bridge construction activities. The surveys should be conducted at least 30 days prior to the start of project activities and should take place during the maternity season (April–August). If it is determined during the preconstruction bridge surveys that a structure is being used as a bat roost site, work would be avoided within 100 ft of the roost site. No work would take place between 10:00 p.m. and sunrise, and airspace access to the bridge would not be restricted. Lights would not be used under the structure and combustion equipment would not be parked or operated under the structure. A qualified bat biologist would be on site for the duration of construction that may impact bats. If it is determined that the above activities cannot be avoided, bats would be excluded from the bridge using CDFW approved exclusionary devices to the extent necessary to prevent mortality to the colony. Exclusion would take place prior to April 15. Caltrans would confer with the CDFW to identify and implement appropriate avoidance and minimization efforts that are satisfactory to CDFW.

4.3.4.3. PROJECT IMPACTS

The Proposed Project would not directly impact any known bat populations due to the absence of roosting bat detections at the bridges proposed for demolition and/or widening, as determined through focused bat habitat assessment surveys. Should bats begin utilizing any of the bridges, then the Freeway Tunnel Alternative (dual and single bore) and the TSM/TDM Alternative would have the potential to have temporary indirect impacts through the loss of the roosting location. Pre-construction bat surveys would be conducted prior to ground-disturbing activities. Based on these factors, the Freeway Tunnel Alternative (dual and single bore) and the TSM/TDM

Alternative are considered unlikely to affect bats directly or indirectly. While suitable foraging habitat for bats is present, no appreciable amount of habitat would be removed as a result of implementation of any of the Proposed Project Build Alternatives. The implementation of the LRT or Freeway Tunnel Alternatives (dual or single bore) may result in the removal of large trees that may be used by tree-roosting bat species. However, these sites are typically used only by solitary bats at low densities and individual trees are not often used repeatedly by a single bat. Due to the frequent switching of roost trees by tree-roosting bats, it is unlikely that the Proposed Project would have a substantial impact on tree-roosting bats.

4.3.4.4. COMPENSATORY MITIGATION

If it is determined during pre-construction bat surveys that the bridge structures are used as a roost site by bat species, coordination with CDFW would take place. A new roost site, such as a freestanding bat house or bunker, should be constructed to mitigate for the loss of roosting habitat due to bridge construction. It would be recommended that any replacement structures be designed such that the structural features used by bats previously for roosting are retained.

4.3.4.5. CUMULATIVE IMPACTS

The Proposed Project would not appreciably affect or change current land use patterns in the BSA or substantially modify any existing environmental conditions. Unless bat roosts are impacted, the Proposed Project would not likely contribute incrementally to cumulative effects on bat species or their habitat.

4.3.5. Discussion of Other Special-Status and Protected Wildlife Species

In addition to the species discussed above, special-status wildlife species with the potential to occur in the BSA include Busck's gallmoth, monarch butterfly, arroyo chub, Santa Ana speckled dace, coast range newt, western spadefoot, coast horned lizard, coast patch-nosed snake, two-striped garter snake, San Bernardino ring-necked snake, western pond turtle, California legless lizard, rosy boa, coastal whiptail, south coast garter snake, Allen's hummingbird, Costa's hummingbird, Lawrence's goldfinch, Nuttall's woodpecker, oak titmouse, black swift, coastal cactus wren, Cooper's hawk, California horned lark, lark sparrow, loggerhead shrike, long-eared owl, merlin, purple martin, Southern California rufous-crowned sparrow, American badger, lodgepole chipmunk, San Diego black-tailed jackrabbit, San Diego desert woodrat, south coast marsh vole, and southern grasshopper mouse. Migratory birds

protected under the MBTA and birds of prey protected under California Fish and Game Code Sections 3503 and 3503.5 are also expected to occur within the BSA.

As noted in Chapter 3, suitable habitat for 17 of these species is not present within the BSA: Busck's gallmoth, arroyo chub, Santa Ana speckled dace, black swift, coastal cactus wren, California horned lark, lark sparrow, loggerhead shrike, long-eared owl, purple martin, Southern California rufous-crowned sparrow, American badger, lodgepole chipmunk, San Diego black-tailed jackrabbit, San Diego desert woodrat, south coast marsh vole, and southern grasshopper mouse. Therefore, these species are not discussed further here.

The remaining 19 potentially present special-status species with habitat present within the BSA are discussed below.

4.3.5.1. SURVEY RESULTS

Plant community mapping, focused avian surveys, and general reconnaissance surveys in 2013 determined that suitable habitat was present in the BSA for the following special-status wildlife species: monarch butterfly, coast range newt, western spadefoot, coast horned lizard, coast patch-nosed snake, two-striped garter snake, San Bernardino ring-necked snake, western pond turtle, California legless lizard, rosy boa, coastal whiptail, south coast garter snake, Allen's hummingbird, Costa's hummingbird, Lawrence's goldfinch, merlin, Nuttall's woodpecker, oak titmouse, and Cooper's hawk (Table 15, Potential Special-Status Wildlife Occurrence Areas by Plant Community Type). For monarch butterfly, the habitat for winter roosting aggregations was considered marginal because all known monarch wintering sites are located closer to the coast where winter weather is moderated by the oceanic influence (International Environmental Law Project and the Xerces Society 2012). Overnight fall roosts, which occur during migration, could occur in trees within the BSA.

Table 15: Potential Special-Status Wildlife Occurrence Areas by Plant Community Type

Species	Riparian	Coast live oak woodland	Laurel sumac scrub	Wetland complex	Non-native grassland	Non-native woodland	Disturbed/ developed
Monarch butterfly	Y (caterpillar stage)	Y (roosting adults)	Y (roosting adults)	Y (caterpillar stage)	Y (caterpillar stage)	Y (roosting adults)	Y
Coast range newt	Y	Y	N	Y	N	N	N
Western spadefoot	Y	N	Y	Y	Y	N	N
Coast horned lizard	Y	N	Y	N	N	N	N
Coast patch-nosed snake	N	N	Y	N	N	N	N
Two-striped garter snake	Y	N	N	Y	N	N	N
San Bernardino ring-necked snake	Y	Y	Y	N	Y	N	Y
Western pond turtle	Y	N	N	Y	N	N	N
California legless lizard	Y	Y	N	N	N	N	N
Rosy boa	Y	Y	Y	N	N	N	N
Coastal whiptail	Y	Y	Y	N	N	N	N
South coast garter snake	Y	N	N	Y	N	N	N
Allen's hummingbird	Y	Y	Y	Y	Y	Y	Y
Costa's hummingbird	Y	Y	Y	Y	N	Y	Y
Lawrence's goldfinch	Y	Y	Y	Y	Y	Y	N
Merlin	Y	Y	Y	Y	Y	Y	Y
Nuttall's woodpecker	Y	Y	Y	Y	N	Y	Y
Oak titmouse	Y	Y	Y	Y	N	N	Y
Cooper's hawk	Y	Y	Y	Y	Y	Y	Y

Of the special-status wildlife species mentioned above, only the Allen's hummingbird, Nuttall's woodpecker, oak titmouse, and Cooper's hawk were observed within the BSA during 2013 surveys. None of these four species were observed nesting during 2013 surveys.

In addition to the special-status species mentioned above, seven special-status bird species—black-crowned night heron, California gull, double-crested cormorant (*Phalacrocorax auritus*), great blue heron (*Ardea herodias*), great egret (*Ardea alba*),

sharp-shinned hawk (*Accipiter striatus*), and Vaux's swift—were observed within the BSA. The BSA is outside of the nesting/breeding range for black-crowned night heron, California gull, double-crested cormorant, great blue heron, great egret, and Vaux's swift. These occurrences were purely transient in nature and no nesting resources would be used within the BSA by these species. The BSA is within the wintering grounds of sharp-shinned hawk but is well outside of the breeding/nesting grounds; therefore this species is not expected to nest within the BSA.

In addition, two pairs of red-tailed hawks (*Buteo jamaicensis*) exhibited territorial and breeding behavior at two locations within or adjacent to the BSA (Appendix F). One pair, seen repeatedly near the southern end of the BSA, was observed mating and a potential nest location was discovered in a eucalyptus tree approximately 500 ft outside of the BSA. No fledglings were noted at any time in or around the nest despite subsequent visits to this area, so it is assumed that the nesting attempt was not successful. A second pair of red-tailed hawks was repeatedly noted as acting territorial near the Del Mar Pump Station in the northern portion of the BSA (Appendix F), but no nest site was documented. In addition to the species mentioned above, 78 avian species protected under the MBTA were identified within the BSA.

4.3.5.2. AVOIDANCE AND MINIMIZATION EFFORTS

While suitable habitat is present within the BSA for coast horned lizard, coast patch-nosed snake, California legless lizard, rosy boa, and coastal whiptail, the plant communities comprising these habitats do not fall within any temporary or permanent impact areas for the Proposed Project (Table 12). As a result, no impacts to these species are anticipated, and no avoidance and minimization efforts would be required.

In order to avoid negative impacts on winter roosting aggregations of monarch butterfly, and the egg, caterpillar and pupal stages, the following avoidance and minimization measures should be implemented in areas of potentially suitable habitat:

- If eucalyptus trees are to be removed or trimmed between October and March, then preconstruction surveys for winter roosting aggregations of monarchs should be conducted.
- If a winter roosting aggregation is discovered, the area should be flagged and posted with ESA signs. If practicable, activities within this area should be avoided until the aggregation disperses in spring.

- If any mature trees are to be removed or trimmed between September and October, then preconstruction surveys for overnight fall roosts of monarchs should be conducted.
- If an overnight fall roost is discovered, the area should be flagged and posted with ESA signs. If practicable, activities within this area should be avoided until the fall roosting group disperses (during the day).
- Preconstruction surveys for milkweed plants that may support monarch eggs, caterpillars or pupae should be conducted within grassland and riparian areas.
- Any milkweed plants found should be flagged and ESA signs posted. Construction in the area should be avoided and minimized.

In order to avoid negative impacts to coast range newt, western spadefoot, two-striped garter snake, western pond turtle, San Bernadino ring-necked snake, and south coast garter snake, the following avoidance and minimization measures should be implemented in areas of potentially suitable habitat:

- Preconstruction surveys in areas of potentially suitable habitat should be conducted.
- If any individuals of these species are determined to be present during preconstruction surveys, CDFW would be notified, and translocation would be conducted by a qualified biologist.
- The translocation process would be conducted in accordance with the guidelines outlined by CDFW.

In order to avoid negative impacts on Cooper's hawk, Allen's hummingbird, Costa's hummingbird, Lawrence's goldfinch, merlin, Nuttall's woodpecker, oak titmouse, any nesting or breeding birds of prey protected under California Fish and Game Code Sections 3503 and 3503.5, and any other nesting or breeding birds protected under the MBTA, the following avoidance and minimization efforts would be implemented:

- The removal and/or disturbance of trees or suitable roosting shrubbery would be minimized to the greatest extent possible.
- Any activities in which tree or native vegetation trimming or removal may occur would take place outside of the nesting bird season (February 1–August 31), where feasible.
- If avoidance of these activities during this period is not possible, preconstruction surveys by a qualified biologist should be conducted to identify any existing nests or breeding birds within the area scheduled for construction. The survey

should be completed no more than 48 hours prior to the start of project activities. Additional surveys would be conducted if more than three days pass between preconstruction nesting bird surveys and the start of construction.

- If breeding/nesting birds are located within 300 ft of the limits of disturbance, a buffer shall be flagged around the nest and ESA signs posted. Any work within 300 ft of the flagged area would require a biologist to monitor the birds and ensure that the construction activities do not negatively impact the birds.
- If the biologist identifies signs of stress, the biologist would halt activities in the immediate area until the birds resume their normal behavior or until the nest has been determined to be no longer active. This intervention would provide adequate protection to native nesting bird species under the MBTA and the California Fish and Game Code.
- Should breeding/nesting birds of prey be located within the area scheduled for construction, the buffer shall be extended to 500 ft as birds of prey are typically more sensitive to disturbance.
- The construction buffer limits may be modified at the discretion of a qualified biologist familiar with the specific circumstances of the situation. Coordination with CDFW would be conducted to confirm appropriate buffers and determine when it is safe to remove the buffers. If there are no breeding/nesting birds, no further action is necessary.

In addition to the avoidance and minimization measures described above, care should be taken to avoid impacts on any bridge and crevice nesting birds (i.e., swifts and swallows) that may be utilizing any of the 14 bridges proposed for widening and/or demolition under the Freeway Tunnel Alternative:

- To avoid project impacts to these birds, construction on bridges would occur outside of the nesting season, where feasible.
- Should bridge construction be required during nesting season, a qualified biologist would be required to inspect the bridge prior to February 1 and be present during bird nest removal.
- Unoccupied nests should be removed prior to the colony returning to the nesting site to begin nesting. During the period of time between nest removal and the start of bridge construction, bridges should be checked often and nests that are under construction should be removed. Nest removal would be monitored by a qualified biologist throughout the duration of construction. These efforts would be continued until September or until the completion of construction in order to keep the structures free of nesting birds.

4.3.5.3. PROJECT IMPACTS

The Proposed Project would not have any direct, indirect, permanent, or temporary impacts on any potentially suitable habitat for coast horned lizard, coast patch-nosed snake, California legless lizard, rosy boa, and coastal whiptail (Appendix A, Figures 13–16). Therefore, it is not anticipated that the Proposed Project would have any impact on these species.

For monarch butterfly adults, the LRT and Freeway Tunnel Alternatives would have permanent and/or temporary impacts on non-native woodlands which may contain eucalyptus trees with winter roosting aggregations of monarch butterflies (Table 12). For monarch butterfly eggs, caterpillars, and pupae, all of the proposed alternatives would permanently and/or temporarily impact the wetland complex and/or non-native grasslands that may support milkweed plants that are required by these life stages (Table 12). Avoidance and minimization efforts outlined above minimize, but not completely eliminate, direct and permanent impacts to this species. The selection of the LRT Alternative or the Freeway Tunnel Alternative (dual or single bore) would result in indirect temporary impacts to these species as a result of habitat loss through the loss of eucalyptus trees.

Should the Freeway Tunnel Alternative be selected (dual or single bore), the Proposed Project would permanently impact the wetland complex community at the Del Mar Pump Station, which is suitable habitat for coast range newt, western spadefoot, two-striped garter snake, western pond turtle, and south coast garter snake (Table 12). The impacts planned within the wetland complex community in this area are direct and permanent. Avoidance and minimization efforts outlined above would prevent any direct and permanent impacts to these species. The selection of the Freeway Tunnel Alternative would result in indirect temporary impacts to these species as a result of habitat loss.

The Freeway Tunnel Alternative (dual or single bore), LRT Alternative, and TSM/TDM Alternative would have permanent and temporary impacts on the non-native grassland community (Table 12). The BRT Alternative would have permanent impacts on the non-native grassland community (Table 12). The non-native grassland community is suitable habitat for western spadefoot and San Bernadino ring-necked snake. The impacts planned within this community are direct. Avoidance and minimization efforts outlined above would prevent any direct and permanent impacts to these species. The selection of any of the Proposed Project Build Alternatives would result in indirect temporary impacts to these species as a result of habitat loss.

All of the Proposed Project Build Alternatives would permanently and temporarily impact the disturbed/developed community, which may contain suitable habitat for the San Bernadino ring-necked snake (Table 12). The impacts planned within this community are direct. Avoidance and minimization efforts outlined above would prevent any direct and permanent impacts to this species. The selection of any of the Proposed Project Build Alternatives would result in indirect temporary impacts to this species as a result of habitat loss.

Although Cooper's hawk, Allen's hummingbird, oak titmouse, Nuttall's woodpecker, and other bird species protected under the MBTA were observed in the BSA, they are not expected to remain in the area during construction. As a result of this, and the avoidance and minimization measures outlined above, the Proposed Project is not expected to have direct or permanent impacts on these species. Indirect and temporary effects on these species may include loss of nesting habitat through tree and native vegetation removal. However, nearby suitable nesting habitat just outside the BSA is present for these species, and the Proposed Project would not result in any major nesting habitat changes in the region.

4.3.5.4. COMPENSATORY MITIGATION

Unless project impacts extend beyond what is anticipated, no compensatory mitigation for coast horned lizard, coast patch-nosed snake, California legless lizard, rosy boa, or coastal whiptail would be required as a result of implementation of the Proposed Project as no impacts are anticipated for suitable habitat within the BSA for these species.

Due to the avoidance and minimization measures outlined above, the Proposed Project is not anticipated to affect monarch butterfly, coast range newt, western spadefoot, San Bernadino ring-necked snake, two-striped garter snake, western pond turtle, south coast garter snake, Cooper's hawk, Allen's hummingbird, Costa's hummingbird, Lawrence's goldfinch, merlin, Nuttall's woodpecker, oak titmouse, any nesting or breeding birds of prey protected under California Fish and Game Code Sections 3503 and 3503.5, or any other nesting or breeding birds protected under MBTA. Therefore, specific compensatory mitigation for these species is not warranted.

4.3.5.5. CUMULATIVE IMPACTS

As no impacts are planned within areas of suitable habitat for coast horned lizard, coast patch-nosed snake, California legless lizard, rosy boa, and coastal whiptail, the Proposed Project would not have a cumulative impact on these species.

Suitable habitat for monarch butterfly, coast range newt, western spadefoot, two-striped garter snake, western pond turtle, south coast garter snake, San Bernadino ring-necked snake, Cooper's hawk, Allen's hummingbird, Costa's hummingbird, Lawrence's goldfinch, merlin, Nuttall's woodpecker, oak titmouse, any nesting or breeding birds of prey protected under California Fish and Game Code Sections 3503 and 3503.5 (e.g., red-tailed hawk), and any other nesting or breeding birds protected under the MBTA has the potential to be impacted by the Proposed Project. Therefore, the Proposed Project is expected to have a cumulative impact on these species due to loss of habitat. The contribution of cumulative impacts to these species takes into account the avoidance and minimization efforts described above.

Chapter 5. Results: Permits and Technical Studies for Special Laws or Conditions

5.1. Federal Endangered Species Act Consultation Summary

Under provisions of Section 7(a)(2) of FESA, a federal agency that permits, licenses, funds, or otherwise authorizes a project activity must consult with USFWS to ensure that its actions would not jeopardize the continued existance of any listed species or destroy or adversely modify critical habitat. This NES provides details on the Proposed Project's impacts to federally listed plants and wildlife. Formal Section 7 consultation is not anticipated to be required, because adverse effects to listed species are not anticipated.

Although no federally listed or candidate specie were observed, habitat suitable for non-breeding use by least Bell's vireo, southwestern willow flycatcher, and western yellow-billed cuckoo was determined to be present within the BSA approximately 170 ft from the nearest planned ground-disturbing activities.

While impacts to the species and habitats are not anticipated, informal consultation with USFWS is an optional means to confirm that implementation of the Proposed Project would not adversely affect these species if they use the site outside the breeding season. No FESA consultation with USFWS has been initiated to date.

5.2. California Endangered Species Act Consultation Summary

The CESA protects plant and animal species listed as threatened or endangered, and candidates for listing. Take of listed and candidate species is authorized by CDFW through the provisions of Sections 2081 and 2081.1 of the California Fish and Game Code. No impacts to listed or candidate species are anticipated to result from the implementation of the Proposed Project.

Although no state listed or candidate species were observed, habitat suitable for non-breeding use by least Bell's vireo, southwestern willow flycatcher, and western yellow-billed cuckoo was determined to be present within the BSA approximately

170 ft from the nearest planned ground-disturbing activities. While no impacts to the species and habitats are anticipated, outreach to CDFW is an optional means to confirm that implementation of the Proposed Project would not result in impacts to these species if they use the site outside the breeding season. Formal consultation with CDFW pursuant to Section 2081 of the California Fish and Game Code, and request of authorization for an Incidental Take Permit is not expected to be required. No CESA consultation with CDFW has been initiated to date.

5.3. Wetlands and Other Waters Coordination Summary

The information presented in this section includes the results of a literature review and field verification surveys conducted by Sapphos Environmental, Inc. An evaluation of the potential jurisdictional status of resources identified during the study is presented, but should not be considered final until concurrence is obtained by the agencies with jurisdiction over the resources, including Corps, CDFW, and the RWQCB. Methods and results of the jurisdictional delineation are provided in Sections 2.2.5 and 3.1.3.4 of this report and in the jurisdictional delineation reports (Appendix I and Appendix J).

The Proposed Project has been refined to avoid and minimize impacts to wetlands and other waters. Specifically, the Freeway Tunnel Dual-Bore and Single-Bore Alternatives have minimized impacts to the northernmost section of the Laguna Channel, near the tunnel portal (Feature 11-A in Table 9). Additional segments of the Laguna Channel (Features 11-C and 11-E in Table 9) have been completely eliminated from the impact areas.

Impacts to potentially jurisdictional features were evaluated for each proposed alternative (Appendix A, Figures 17–18). Neither the TSM/TDM Alternative nor the BRT Alternative would impact any drainage features of any type, including ditches draining upland areas, so figures were not created for these Alternatives.

5.3.1. Corps Jurisdiction

In the BSA, a total of 4.43 acres of non-wetland waters (streams) and 0.44 acre of wetland waters potentially subject to Corps jurisdiction were identified. No other wetland or non-wetland waters believed to be subject to Corps jurisdiction were identified within the BSA. Other features present, which included ditches, detention

basins, and one wetland, were wholly excavated in uplands and/or not connected to waters of the U.S., and therefore not subject to Corps jurisdiction.

Of the potentially jurisdictional features identified within the BSA, only the Laguna Channel stream channel would be impacted by any of the proposed alternatives. The TSM/TDM, BRT and LRT Alternatives would have no anticipated impacts to Corps jurisdictional waters, and the Freeway Tunnel Alternatives (both single and dual bore) would have both permanent and temporary impacts (Table 16, Corps Jurisdictional Impacts by Alternative; Appendix A, Figures 17, 18, and 19).

Table 16: Corps Jurisdictional Impacts by Alternative

Alternative and Option	Acres of Impacts					
	Non-wetland Waters			Wetland Waters		
	Perm	Temp	Total	Perm	Temp	Total
TSM/TDM	0	0	0	0	0	0
BRT	0	0	0	0	0	0
LRT	0	0	0	0	0	0
Freeway Tunnel, Single-Bore	0.06	0.02	0.08	0	0	0
Freeway Tunnel, Dual-Bore	0.51	0.22	0.73	0	0	0

Should the Freeway Tunnel Alternative be selected, a Dredge and Fill permit from the Corps would be required prior to the initiation of ground-disturbing activities. Because the Freeway Tunnel Alternative (dual bore) impacts exceed the 0.5-acre maximum loss of non-tidal waters of the U.S. allowed under the Nationwide Permit No. 14, an Individual Permit would be required if this Alternative were selected. Refinement of the Freeway Tunnel Alternative design to reduce permanent impacts to less than 0.5 acre, and/or consideration by the Corps of some of the impact locations as separate and distant may make the Proposed Project eligible for the Nationwide Permit No. 14. The impacts discussed here presume that the impact would result in the loss of the impacted jurisdictional waters.

Avoidance, minimization, and mitigation measures specified in the Dredge and Fill permit would have the effect of minimizing project impacts to drainages and habitats subject to Corps jurisdiction. For streams, compensatory mitigation at a minimum of

a one-to-one ratio would be required to meet the "no net loss" national goal, and is acceptable only after all practicable avoidance and minimization has been carried out (U.S. Army Corps of Engineers and U.S. Environmental Protection Agency 2008). Compensatory mitigation may include (1) restoration of previously-existing waters, (2) enhancement of the functions of existing waters, (3) establishment of new waters, or (4) preservation of existing aquatic sites. Mitigation may include participation in an in-lieu fee program or mitigation bank approved by the Corps. The Corps has established monitoring requirements for compensatory mitigation of these types (Corps 2008a).

5.3.2. CDFW Jurisdiction

Areas potentially subject to CDFW jurisdiction within the BSA totaled 9.78 acres, comprised of 4.43 acres of non-wetland waters (streams), 0.44 acres of wetlands, and 4.91 acres of non-wetland riparian vegetation. All of the areas satisfying the Corps jurisdictional criteria for waters of the United States and adjacent wetlands, as described above, would also be subject to CDFW jurisdiction pursuant to Section 1602 of the California Fish and Game Code. In addition to those areas under Corps jurisdiction, 4.91 acres of riparian vegetation associated with the Arroyo Seco and Laguna Channel, may be subject to CDFW jurisdiction. Of these agencies, only CDFW asserts jurisdiction over riparian habitats above the high water mark.

Impacts to drainages and habitats potentially subject to CDFW jurisdiction varied among the Build Alternatives, with the TSM/TDM, BRT and LRT Alternatives having no anticipated impacts, and Freeway Tunnel Alternative (both single bore and dual bore options) having both permanent and temporary impacts (Table 17, CDFW Jurisdictional Impacts by Alternative; Appendix A, Figures 17, 18, and 19).

Table 17: CDFW Jurisdictional Impacts by Alternative

Alternative and Option	Acres of Impacts						
	Non-wetland Waters			Wetland Waters			Riparian Habitats
	Perm	Temp	Total	Perm	Temp	Total	
TSM/TDM	0	0	0	0	0	0	0
BRT	0	0	0	0	0	0	0
LRT	0	0	0	0	0	0	0
Freeway Tunnel, Single-Bore	0.06	0.02	0.08	0	0	0	0
Freeway Tunnel, Dual-Bore	0.51	0.22	0.73	0	0	0	0

Should the Freeway Tunnel Alternative be selected, an SAA with CDFW would be required for project implementation. Avoidance, minimization, and mitigation measures specified in the SAA would have the effect of minimizing project impacts to drainages and habitats subject to CDFW jurisdiction. Mitigation for project impacts at a ratio greater than one-to-one is typically a condition of SAA agreements.

5.3.3. RWQCB Jurisdiction

The RWQCB jurisdictional areas in the BSA totaled 4.87 acres, comprised of 4.43 acres of non-wetland waters and 0.44 acres of wetland waters. The RWQCB typically asserts jurisdiction over the same waters as the Corps, along with some waters that do not drain into waters of the United States, but which would otherwise meet Corps criteria. Unlike CDFW, the RWQCB does not typically assert jurisdiction over non-wetland riparian habitats. For the Proposed Project, the areas subject to RWQCB jurisdiction would thus include all areas of Corps jurisdiction.

Impacts to waters potentially subject to RWQCB jurisdiction varied among the Build Alternatives, with the TSM/TDM, BRT and LRT Alternatives having no anticipated impacts, and the Freeway Tunnel Alternatives (both single bore and dual bore options) having both permanent and temporary impacts (Table 18, RWQCB Jurisdictional Impacts by Alternative; Appendix A, Figures 17, 18, and 19). Only the Laguna Channel (non-wetland waters) would be impacted by any of the proposed alternatives.

Table 18: RWQCB Jurisdictional Impacts by Alternative

Alternative and Option	Acres of Impacts					
	Non-wetland Waters			Wetland Waters		
	Perm	Temp	Total	Perm	Temp	Total
TSM/TDM	0	0	0	0	0	0
BRT	0	0	0	0	0	0
LRT	0	0	0	0	0	0
Freeway Tunnel, Single-Bore	0.06	0.02	0.08	0	0	0
Freeway Tunnel, Dual-Bore	0.51	0.22	0.73	0	0	0

Should the Freeway Tunnel Alternative be selected, the Proposed Project would require a Section 401 Water Quality Certification from RWQCB. The certification ensures that that proposed activity does not violate state or federal water quality standards, which would have the effect of minimizing project impacts to areas subject to RWQCB jurisdiction. Compensatory mitigation would be required to offset impacts to RWQCB jurisdictional waters. RWQCB has published preliminary draft compensatory mitigation requirements to ensure achievement of the RWQCB's no net loss and long-term net gain policy for aquatic resources (State Water Resources Control Board 2013). Mitigation ratios would be determined by RWQCB on a project-specific basis, with a minimum one-to-one ratio plus a buffer to ensure the ecological sustainability of the mitigation.

5.4. Invasive Species

Exotic plant species are present throughout the BSA and are primarily found within the Freeway Tunnel Alternative. A total of 81 exotic plant species, subspecies, and/or varieties occurring on the Cal-IPC California Invasive Plant Inventory and/or Watchlist were identified within the BSA (Appendix E). Of these species, there are 13 with an overall high rating, 30 with a moderate rating, 26 with a limited rating, and 12 that have been evaluated but not listed. Invasive species that have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure, and have reproductive biology and other attributes that are conducive to moderate to high rates of dispersal and establishment are given a "high" rating (Cal-IPC 2013). Species with a high rating identified within the BSA were (1)

giant reed, (2) red brome (*Bromus madritensis* ssp. *rubens*), (3) hottentot fig, (4) spotted knapweed (*Centaurea maculosa*), (5) purple pampas grass (*Cortaderia jubata*), (6) Uruguayan pampas grass (*C. selloana*), (7) cape ivy, (8) sweet fennel (*Foeniculum vulgare*), (9) Himalayan blackberry (*Rubus armeniacus*), (10) saltcedar (*Tamarix ramosissima*), (11) scotch broom (*Cytisus scoparius*), (12) Algerian ivy (*Hedera helix*), and (13) Uruguay water primrose (*Ludwigia hexapetala*).

In compliance with EO 13112, all feasible and prudent measures to prevent the introduction and spread of invasive species as a consequence of the Proposed Project would be implemented. Because many highly invasive species are already present throughout the BSA, efforts to minimize their spread and to reduce populations of those present may be most appropriate for the Proposed Project. Continued introductions of new and existing species are expected due to the high vehicular use (from seeds carried in tires and auto bodies) and residential activities (i.e., escape from gardens) within the BSA. Examples of best management practices (BMPs) that may be appropriate include the following:

- Revegetation would occur as soon as practical after disturbances. To prevent the spread of weeds in the Proposed Project site, weed-free products would be exclusively used for all activities including, but not limited to, landscaping materials and soil erosion materials (i.e., mulch, soil mats, straw fencing, or wattles).
- Any disturbance areas within the Proposed Project site not containing existing infestations of exotic plants would be monitored quarterly for one year post-construction to ensure that the establishment of invasive plants in the area has not occurred. If evidence of invasive plant establishment is found, weed control measures would be implemented immediately.
- Pre-construction surveys would be conducted to identify populations of invasive weeds with the potential to be encouraged by construction activities such as exposure or tilling of bare ground, disturbance of adjacent habitats that are not highly invaded, or enhanced distribution of pollen or seeds. Such populations would be controlled by mechanical or chemical means prior to construction.

5.5. Migratory Bird Treaty Act

The Proposed Project has the potential to impact breeding/nesting birds protected pursuant to the MBTA. The removal and/or trimming of trees and vegetation as a result of Proposed Project activities may impact nesting birds within Proposed Project

impact areas. As a result of these potential impacts, the following avoidance and minimization efforts would be implemented:

- The removal and/or disturbance of trees or suitable roosting shrubbery would be minimized to the greatest extent possible.
- Wherever possible, vegetation would be trimmed and/or removed outside of the core nesting period (February 1 through August 31).
- If avoidance of these activities during this period is not possible, preconstruction surveys by a qualified biologist would be conducted to identify any existing nests or breeding birds within the area scheduled for construction. The survey should be completed no more than 48 hours prior to the start of project activities. Additional surveys would be conducted if more than three days pass between preconstruction nesting bird surveys and the start of construction.
- If breeding/nesting birds are located within 300 ft of the limits of disturbance, a buffer shall be flagged around the nest and ESA signs posted. Any work within 300 ft of the flagged area would require a biologist to monitor the birds and ensure that the construction activities do not negatively impact the birds.
- If the biologist identifies signs of stress, the biologist would halt activities in the immediate area until the birds resume their normal behavior or until the nest has been determined to be no longer active.
- This intervention would provide adequate protection to native nesting bird species under the MBTA and the California Fish and Game Code.
- Should breeding/nesting birds of prey be located within the area scheduled for construction, the buffer shall be extended to 500 ft as birds of prey are typically more sensitive to disturbance.
- The construction buffer limits may be modified at the discretion of a qualified biologist familiar with the specific circumstances of the situation. Coordination with CDFW would be conducted to confirm appropriate buffers and determine when it is safe to remove the buffers. If there are no breeding/nesting birds, no further action is necessary.

Care should be taken to avoid impacts on any bridge and crevice nesting birds (i.e., swifts and swallows) that may be utilizing any bridges proposed for widening and/or demolition under the Freeway Tunnel Alternative and/or TSM/TDM Alternative. To avoid project impacts to these birds, the following avoidance and minimization efforts are suggested:

- Construction on bridges would occur outside of the nesting season, where feasible.
- Should bridge construction be required during nesting season, a qualified biologist would be required to inspect the bridge prior to February 1 and be present during bird nest removal.
- Unoccupied nests should be removed prior to the colony returning to the nesting site to begin nesting. During the period of time between nest removal and the start of bridge construction, bridges should be checked often and nests that are under construction should be removed. Nest removal would be monitored by a qualified biologist throughout the duration of construction. These efforts would be continued until September or until the completion of construction in order to keep the structures free of nesting birds.

5.6. Los Angeles County Oak Tree Ordinance and City Tree Ordinances Coordination Summary

In accordance with the Los Angeles County Oak Tree Ordinance, any project work that occurs in unincorporated Los Angeles County, within 5 feet of a protected oak tree's dripline, whose diameter is at least 8 in at 4.5 ft above natural grade, or a multi-trunk with a combined diameter of 12 in, or 15 ft from the trunk of the oak, whichever distance is greater, constitutes an impact to the oak tree. Additional trees within the Proposed Project area not covered under the Los Angeles County Oak Tree Ordinance are protected under individual city ordinances, which have different specifications with regards to the species and diameter requirements of protected trees.

Of the 5,459 trees identified within the survey area for all Proposed Project Build Alternatives during tree surveys, 270 were identified to have the potential to be permanently or temporarily impacted by construction. Of these protected trees with the potential to be impacted by construction, 85 are within the Caltrans ROW and 200 are subject to local city ordinances. The 185 trees outside of the Caltrans ROW are primarily located within the Cities of Pasadena and South Pasadena (Appendix A, Figures 19.1–19.7, Freeway Tunnel Alternative Impacts to Protected Trees; Figures 20.1–20.5, BRT Alternative Impacts to Protected Trees; and Figures 21.1–21.6, LRT Alternative Impacts to Protected Trees). Impacts to trees potentially subject to tree ordinance protection varied among the Build Alternatives, with the TSM/TDM Alternative having no anticipated impacts, the BRT having permanent impacts, and the LRT and Freeway Tunnel Alternatives (both single and dual bore) having both

permanent and temporary impacts (Table 19, Impacts to Protected Trees by Alternative). Although the Proposed Project BSA falls into the Cities of Alhambra, Monterey Park, San Marino, Rosemead, and San Gabriel, no protected trees with the potential to be impacted outside of the Caltrans ROW were identified in these cities.

Table 19: Impacts to Protected Trees by Alternative

Number of Protected Trees by Jurisdiction	TSM/TDM		BRT		LRT		Freeway Tunnel Alternative Single Bore		Freeway Tunnel Alternative Dual Bore	
	Perm.	Temp.	Perm.	Temp.	Perm.	Temp.	Perm.	Temp.	Perm.	Temp.
Caltrans Right-of-Way	0	0	0	0	4	8	73	0	73*	0
Pasadena	0	0	73	0	0	0	11	36	11*	36*
South Pasadena	0	0	63	0	15	0	0	0	0	0
Unincorporated Los Angeles County	0	0	0	0	2	0	0	0	0	0
Total Trees	**0**	**0**	**136**	**0**	**21**	**8**	**84**	**36**	**84**	**36**

*****These trees are the same trees impacted by the Freeway Tunnel Alternative Single Bore and do not represent additional impacted trees for this alternative.

Tree removal within Caltrans right-of-way is exempt from local regulations. Caltrans has extensive mitigation in place for the replacement of oak trees that are to be removed due to Proposed Project construction. Replacement of oaks, except California scrub oaks (Quercus berberidifolia) with trunk sizes above 8 inches diameter at breast height will be replaced at a mitigation ration of 3:1, if possible. Heritage oaks (DBH greater than 36 inches) will be replaced at a mitigation-to-impact ratio of 10:1, if possible. If regulatory permits are obtained, which also include requirements for native tree replacement, the Proposed Project would be required to adhere to all permit conditions and requirements.

In order to avoid and minimize the potential impact to oak trees located outside of Caltrans right-of-way but within the Proposed Project impact areas, ESA fencing should be placed around the dripline or trunk of protected oak trees within and adjacent to the limits of disturbance such that no work shall occur within the protected area, regardless of the alternative selected. This would provide full avoidance of direct impacts to oak trees protected by the Los Angeles County Oak Tree Ordinance and/or any other applicable city tree ordinance.

If this is unfeasible because work cannot be avoided within the protected zone, an Oak Tree Permit shall be obtained from the County Forester and Fire Warden for each impacted oak tree in unincorporated Los Angeles County. If the impacted tree is located outside of unincorporated Los Angeles County, such as in the City of Pasadena or the City of South Pasadena, applicable government action per appropriate city shall be taken (i.e. obtain a city permit, gain prior city official approval, etc.).

Compensatory mitigation for impacted protected trees may be required at the discretion of the agency with jurisdiction over each impacted tree. The compensatory mitigation would vary by jurisdiction. Compensatory mitigation for protected trees in the jurisdiction of Los Angeles County may include replacement at a 3:1 ratio for trees with a DBH of 8 inches or more at an appropriate mitigation site, and replacement at a 10:1 ratio for heritage oaks. Monitoring for at least one year would be required to meet success criteria.

Chapter 6. References

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