California High-Speed Rail Authority

Burbank to Los Angeles Project Section

Biological and Aquatic Resources Technical Report

May 2020

CALIFORNIA
High-Speed Rail Authority

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being or have been carried out by the State of California pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated July 23, 2019, and executed by the Federal Railroad Administration and the State of California.

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TABLE OF CONTENTS

Tables

Figures

Appendices

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ACRONYMS AND ABBREVIATIONS

Amtrak	National Railroad Passenger Corporation
Authority	California High-Speed Rail Authority
BMPs	best management practices
Cal. Code Regs	California Code of Regulations
C.F.R	Code of Federal Regulations
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CMF	Metrolink Central Maintenance Facility
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
EIR	environmental impact report
EIR/EIS	environmental impact report/environmental impact statement
EIS	environmental impact statement
ESA	environmentally sensitive area
Fed. Reg.	*Federal Register*
FESA	Federal Endangered Species Act
FRA	Federal Railroad Administration
GIS	geographic information system
HMF	heavy maintenance facility
HSR	high-speed rail
I	Interstate
IAMF	impact avoidance and minimization feature
LAUS	Los Angeles Union Station
Link US	Link Union Station (Metro)
LMF	light maintenance facility
MBTA	Migratory Bird Treaty Act
Metro	Los Angeles County Metropolitan Transportation Authority
MOIF	maintenance of infrastructure facility
MOIS	maintenance of infrastructure siding facility
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System

NPS	National Park Service
NRC	National Research Council
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OCS	overhead catenary system
OHWM	ordinary high water mark
PTC	Positive Train Control
RSA	Resource Study Area
RWQCB	Regional Water Quality Control Board
SAA	Supplemental Alternatives Analysis
SSC	Species of Special Concern
SEA	Significant Ecological Area
SR	State Route
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TPSS	traction power substation
U.S.C.	United States Code
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

EXECUTIVE SUMMARY

This Biological and Aquatic Resources Technical Report, prepared for the Burbank to Los Angeles Project Section of the California High-Speed Rail (HSR) System, provides a detailed description of biological and aquatic resources, including wetlands, potentially affected by the project. This report has been prepared to support documentation for compliance with the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), the Federal Endangered Species Act (FESA), the California Endangered Species Act (CESA), and other regulations that pertain to biological and aquatic resources.

The Burbank to Los Angeles Project Section is approximately 14 miles in length and passes through an urban landscape within an existing railroad corridor. The starting and ending points of the project section include the proposed Burbank Airport Station in the north and the existing Los Angeles Union Station in the south. The analysis of biological and aquatic resources within the project section is limited to the resource study area (RSA), which is further subdivided into the Botanical RSA (project footprint plus 100 feet), the Aquatic RSA (project footprint plus 250 feet), the Wildlife RSA (project footprint plus 1,000 feet), and the Supplemental Habitat Study Area (project footprint plus 3 miles).

Of the 28 special-status plant species identified in the literature review, only one (i.e., southern tarplant [*Centromadia parryi* ssp. *australis*]), which is not federally or state-listed but has a California Rare Plant Rank of 1B.1, has at least a low potential of occurring in the Botanical RSA. The remaining 27 special-status plant species, including seven that are federally or state-listed, are not expected to occur within the Botanical RSA because existing habitat conditions are unsuitable or completely absent.

More than 75 special-status wildlife species were initially evaluated for their potential to occur within the Wildlife RSA. Most of these species were ruled out because of the lack of suitable habitat, conversion of natural areas by human development, and local or regional extirpations, or because the RSA lies outside these species' known geographic range. The remaining 32 special-status wildlife species, which are considered in this report, consist of two fish species, six reptile species, 14 bird species, and 10 mammal species. Of the species evaluated, eight are federally or state-listed species or fully protected species, including a total of four species for which critical habitat has been federally designated or proposed.

Within the Wildlife RSA, suitable habitat is present for nesting birds that are protected by one or more of the following: the Migratory Bird Treaty Act, California Fish and Game Code, CESA, and FESA.

Designated critical habitat for listed species is not present within the Wildlife RSA. Wildlife movement may occur within the Los Angeles River and associated tributaries as well as through the urban landscape in which the RSA is located. Avoidance and minimization measures have been identified and would be implemented in order to minimize, reduce, and/or avoid impacts to biological resources.

Aquatic resources (lakes, rivers, tributaries, and wetlands, etc.) are present in the RSA. These resources are subject to federal jurisdiction as "waters of the United States" under the Clean Water Act (CWA); Waters of the State under the California Water Code (Porter-Cologne Water Quality Control Act); and "Lake & Streambed" jurisdiction under the California Fish and Game Code. Accordingly, aquatic resources may be regulated by the U.S. Army Corps of Engineers (USACE) under Section 404 of the CWA, the State Water Resources Control Board (SWRCB) under Section 401 of the CWA and under the California Water Code, and the California Department of Fish and Wildlife (CDFW) under Section 1600 et. seq. of the California Fish and Game Code. Within the Aquatic RSA, jurisdictional waters are present in the Los Angeles River and associated tributaries, including the Burbank Western Channel, Lockheed Channel, Verdugo Wash, and Arroyo Seco.

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1 INTRODUCTION

The purpose of this Biological and Aquatic Resources Technical Report is to provide a detailed technical description of the biological and aquatic resources analysis conducted for the Burbank to Los Angeles Project Section of the California HSR System. This report includes the following:

- A brief description of the project and the alternatives under study
- A discussion of the statutes and regulations pertinent to biological and aquatic resources
- A description of the analytical methodologies and assumptions used for this study
- A description of the existing conditions, including biological and aquatic resources in the study area
- A discussion of the results of the surveys and analyses
- An analysis of the project's potential adverse and beneficial effects to biological and aquatic resources
- A summary of impact avoidance and minimization features

The greater purpose of this report is to provide information for the environmental impact analysis in the *Burbank to Los Angeles Project Section Environmental Impact Report/Environmental Impact Statement* (EIR/EIS). The project description presented herein is based on the HSR Build Alternative as defined in the Burbank to Los Angeles Project Section Draft Preliminary Engineering for Project Definition and environmental footprint. Therefore, this report describes the physical design elements of the project and does not define all operating plans/scenarios, construction plans, or capital and operating costs.

The California High-Speed Rail Authority (Authority) and the Federal Railroad Administration (FRA) have prepared program-wide, Tier 1 environmental documents for the HSR system under CEQA and NEPA. Specifically, the Authority and the FRA prepared the *Statewide Program Environmental Impact Report/Environmental Impact Statement* (Authority and FRA 2005) to evaluate the ability of the HSR system to meet the existing and future capacity demands on California's intercity transportation system. Pursuant to 23 U.S. Code (U.S.C.) 327, under the National Environmental Policy Act Memorandum of Understanding between the FRA and the State of California, effective July 23, 2019, the Authority is the federal lead agency for review of the Burbank to Los Angeles Project Section under NEPA.

The Authority is now undertaking second-tier project environmental evaluations for several sections of the statewide system. This technical report is for the Burbank to Los Angeles Project Section, which is approximately 14 miles long, crossing the cities of Burbank, Glendale, and Los Angeles along an existing railroad corridor. The HSR alignment for this project section would be within a narrow and constrained urban environment, crossing major streets and highways, and in some portions would be adjacent to the Los Angeles River.

For the Burbank to Los Angeles Project Section, the Authority is the project sponsor and is the lead federal agency under NEPA as well as the state lead agency under CEQA.

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2 PROJECT DESCRIPTION

The Burbank to Los Angeles Project Section of the California HSR System is approximately 14 miles long, crossing the cities of Burbank, Glendale, and Los Angeles on an existing railroad corridor. HSR for this project section would be within a narrow and constrained urban environment, crossing major streets and highways and, in some portions, adjacent to the Los Angeles River. The Los Angeles County Metropolitan Transportation Authority (Metro) owns the railroad right-of-way, the Southern California Regional Rail Authority owns the track and operates the Metrolink commuter rail service, the National Railroad Passenger Corporation (Amtrak) provides intercity passenger service, and the Union Pacific Railroad (UPRR) holds track access rights and operates freight trains.

This section describes the No Project Alternative and the HSR Build Alternative to be evaluated in the Burbank to Los Angeles Project EIR/EIS.

2.1 No Project Alternative

Under the No Project Alternative, the California HSR System would not be built. The No Project Alternative represents the condition of the Burbank to Los Angeles Project Section as it existed in 2015, and as it would exist without the HSR System at the horizon year (2040).

The No Project Alternative assumes that all currently known programmed and funded improvements to the intercity transportation system (highway, transit, and rail) and reasonably foreseeable local land development projects (with funding sources identified) would be developed by 2040. The No Project Alternative is based on a review of the following: regional transportation plans for all modes of travel; the State Transportation Improvement Program; the Federal Transportation Improvement Program; Southern California Regional Rail Authority strategic plans, transportation plans and programs for Los Angeles County; airport master plans; and city and county general plans.

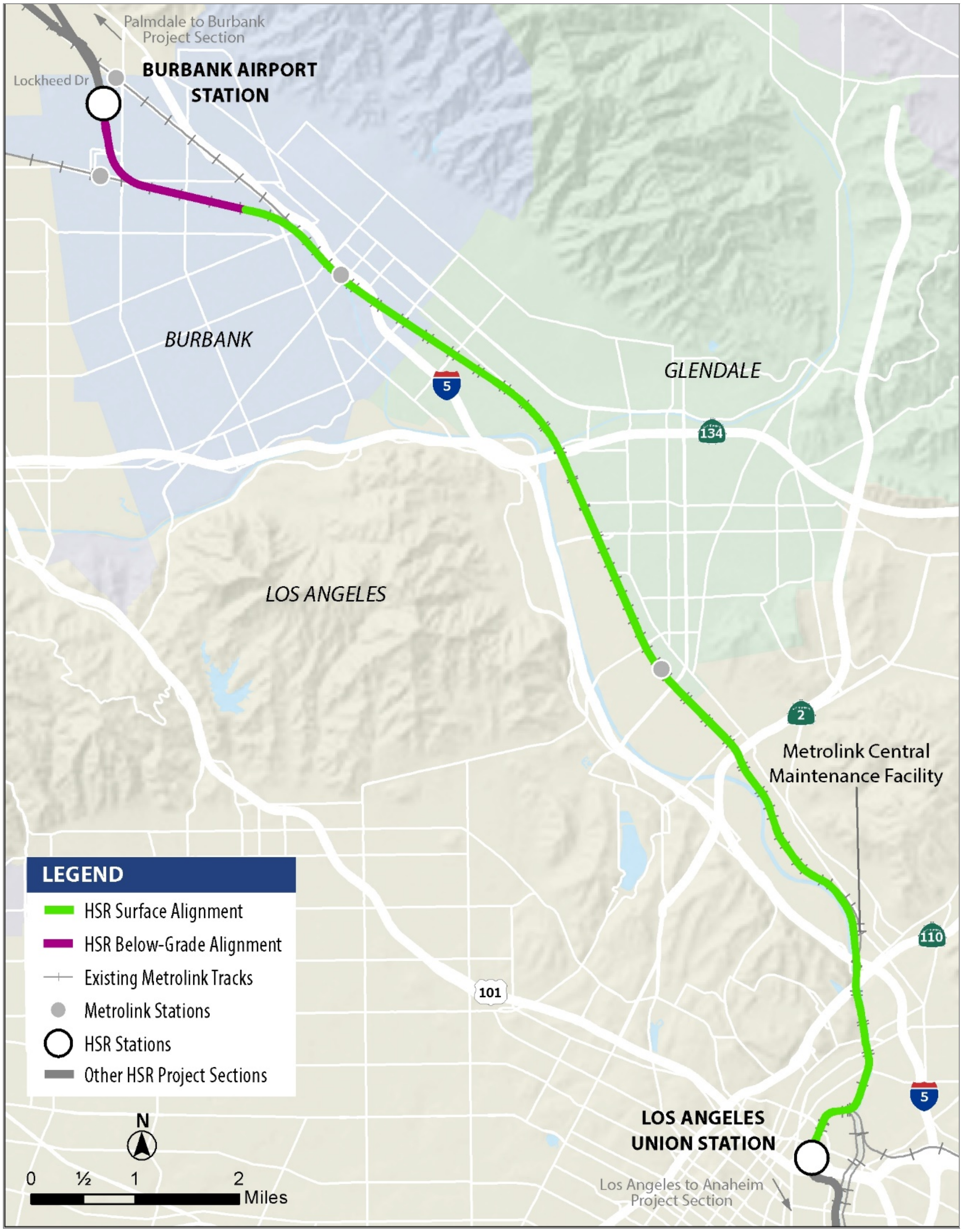
2.2 High-Speed Rail Build Alternative

The HSR Build Alternative includes new and upgraded track, maintenance facilities, grade separations, drainage improvements, communications towers, security fencing, passenger train stations, and other necessary facilities to introduce HSR service into the Los Angeles-San Diego-San Luis Obispo (LOSSAN) Corridor from near Hollywood Burbank Airport to LAUS. In portions of the alignment, new and upgraded tracks would allow other passenger trains to share tracks with the HSR system. HSR stations would be located near Hollywood Burbank Airport and at LAUS. The alignment would be entirely grade-separated at crossings, meaning that roads, railroads, and other transport facilities would be located at different heights so the HSR system would not interrupt or interface with other modes of transport, including vehicle, bicycle, and pedestrian.

For most of the project section, the HSR alignment would be within the existing railroad right-of-way, which is typically 70 to 100 feet wide. The HSR alignment includes northbound and southbound electrified tracks for high-speed trains. The right-of-way would be fenced to prohibit pedestrian and public or unauthorized vehicle access.

The project footprint (the area required to build, operate, and maintain HSR service) is based on the following elements of design: station areas, hydrology, track, roadway, structures, systems, and utilities.

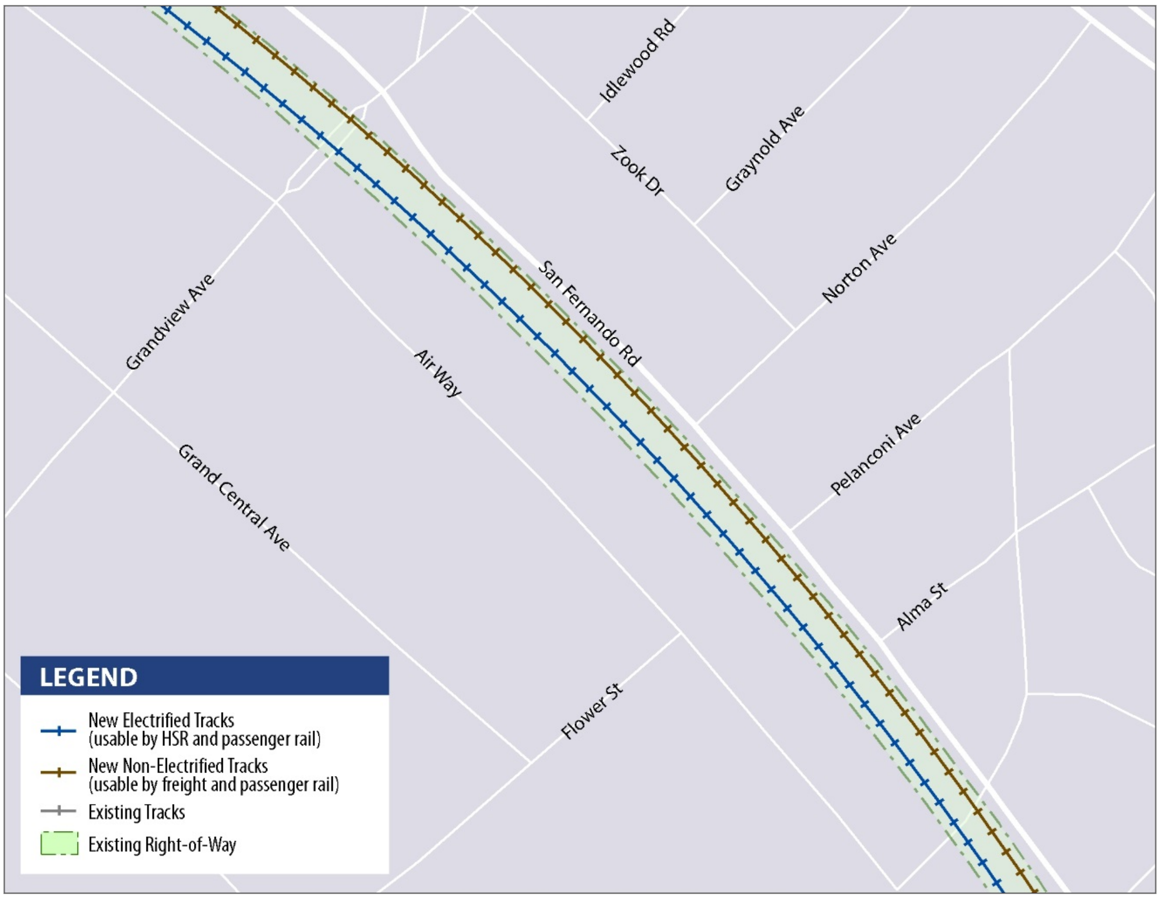
Figure 2-1 shows an overview of the Burbank to Los Angeles Project Section.



Source: California High-Speed Rail Authority (2019)

Figure 2-1 Overview of Burbank to Los Angeles Project Section

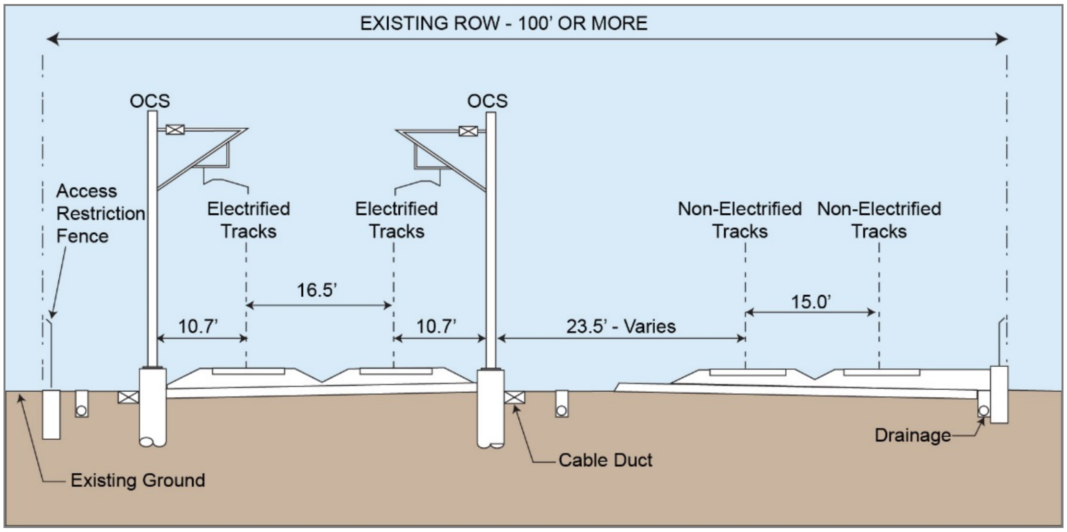
The Burbank to Los Angeles Project Section includes a combination of at-grade, below-grade, and retained-fill track, depending on corridor and design constraints. The at-grade and retained-fill portions of the alignment would be designed with structural flexibility to accommodate shared operations with other passenger rail operators. Throughout most of the project section (between Alameda Avenue and State Route [SR] 110), two new electrified tracks would be placed along the west side of the existing railroad right-of-way and would be useable for HSR and other passenger rail operators. The existing non-electrified tracks would be realigned closer to the east side of the existing right-of-way, for a total of four tracks; these realigned, non-electrified tracks would be usable for freight and other passenger rail operators, but not for HSR. Figure 2-2 illustrates the placement of the new electrified tracks and realigned, non-electrified tracks relative to the existing tracks.



Source: California High-Speed Rail Authority (2019)

Figure 2-2 New Electrified and Non-Electrified Tracks Within Existing Right-of-Way

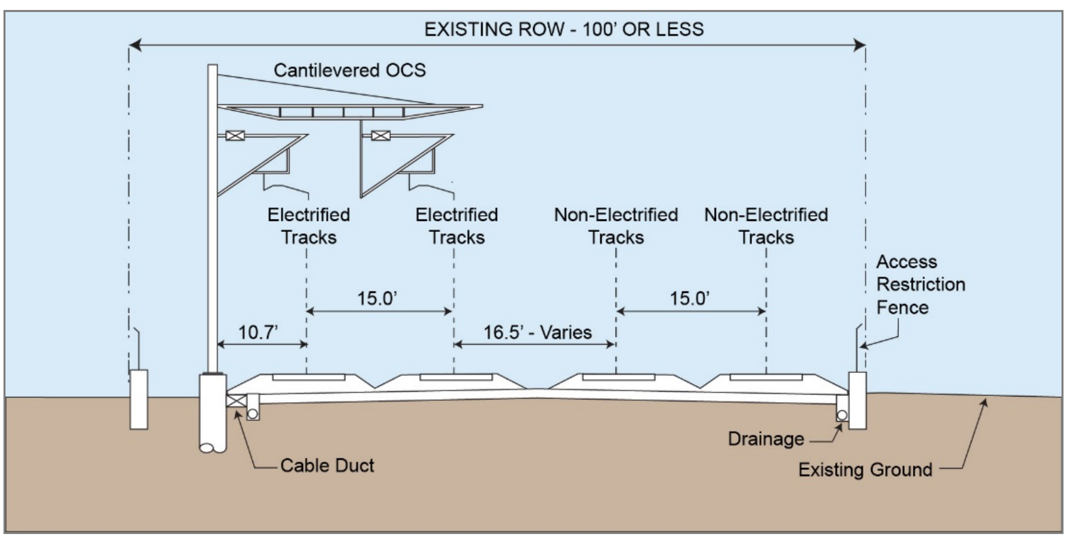
Throughout most of the Burbank to Los Angeles Project Section, the electrified track centerline and the non-electrified track centerline would have a minimum separation of 23.5 feet, and the northbound and southbound electrified tracks would have a separation of 16.5 feet, following the Authority's *Technical Memorandum 1.1.21 Typical Cross Sections for 15% Design*. These standard separations are illustrated on Figure 2-3.



Source: California High-Speed Rail Authority (2019)
This illustration shows the standard separations between the electrified and non-electrified tracks in areas where the railroad right-of-way is at least 100 feet wide. (Figure not to scale.)

Figure 2-3 Standard Track Separations within Non-Constrained Right-of-Way

However, in several areas of the corridor, the right-of-way is less than 100 feet wide, a threshold that constrains the design. As a result, reduced track separations were used in these constrained areas in order to stay within the existing right-of-way to the greatest extent possible and thus minimize property impacts. The reduced separations between the electrified and non-electrified track centerlines would be a minimum of 16.5 feet, and between the two electrified track centerlines would be 15 feet. The narrower cross-section separations are illustrated on Figure 2-4.



Source: California High-Speed Rail Authority (2019)
This illustration shows the narrow separations between the electrified and non-electrified tracks, which would minimize property impacts in areas where right-of-way is constrained. The reduced separations are applied in areas where the railroad right-of-way is less than 100 feet wide. (Figure not to scale.)

Figure 2-4 Reduced Track Separations within Constrained Right-of-Way

2.2.1 HSR Build Alternative Description

The following section describes the HSR Build Alternative in greater detail. Figure 2-5 (Sheets 1 to 3) shows the HSR Build Alternative, including the HSR alignment, new/modified non-electrified tracks, and roadway crossings.

The HSR alignment would begin at the underground Burbank Airport Station and would consist of two new electrified tracks. After exiting the underground station, the alignment would travel southeast beneath the Hollywood Burbank Airport runway in a tunnel, which would be constructed using the sequential excavation method without any disruptions to airport operations. The alignment from south of the airport to where it would join the Metrolink Ventura Subdivision would be constructed as cut-and-cover, and the alignment would then transition to a trench within the Metrolink Ventura Subdivision. The existing Metrolink Ventura Subdivision tracks would be realigned north within the existing right-of-way, and an existing UPRR siding track between Buena Vista Street and Beachwood Drive would be realigned north of the relocated Metrolink Subdivision tracks within the existing right-of-way. These non-electrified tracks would remain at-grade. The trench, which would be south of and parallel to the relocated non-electrified tracks, would be dedicated for HSR tracks only. Figure 2-6, Figure 2-7, and Figure 2-8 depict the typical cross-sections of the below-grade portion of the alignment. During construction of the below-grade alignment, shoofly tracks would be provided to support Metrolink operations. The proposed shoofly tracks would be aligned between Hollywood Way and Buena Vista Street outside the existing right-of-way and would result in temporary roadway impacts to Vanowen Street.

The HSR tracks would transition from the trench and emerge to at-grade within the existing railroad right-of-way near Beachwood Drive in the City of Burbank Near Beachwood Drive, the HSR tracks would curve south out of the existing railroad right-of-way and cross Victory Place on a new railroad bridge, which would be directly south of the existing Victory Place bridge. South of Burbank Boulevard, the HSR tracks would re-enter the railroad right-of-way and run parallel to the Metrolink Antelope Valley Subdivision tracks. Between Burbank Boulevard and Magnolia Boulevard, several UPRR industry tracks west of the right-of-way would be removed.

Continuing south, the HSR alignment would pass the Downtown Burbank Metrolink Station, which would be modified. HSR tracks would be placed within the existing parking lot west of the southbound platforms, and new pedestrian connections and relocated parking would be provided. Section 2.6.1 provides more details on design modifications for the Downtown Burbank Metrolink station.

Source: California High-Speed Rail Authority (2019)

Figure 2-5 HSR Build Alternative Overview

(Sheet 1 of 3)

Source: California High-Speed Rail Authority (2019)

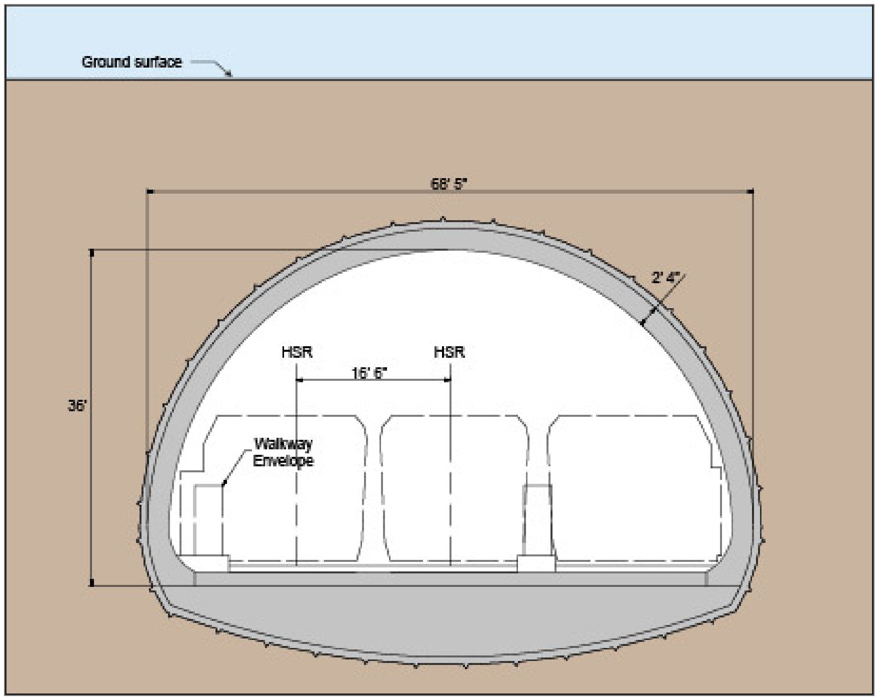
Figure 2-5 HSR Build Alternative Overview

(Sheet 2 of 3)

Source: California High-Speed Rail Authority (2019)

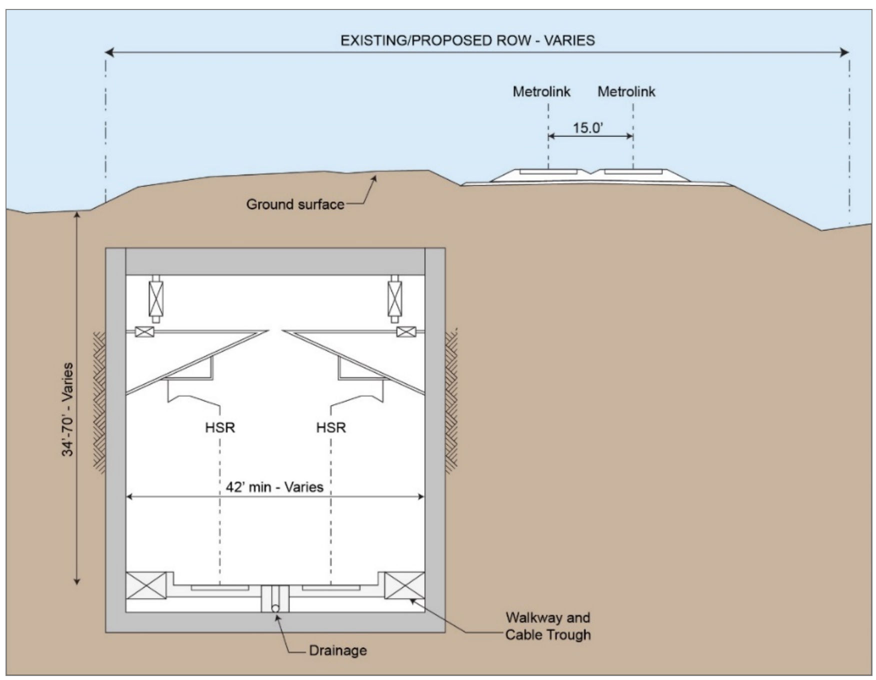
Figure 2-5 HSR Build Alternative Overview

(Sheet 3 of 3)



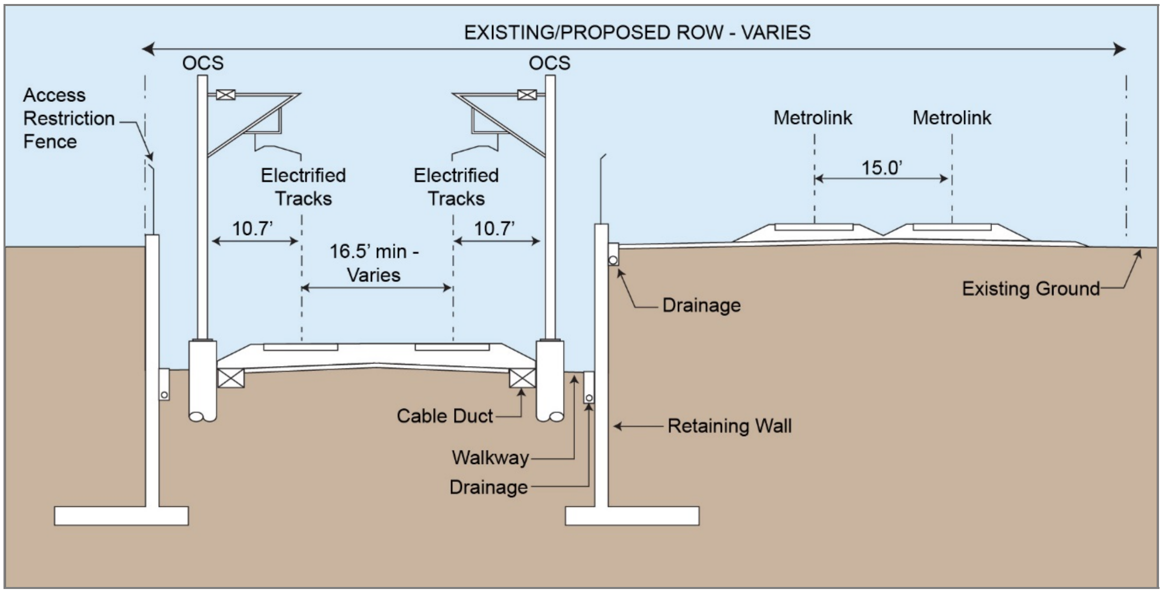
Source: California High-Speed Rail Authority (2019)

Figure 2-6 Typical Tunnel Cross-Section



Source: California High-Speed Rail Authority (2019)

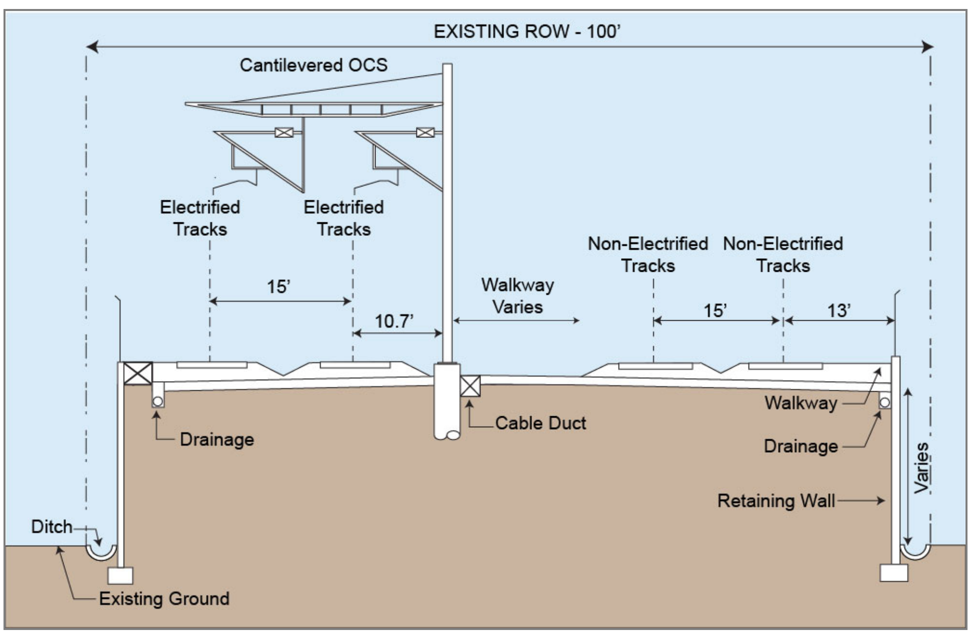
Figure 2-7 Typical Cut-and-Cover Tunnel Cross-Section



Source: California High-Speed Rail Authority (2019)

Figure 2-8 Typical Trench Cross-Section

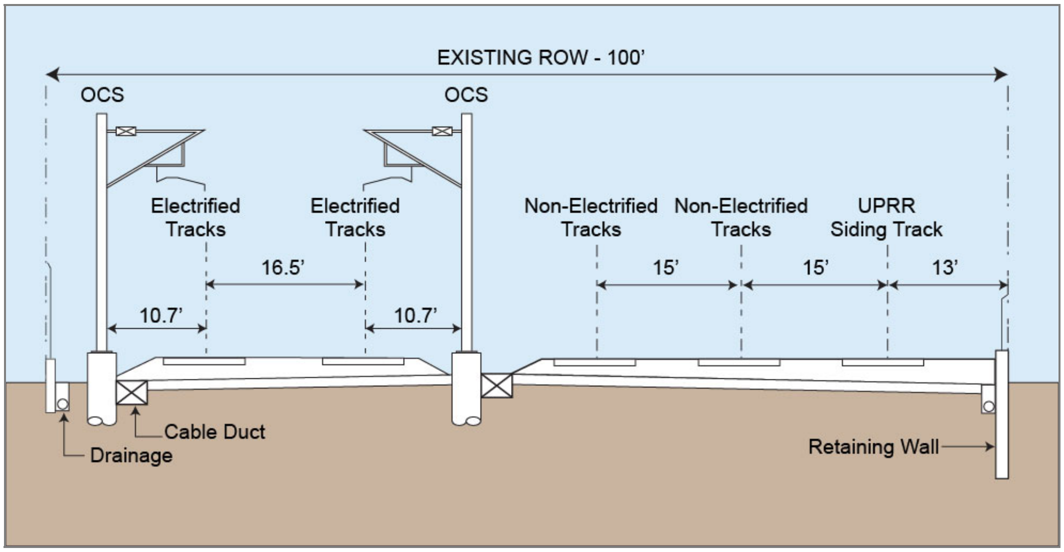
Between Olive Avenue to the north end of the Metrolink Central Maintenance Facility (CMF), the existing non-electrified tracks would be shifted east within the right-of-way to accommodate the addition of the electrified tracks within the right-of-way. Throughout this area, both sets of tracks would be at-grade, with a retained fill segment between Western Avenue and SR 134. Figure 2-9 shows a typical cross-section of the alignment on retained fill.



Source: California High-Speed Rail Authority (2019)

Figure 2-9 Typical Retained-Fill Cross-Section

The alignment would cross Verdugo Wash, where an existing railroad bridge would be rebuilt as a new clear-span structure, to accommodate the additional set of electrified tracks. The alignment would continue south within the existing railroad right-of-way, which follows the Glendale and Los Angeles city borders. Between SR 134 and Chevy Chase Drive, a UPRR siding track would be realigned to the east of the non-electrified tracks, for a total of five tracks within the right-of-way through this area. This siding track is currently located at the Metrolink Central Maintenance CMF but would need to be relocated to accommodate HSR at the CMF. Figure 2-10 shows the typical cross-section for this area.

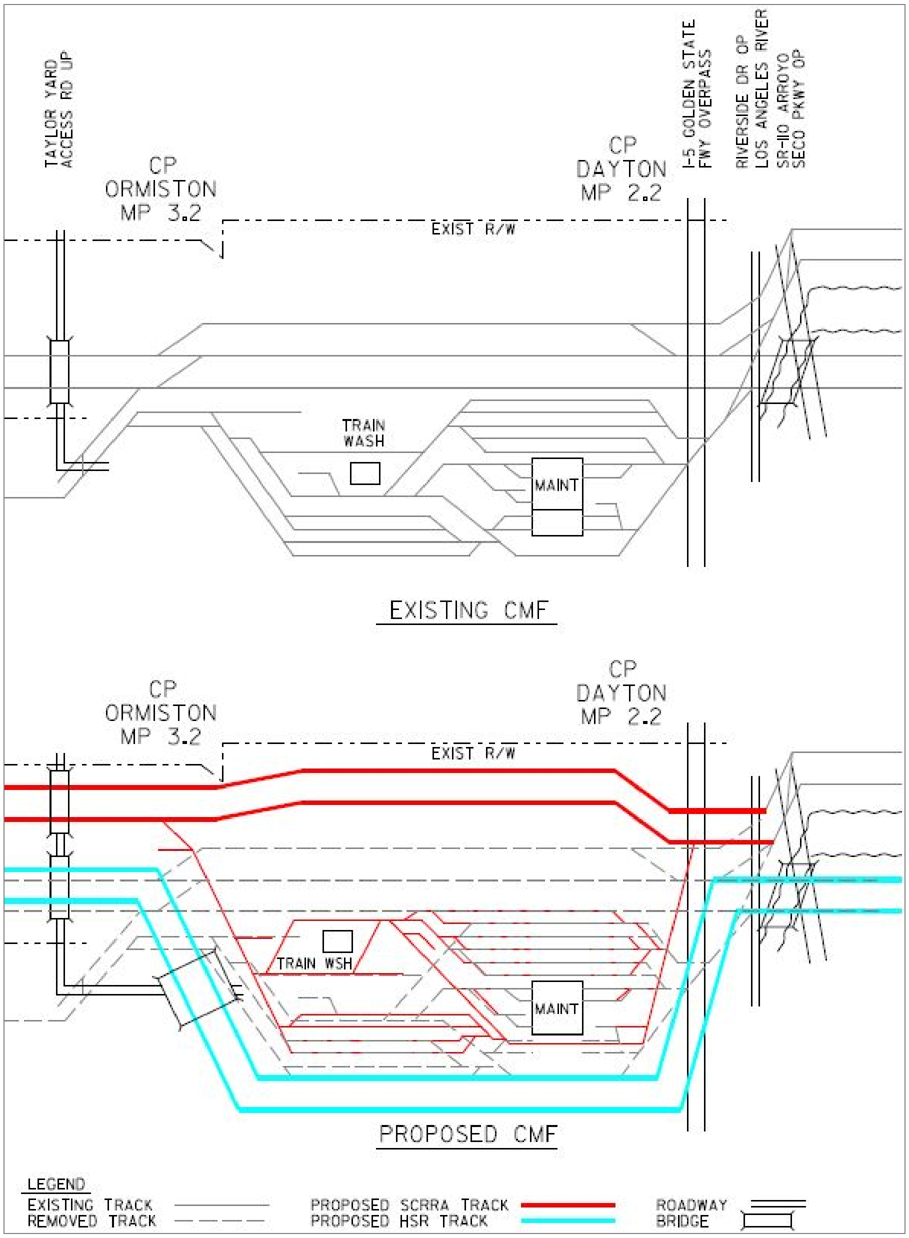


Source: California High-Speed Rail Authority (2019)

Figure 2-10 Typical Cross-Section Between State Route 134 and Chevy Chase Drive

The alignment would pass by the Glendale Metrolink Station (originally known as the Southern Pacific Railroad Depot), a known historical resource listed on the National Register of Historic Places and located north of Glendale Boulevard. No modifications would be needed for the Glendale Metrolink Station. At Tyburn Street, the alignment would enter the City of Los Angeles. Continuing south, the two sets of tracks would diverge at the north end of the Metrolink CMF. The electrified tracks would travel along the west side of the CMF, and the non-electrified, mainline tracks would travel along the east side of the facility.

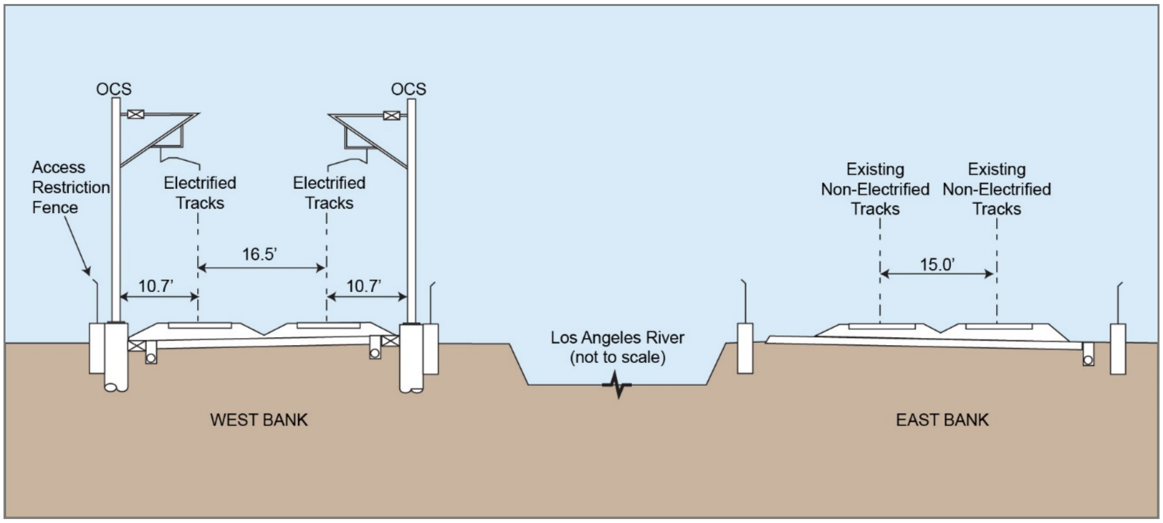
The CMF is Metrolink's major daily servicing location and maintenance facility in the region. The Burbank to Los Angeles Project Section proposes reconfiguring the various yard and maintenance facilities within the CMF to accommodate HSR, while maintaining as many of the existing yard operations as possible. Figure 2-11 displays a schematic diagram of the existing CMF and the proposed changes, which include new mainline-to-yard track connections, partial demolition of the existing maintenance shop, a revised roadway network with reconfigured parking areas, track relocation shifts, and construction to provide additional storage capacity. Additionally, several facilities would need to be relocated or reconstructed within the CMF, including a train washing/reclamation building, a yard pump house, and two service and inspection tracks. Utilities would also need to be relocated with the CMF, including domestic and fire water, underdrains and reconstructed catch basins, power facilities, fueling facilities and storage tanks, and sanitary sewer systems. The proposed design would not be able to accommodate wheel truing operations or progressive maintenance bays; these would relocate to another Metrolink facility. All other facilities and infrastructure would remain in place. The construction work at the CMF would be phased to minimize the disruption to the existing operations and to maintain the key operational facilities.



Source: Burbank to Los Angeles Draft Preliminary Engineering for Project Description Design Submittal (2019)

Figure 2-11 Diagram of Existing and Proposed Metrolink Central Maintenance Facility

At the south end of the CMF, the two electrified and two non-electrified tracks would converge briefly within the right-of-way and then diverge again south of Figueroa Street. The electrified tracks would cross over to the west bank of the Los Angeles River on the existing Metrolink Downey Bridge. The existing tracks on the Downey Bridge would be electrified, which would allow for both HSR and passenger rail operations. The non-electrified tracks would remain on the east bank of the Los Angeles River and cross the Arroyo Seco on an existing railroad bridge, which would not require modifications. These non-electrified tracks would connect with the existing tracks on the east bank, which currently serve UPRR and nonrevenue trains. An illustrative cross-section for this area is shown on Figure 2-12.



Source: California High-Speed Rail Authority (2019)
The electrified tracks would cross the Los Angeles River just north of State Route 110 and run along the west bank of the river. The non-electrified tracks would run along the east bank of the river. (Figure not to scale.)

Figure 2-12 Typical Cross-Section from State Route 110 to Mission Junction

South of Main Street, on the east bank of the river, the existing tracks would be modified at Mission Junction to be used by freight and passenger rail. They would cross the Los Angeles River on the existing Mission Tower bridge to join the electrified tracks within the railroad right-of-way. The existing Mission Tower bridge has two tracks, but currently only one track is functional and used by Metrolink. The HSR Build Alternative would replace the trackwork to conform to the most current design standards and specifications, which may require a retrofit to the bridge.

The two sets of tracks would continue south to terminate at LAUS. The electrified tracks and HSR station platforms would be located on the west side of the station, while the non-electrified tracks would merge with the Metrolink and Amtrak tracks. The configuration at LAUS is described in further detail in Section 2.3.2.

2.2.2 Roadway Crossings

The HSR Build Alternative would cross a total of 34 roadways, 15 of which would require modifications. Figure 2-5 shows the crossings throughout the project section, and Table 2-1 lists their configurations before and after the introduction of the HSR Build Alternative.

Table 2-1 Roadway Crossings within the Burbank to Los Angeles Project Section

Roadway	Current Crossing Configuration	Proposed Crossing Configuration[1]
Buena Vista Street	At-Grade*	**At-Grade* (modified)** **Undercrossing** (new)**
Victory Place	Undercrossing"	Undercrossing* **Undercrossing (new)**
Burbank Boulevard	Overcrossing	**Overcrossing (modified)**
Magnolia Boulevard	Overcrossing	Overcrossing
Olive Avenue	Overcrossing	Overcrossing
Interstate 5	Overcrossing	Overcrossing
Alameda Avenue	Undercrossing	**Undercrossing (modified)**
Western Avenue	Overcrossing	Overcrossing
Sonora Avenue	At-Grade	**Undercrossing (new)**
Grandview Avenue	At-Grade	**Undercrossing (new)**
Flower Street	At-Grade	**Undercrossing (new)**
Fairmont Avenue	Overcrossing	Overcrossing
SR 134	Overcrossing	Overcrossing
Salem/Sperry St[2]	No Crossing	Overcrossing (Metro project)
Colorado Street	Undercrossing	**Undercrossing (modified)**
Goodwin Avenue	No Crossing	**Undercrossing (new)**
Chevy Chase Drive	At-Grade	**Closed**
Los Feliz Boulevard	Undercrossing	**Undercrossing (modified)**
Glendale Boulevard	Undercrossing	**Undercrossing (modified)**
Fletcher Drive	Undercrossing	Undercrossing
SR 2	Overcrossing	Overcrossing
Kerr Road	Undercrossing	**Undercrossing (modified)**
Interstate 5	Overcrossing	Overcrossing
Figueroa Street	Overcrossing	Overcrossing
SR 110	Overcrossing	Overcrossing
Metro Gold Line	Overcrossing	Overcrossing
Broadway	Overcrossing	Overcrossing
Spring Street	Overcrossing	Overcrossing
Main Street	At-Grade	**Overcrossing (new)**
Private LADWP road	At-Grade	**Closed**
Vignes Street	Undercrossing	Undercrossing
Cesar Chavez Avenue	Undercrossing	Undercrossing

Source: California High-Speed Rail Authority (2019)
[1] All proposed grade crossing configurations are pending Public Utilities Commission approval.
[2] Salem/Sperry Street would be grade-separated as a part of the Metro Doran Street and Broadway/Brazil Grade Separation Project. The project also proposes closing the existing at-grade railroad crossings at Doran Street and Broadway/Brazil Street. As the Metro project would be completed before the introduction of HSR service, the crossing configurations are considered part of the existing conditions for the HSR project.
**Crossings apply to Metrolink and/or UPRR tracks only*
***Crossing applies to HSR tracks only*

Bold *denotes change from existing condition under the HSR Build Alternative.*
Overcrossing = Road over train tracks *Undercrossing = Road under train tracks*
HSR = High-Speed Rail SR = State Route
Source: California High-Speed Rail Authority and Federal Railroad Administration (2019)

Modifications to existing crossings

- Victory Place: a new bridge for the HSR tracks would be constructed directly south of the existing railroad bridge over Victory Place, and the roadway would be lowered to cross under the new bridge.
- Burbank Boulevard: the roadway bridge would be reconstructed to cross over the tracks, and Burbank Boulevard would be raised in elevation on the west side.
- Alameda Avenue: the railroad bridge would be reconstructed to be wider.
- Colorado Street: the railroad bridge would be reconstructed to be wider.
- Los Felix Boulevard: the railroad bridge would be reconstructed to be wider, and the roadway would be lowered slightly
- Glendale Boulevard: the railroad bridge would be reconstructed to be wider, and the roadway would be lowered slightly
- Kerr Road: the railroad bridge would be reconstructed to be wider, and the roadway would be lowered slightly

New grade separations

- Buena Vista Street: the crossing would be modified and remain at-grade for Metrolink and UPRR tracks, but a new undercrossing would be constructed to grade-separate the HSR tracks only from the roadway.
- Sonora Avenue: a new roadway undercrossing would be constructed, with the tracks slightly raised on retained fill and the roadway slightly lowered (see Section 2.6).
- Grandview Avenue: a new roadway undercrossing would be constructed, with the tracks slightly raised on retained fill and the roadway slightly lowered (see Section 2.6).
- Flower Street: a new roadway undercrossing would be constructed, with the tracks slightly raised on retained fill and the roadway slightly lowered (see Section 2.6).
- Goodwin Avenue: the road currently does not cross the railroad right-of-way, but the project would grade-separate it as a new roadway undercrossing (see Section 2.6).
- Main Street: a new roadway bridge would be constructed north of the existing Main street bridge, which would cross the railroad right-of-way and the Los Angeles River (see Section 2.6).

Closures

- Chevy Chase Drive: the roadway would be closed, and a new pedestrian undercrossing would be provided (see Section 2.6).
- Private driveway: a driveway that currently provides access to a Los Angeles Department of Water and Power facility parking lot would be closed, and the Los Angeles Department of Water and Power parking would be relocated to a new facility on Main Street.

2.3 Station Sites

The HSR stations for the Burbank to Los Angeles Project Section would be in the vicinity of Hollywood Burbank Airport and at LAUS. Stations would be designed to optimize access to the California HSR System, particularly to allow for intercity travel and connections to local transit, airports, highways, and the bicycle and pedestrian network. Both stations would include the following elements:

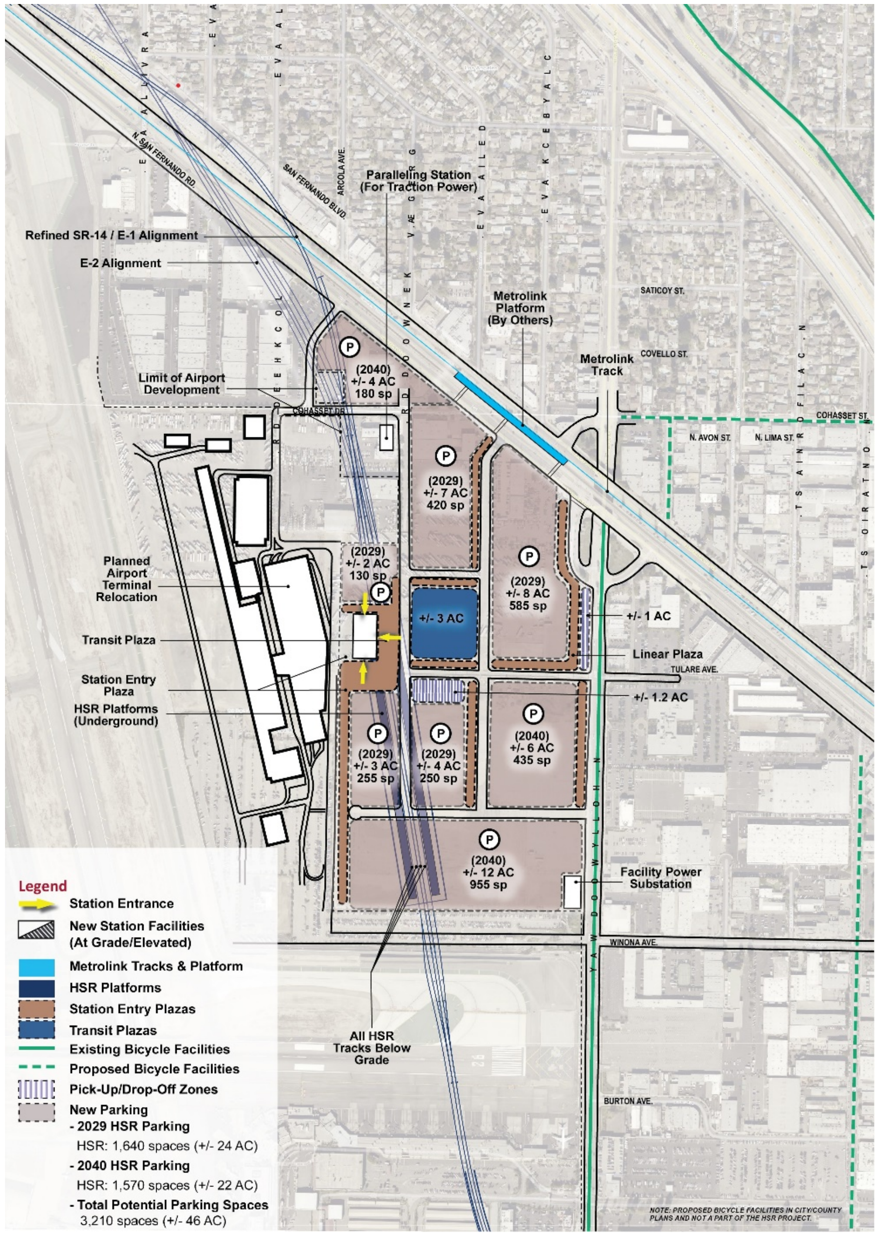
- Passenger boarding and alighting platforms
- Station head house with ticketing, waiting areas, passenger amenities, vertical circulation, administration and employee areas, and baggage and freight-handling service
- Vehicle parking (short-term and long-term)
- Pick-up and drop-off areas
- Motorcycle/scooter parking
- Bicycle parking
- Waiting areas and queuing space for taxis and shuttle buses
- Pedestrian walkway connections

2.3.1 Burbank Airport Station

The Burbank Airport Station site would be located west of Hollywood Way and east of Hollywood Burbank Airport. The airport and ancillary properties occupy much of the land south of the Burbank Airport Station site, while industrial and light industrial land uses are located to the east and residential land uses are found north of the Burbank Airport Station site. Interstate 5 runs parallel to the station site, approximately 0.25 mile north of the proposed Metrolink platform.

The Burbank Airport Station would have both underground and aboveground facilities that would span approximately 70 acres. Station facilities would include train boarding platforms, a station building (that would house ticketing areas, passenger waiting areas, restrooms, and related facilities), pick-up/drop-off facilities for private autos, a transit center for buses and shuttles, and surface parking areas. Underground portions of the station would be beneath Cohasset Street, along which runs the boundary between the City of Los Angeles to the north and the City of Burbank to the south. There would be two HSR tracks at the station.

The Burbank Airport Station would have up to 3,200 surface parking spaces. About 2,980 spaces would be located between the proposed Replacement Terminal and N Hollywood Way. An additional 220 spaces would be located in surface lots in the area bounded by Lockheed Drive to the west, Cohasset Street to the south, and N San Fernando Boulevard to the north and east. The preliminary station layout concept plan is shown on Figure 2-13. The Burbank to Los Angeles Project Section EIR/EIS analyzes the Burbank Airport Station project footprint displayed on Figure 2-13 as permanently impacted because no additional temporary construction easements are identified beyond the permanent area required to construct, operate, and maintain the station. This is the assumption based on the current level of design.



Source: California High-Speed Rail Authority and (2019)

Figure 2-13 Preliminary Station Concept Layout Plan, Burbank Airport Station

2.3.2 Los Angeles Union Station

The existing LAUS campus and surrounding tracks are being reconfigured as a part of the Metro Link Union Station (Link US) [1] Project. The Metro Link US Project would reconfigure the station entry tracks from north of Mission Junction and construct an elevated structure through the station arrival and boarding area, which would extend south over U.S. Route 101 and come back to grade near First Street. Reconfiguration would occur over two construction phases. The first phase would include an elevated structure for non-HSR passenger rail operators between Vignes Street and First Street. The second phase would add additional tracks to the structure for use by HSR. The Metro Link US EIR/EIS, on which the Authority is a cooperating agency, would evaluate these changes, along with an expanded passenger concourse area and changes to the Metro Gold Line. These changes would be completed prior to the introduction of HSR service.

While Metro would environmentally clear and construct the trackwork and new passenger concourse, the HSR project would require additional modifications within the Link US area. HSR improvements include raising the platform heights and installing an overhead contact system. The Burbank to Los Angeles Project EIR/EIS evaluates these modifications, as well as potential increases in traffic associated with the introduction of HSR service.

The proposed HSR station at LAUS would include up to four HSR tracks and two 870-foot platforms (with the possibility of extending to 1,000 feet). The HSR system would share passenger facilities, such as parking and pick-up/drop-off, with other operators. HSR would require 1,180 parking spaces in 2029 and 2,010 spaces in 2040. This new demand may be met by existing underutilized parking supply within 0.5 mile of LAUS. This parking would be shared with other LAUS service providers and businesses.

[1] Link US will transform LAUS from a “stub-end” station to a “run-through” station by extending tracks south over U.S. Route 101. The project will add a new passenger concourse that will provide improved operational flexibility for rail service. The Draft FIR is available at: https://www.metro.net/projects/link-us/final-ei-report/.

Sources: California High-Speed Rail Authority (2019); Los Angeles Metropolitan Transportation Authority (2018)

Figure 2-14 Preliminary Station Elements Plan, Los Angeles Union Station

2.4 Maintenance of Infrastructure

The California HSR System includes four types of maintenance facilities: maintenance of infrastructure facilities (MOIF), Maintenance of infrastructure siding facilities (MOIS), heavy maintenance facilities, and light maintenance facilities (LMF).[2] The California HSR System would require one heavy maintenance facility for the system, located in the Central Valley. The design and spacing of maintenance facilities along the HSR system do not require the Burbank to Los Angeles Project Section to include any of the maintenance facilities within the limits of the project section.

[2] Maintenance facilities are described in the Authority's *Summary of Requirements for O&M Facilities* (2013).

For purposes of environmental analysis, FRA and the Authority have defined each project section to have the capability to operate as a stand-alone project in the event that other project sections of the HSR system are not constructed. Because this project section does not provide a heavy maintenance facility or MOIF, an independent contractor would need to be retained to handle all maintenance functions for vehicles and infrastructure if this project section were built as a stand-alone project for purposes of independent utility. Independent utility is discussed further in Section 2.9.

2.4.1 Maintenance of Infrastructure Facilities

The HSR system infrastructure will be maintained from regional MOIFs located at approximately 150-mile intervals. Each MOIF is estimated to be approximately 28 acres in size and would provide a location for regional maintenance machinery servicing storage, materials storage, and maintenance and administration. The MOIFs could be co-located with the MOIS within each 75-mile segment. The MOIFs would be located outside of the Burbank to Los Angeles Project Section.

2.4.2 Maintenance of Infrastructure Sidings

The MOISs would be centrally located within the 75-mile maintenance sections on either side of each MOIF. Each MOIS would support MOIF activities by providing a location for the layover of maintenance of infrastructure equipment and temporary storage for materials. The MOIS is estimated to be about 4 acres in size. The MOISs would be located outside of the Burbank to Los Angeles Project Section.

2.4.3 Heavy Maintenance Facility

Only one heavy maintenance facility is required for the HSR system, and it would be within either the Merced to Fresno Project Section or the Fresno to Bakersfield Project Section. The heavy maintenance facility would include all activities associated with train fleet assembly, disassembly, and complete rehabilitation; all on-board components of the trainsets; and overnight layover accommodations and servicing facilities. The site would include a maintenance shop, a yard Operations Control Center building, one traction power substation (TPSS), other support facilities, and a train interior cleaning platform.

2.4.4 Light Maintenance Facility

An LMF would be used for all activities associated with fleet storage, cleaning, repair, overnight layover accommodations, and servicing facilities. The LMF closest to the Burbank to Los Angeles Project Section would be sited in proximity to LAUS but within the Los Angeles to Anaheim Project Section, and would likely support the following functions:

- **Train Storage:** Some trains would be stored at the LMF prior to start of revenue service.
- **Examinations in Service:** Examinations would include inspections, tests, verifications, and quick replacement of certain train components on the train.
- **Inspection:** Periodic inspections would be part of the planned preventive maintenance program requiring specialized equipment and facilities.

The LMF site will be sized to support the level of daily revenue service dispatched by the nearby terminal at the start of each revenue service day. The Authority defines three levels of maintenance that can be performed at an LMF:

- **Level I:** Daily inspections, pre-departure cleaning, and testing
- **Level II:** Monthly inspections
- **Level III:** Quarterly inspections, including wheel-truing

A Level I LMF is proposed on the west bank of the Los Angeles River at the existing Amtrak Railroad Yard. The facility would be where the current BNSF Railway storage tracks are located and would require their relocation.

2.5 Ancillary and Support Facilities

2.5.1 Electrification

Trains on the California HSR System would draw power from California's existing electricity grid distributed via an overhead contact system. The Burbank to Los Angeles Project Section would not include the construction of a separate power source, although it would include the extension of power lines from potential TPSSs to a series of independently owned power substations positioned along the HSR corridor if necessary. The transformation and distribution of electricity would occur in three types of stations:

- TPSSs transform high-voltage electricity supplied by public utilities to the train operating voltage. TPSSs would be adjacent to existing utility transmission lines and the right-of-way, and would be located approximately every 30 miles along the HSR system route.
- Switching stations connect and balance the electrical load between tracks, and switch overhead contact system power on or off to tracks in the event of a power outage or emergency. Switching stations would be midway between, and approximately 15 miles from, the nearest TPSSs. Each switching station would be 120x80 feet and be adjacent to the HSR right-of-way.
- Paralleling stations, or autotransformer stations, provide voltage stabilization and equalize current flow. Paralleling stations would be located approximately every 5 miles between the TPSSs and the switching stations. Each paralleling station would approximately be 100x80 feet and located adjacent to the right-of-way.

Table 2-2 lists the proposed switching station and paralleling station sites within the Burbank to Los Angeles Project Section. A TPSS is not required for the Burbank to Los Angeles Project Section because of the HSR system's facilities spacing requirements. The Burbank to Los Angeles Project Section would be able to use the TPSSs within the Palmdale to Burbank Project Section and/or Los Angeles to Anaheim Project Section. In the event the other project sections of the HSR system are not constructed, a standalone TPSS would be required within the Burbank to Los Angeles Project Section for purposes of independent utility. Independent utility is discussed further in Section 2.8.

Table 2-2 Traction Power Facility Locations for the Burbank to Los Angeles Project Section

Type of Facility	Location
Paralleling Station	Los Angeles, south of Main Street between railroad right-of-way and Los Angeles River
Switching Station	Los Angeles, south of Verdant Street and west of railroad right-of-way

Source: California High-Speed Rail Authority (2019)

2.5.2 Signaling and Train-Control Elements

To reduce the safety risks associated with freight and passenger trains, the National Transportation Safety Board, FRA, and other agencies have mandated Positive Train Control (PTC). PTC is a train safety system designed to automatically implement safety protocols and provide communication with other trains to reduce the risk of a potential collision. The U.S. Rail Safety Improvement Act of 2008 requires the implementation of PTC technology across most railroad systems; in October 2015, Congress extended the deadline for implementation to December 31, 2018. The FRA published the Final Rule regarding PTC regulations on January 15, 2010.

Communication towers and ancillary facilities are included in the Burbank to Los Angeles Project Section to implement the FRA PTC requirements. PTC infrastructure consists of integrated command, control, communications, and information systems for controlling train movements that improve railroad safety by significantly reducing the probability of collisions between trains, casualties to roadway workers and equipment, and over-speed accidents. PTC is especially important in "blended"[3] corridors, such as in the Burbank to Los Angeles Project Section, where passenger and freight trains need to share the same tracks safely.

PTC for the HSR project would use a radio-based communications network that would include a fiber-optic backbone and communications towers approximately every 2 to 3 miles, depending on the terrain and selected radio frequency. The towers would be located in the fenced HSR corridor in a fenced area of approximately 20x15 feet, including a 10x8-foot communications shelter and a 6- to 8-foot-diameter, 100-foot-tall communications pole. These communications facilities could be co-located within the TPSSs. Where communications towers cannot be located with TPSSs or other HSR facilities, the communications facilities would be located near the HSR corridor in a fenced area of approximately 20 feet by 15 feet.

2.6 Early Action Projects

As described in the 2016 Business Plan, the Authority has made a commitment to invest in regionally significant connectivity projects in order to provide early benefits to transit riders and local communities while laying a solid foundation for the HSR system. These early actions will be made in collaboration with local and regional agencies. These types of projects include grade separations and improvements at regional passenger rail stations, which increase capacity, improve safety, and provide immediate benefits to freight and passenger rail operations. Local and regional agencies may take the lead on coordinating the construction of these early action projects. Therefore, they are described in further detail below and are analyzed within the Burbank to Los Angeles Project Section EIR/EIS to allow the agencies, as Responsible Agencies under CEQA, to adopt the findings and mitigation measures as needed to construct these projects.

2.6.1 Downtown Burbank Metrolink Station

Although the HSR system will not serve the Downtown Burbank Metrolink Station, modifications at the station would be required to ensure continued operations of existing operators. The HSR tracks would be located within the existing parking lot west of the southbound platforms; the platforms and existing Metrolink tracks would not change. The parking would be relocated to between Magnolia Boulevard and Olive Avenue, and Flower Street would be extended from where it currently ends at the south side of the Metrolink Station. Pedestrian bridges would be provided for passengers to cross over the HSR tracks to access the Metrolink platforms. Other accessibility improvements would include additional vehicle parking, bus parking, and bicycle pathways. Figure 2-15 shows the proposed site plan for the Downtown Burbank Metrolink Station.

2.6.2 Sonora Avenue Grade Separation

Sonora Avenue is an existing at-grade crossing. The existing roadway configuration consists of two traffic lanes in both the eastbound and westbound directions. The Burbank to Los Angeles Project Section proposes a "hybrid" grade separation, with Sonora Avenue slightly depressed and the HSR alignment and non-electrified tracks raised on a retained-fill structure. A 10-foot-wide median would be added and the lanes would be narrowed, so the overall width of Sonora Avenue would not change. Sonora Avenue would be lowered in elevation between Air Way and San Fernando Road, and the lowest point of the undercrossing would be approximately 10 feet below the original grade. The height of the new retained-fill structure would be approximately 28 feet. Figure 2-16 shows the temporary and permanent project footprint areas.

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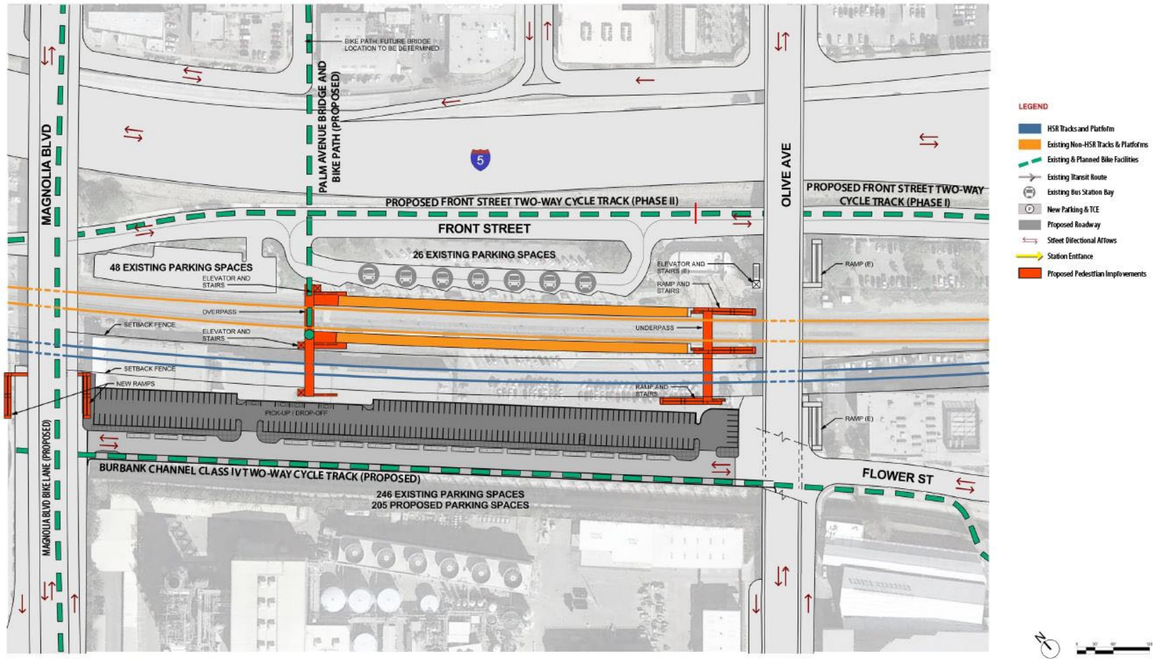
[3] California HSR Project Business Plans (http://www.hsr.ca.gov/About/Business_Plans/) suggest blended railroad systems and operations. These terms refer to integrating the HSR system with existing intercity, and commuter and regional rail systems through coordinated infrastructure (blended systems) and scheduling, ticketing, and other means (blended operations).



Source: California High-Speed Rail Authority (2019)

Figure 2-15 Downtown Burbank Metrolink Station Site Plan

Source: California High-Speed Rail Authority (2019)

Figure 2-16 Sonora Avenue Grade Separation Footprint

2.6.3 Grandview Avenue Grade Separation

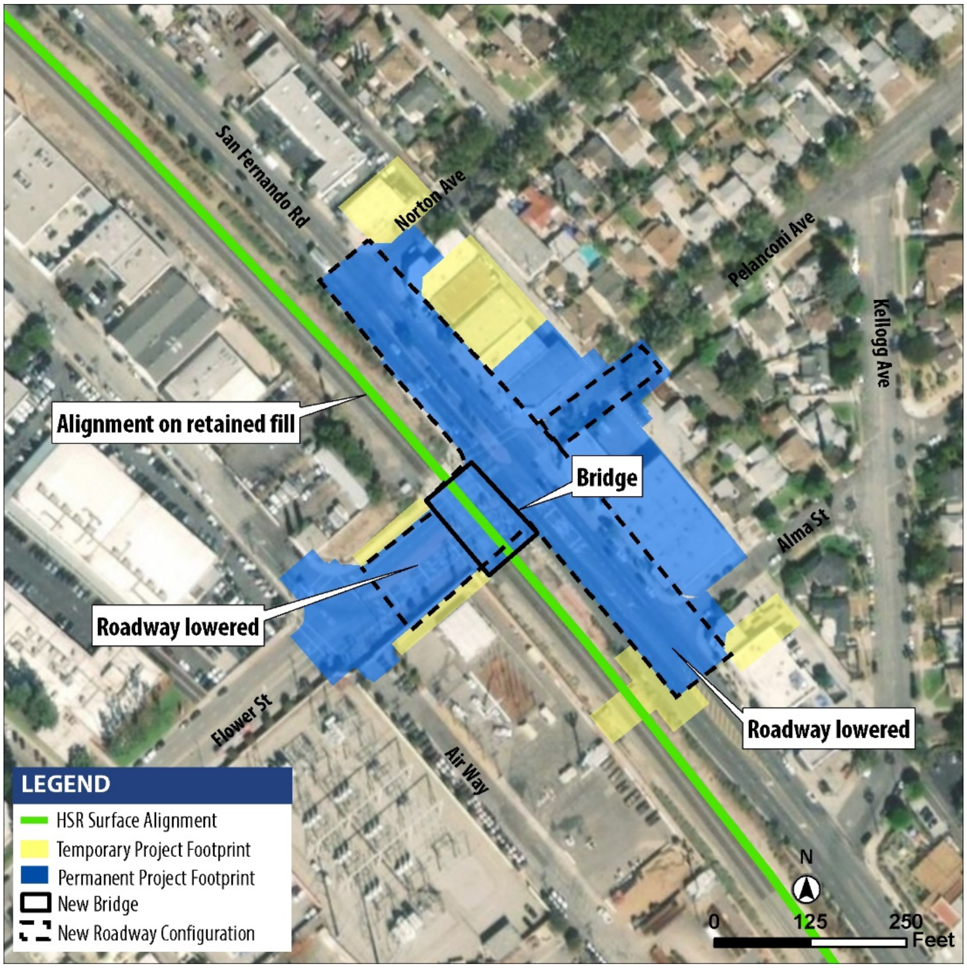
Grandview Avenue is an existing at-grade crossing. The existing roadway configuration consists of three traffic lanes in both the eastbound and westbound directions. The Burbank to Los Angeles Project Section proposes a “hybrid” grade separation, with Grandview Avenue slightly depressed and the HSR alignment and non-electrified tracks raised on retained fill. Grandview Avenue would be lowered in elevation between Air Way and San Fernando Road, and the lowest point of the undercrossing would be approximately 3 feet below original grade. The lanes and overall width of Grandview Avenue would not change. The height of the new retained-fill structure would be approximately 30 feet. Figure 2-17 shows the temporary and permanent project footprint areas.

Source: California High-Speed Rail Authority (2019)

Figure 2-17 Grandview Avenue Grade Separation Footprint

2.6.4 Flower Street Grade Separation

Flower Street is an existing at-grade crossing, with Flower Street ending in a T-shaped intersection with San Fernando Road, which runs parallel on the east side of the railroad right-of-way. Existing Flower Street consists of two traffic lanes in both the westbound and eastbound directions, with a right-turn-only lane in the westbound direction. The Burbank to Los Angeles Project Section proposes a “hybrid” grade separation, with Flower Street and San Fernando Road slightly depressed, and the HSR alignment and non-electrified tracks raised on a retained-fill structure. Flower Street would be lowered in elevation between Air Way and San Fernando Road, and the lowest point of the undercrossing would be approximately 10 feet below original grade. The existing median would be modified on Flower Street, and the overall width of Flower Street would remain the same. San Fernando Road would be lowered in grade between Norton Avenue and Alma Street, and Pelanconi Avenue would be extended to connect to San Fernando Road. The height of the new retained-fill structure would be approximately 28 feet. Figure 2-18 shows the temporary and permanent project footprint areas.



Source: California High-Speed Rail Authority (2019)

Figure 2-18 Flower Street Grade Separation Footprint

2.6.5 Goodwin Avenue/Chevy Chase Drive Grade Separation

There is currently no crossing at Goodwin Avenue, which ends in a cul-de-sac on the west side of the railroad right-of-way. The Burbank to Los Angeles Project Section proposes a grade separation, with Goodwin Avenue realigned and depressed to cross under a new railroad bridge supporting the HSR and non-electrified tracks. A new roadway bridge would also be required to carry Alger Street over the depressed Goodwin Avenue, connecting to W San Fernando Road. The new depressed roadway would curve north from Brunswick Avenue, cross under the new roadway and railroad bridges, and connect with Pacific Avenue on the east side of the railroad right-of-way. The lowest point of the undercrossing would be approximately 28 feet below original grade.

Chevy Chase Drive is an at-grade crossing. With the construction of a new grade separation at Goodwin Avenue, Chevy Chase Drive would be closed on either side of the rail crossing and a pedestrian undercrossing would be provided. Figure 2-19 shows the temporary and permanent project footprint areas for Goodwin Avenue and Chevy Chase Drive.

Source: California High-Speed Rail Authority ation (2019)

Figure 2-19 Goodwin Avenue Grade Separation

2.6.6 Main Street Grade Separation

Main Street is an existing at-grade crossing. It crosses the existing tracks at-grade on the west bank of the Los Angeles River, crosses over the river on a bridge, and then crosses the existing tracks at-grade on the east bank of the river. The existing bridge carries two traffic lanes in both directions. The Burbank to Los Angeles Project Section proposes a grade separation, with a new Main Street bridge spanning the tracks on the west bank, the Los Angeles River, and the tracks on the east bank. The new Main Street bridge would be 86 feet wide and 75 feet high at its highest point over the Los Angeles River and would place three columns within the river channel. Main Street would be raised in elevation, starting from just east of Sotello Street on the west side of the Los Angeles River. The new bridge would come down to grade at Clover Street on the east side of the Los Angeles River. Several roadways on the east side of the Los Angeles River would be reconfigured, including Albion Street, Lamar Street, Avenue 17, and Clover Street. The existing Main Street bridge would not be modified, but it would be closed to public access. Figure 2-20 shows the temporary and permanent project footprint areas.

Source: California High-Speed Rail Authority (2019)

Figure 2-20 Main Street Grade Separation Footprint

2.7 Project Construction

For the Burbank to Los Angeles Project Section of the California HSR System, specific construction elements would include at-grade and underground track, grade-separated roadway crossings, retaining walls, and installation of a PTC system. Surface track sections would be built using conventional railroad construction techniques. A typical construction sequence includes clearing, grubbing, grading, and compacting the railbed; applying crushed rock ballast; laying track; and installing electrical and communications systems. The at-grade track would be laid on an earthen railbed topped with rock ballast approximately 3 feet off the ground. Fill and ballast for the railbed would be obtained from permitted borrow sites and quarries.

Retaining walls are used when it is necessary to transition between an at-grade and elevated profile. In this project section, retained fill would be used between Western Avenue and SR 134. The tracks would be raised in elevation on a retained-fill platform made of reinforced walls, much like a freeway ramp. Short retaining walls would have a similar effect and would protect the adjacent properties from a slope extending beyond the proposed rail right-of-way.

The preferred construction method for the tunnel alignment underneath the Burbank Airport runway is SEM. The tunnel alignment south of the airport would be constructed using cut-and-cover.

Pre-construction activities would be conducted during final design and would include geotechnical investigations, interpretation of anticipated ground behavior and ground support requirements, identification of staging areas, initiation of site preparation and demolition, relocation of utilities, and implementation of temporary, long-term, and permanent road closures. Additional studies and investigations to develop construction requirements and worksite traffic control plans would be conducted as needed.

Major construction activities for the Burbank to Los Angeles Project Section would include earthwork and excavation support, systems construction, bridge and aerial structure construction, and railway systems construction (including trackwork, traction electrification, signaling, and communications).

During peak construction periods, work is envisioned to be underway at several locations along the route simultaneously, with overlapping construction of various project elements. Working hours and the number of workers present at any time would vary depending on the activities being performed but could be expected to extend to 24 hours per day, seven days per week.

2.8 Independent Utility of the Burbank to Los Angeles Project Section

The Burbank to Los Angeles Project Section would have independent utility if it is able to operate as a standalone project in the event the other project sections of the HSR system are not constructed. As none of the four types of maintenance facilities would be located within the limits of the Burbank to Los Angeles Project Section, all maintenance functions for vehicles and infrastructure would be handled through an independent contractor to achieve independent utility. For power, one potential location for a TPSS has been preliminarily identified within the project section. Because the addition of a TPSS would alter the spacing of the other systems facilities, further design and environmental study would be required to environmentally clear the TPSS site and the alteration of the other systems facilities in the absence of the Palmdale to Burbank and Los Angeles to Anaheim project sections being built and operated.

Any electrical interconnections between a potential future TPSS site and existing utility providers would also have to be environmentally evaluated and cleared in subsequent documentation.

2.9 Operations of the Burbank to Los Angeles Project Section

The conceptual HSR service plan for Phase 1, starting in 2029, begins with service between Los Angeles/Anaheim running through the Central Valley from Bakersfield to Merced, and traveling northwest into the Bay Area. Subsequent sections in Phase 2 of the HSR system include a southern extension from Los Angeles to San Diego and an extension from Merced to north of Sacramento. These extensions do not have an anticipated implementation date.

Currently, the Metrolink Ventura and Antelope Valley Lines, Amtrak Pacific Surfliner and Coast Starlight, and UPRR freight trains operate within the Burbank to Los Angeles Project Section. As the proposed HSR Build Alternative is within the active LOSSAN passenger and freight rail corridor, all existing operators would have to change their operation patterns and frequency. New and realigned tracks would change the tracks on which the various users operate, with passenger rail and freight trains shifted closer to the east side of the right-of-way. With the introduction of HSR service, the proposed general operational characteristics are shown in Table 2-3.

Table 2-3 Existing and Future Trains per Day in the Los Angeles–San Diego–San Luis Obispo Rail Corridor Within the Burbank and Los Angeles Project Section

Operator	2016 Existing Conditions	2029 Opening Day	2040 Horizon Year
California High-Speed Rail Authority[1]	N/A	196	196
Metrolink[2]	61	99	99
Amtrak[3]	12	16	18
UPRR[4]	11	18	23

[1] 2029 Opening Day and 2040 Horizon Year projections are from the California High-Speed Rail Authority's "Year 2029 and Year 2040 Concept Timetable for EIR/EIS Analysis."
[2] Existing Conditions data are from the 2016 Metrolink Schedule (effective October 3, 2016); 2029 Opening Day projections are extrapolated from the 2016 Metrolink 10-Year Strategic Plan, "Growth Scenario 2: Overlay of Additional Service Patterns."
[3] Existing Conditions data are from the 2016 LOSSAN Corridor Schedule; 2029 Opening Day projections are extrapolated from 2012 LOSSAN Corridorwide Strategic Implementation Plan "Long-Term Operations Analysis" (increase of approximately one train every four years for the Amtrak Pacific Surfliner and no growth for the Amtrak Coast Starlight between Hollywood Burbank Airport and LAUS).
[4] Existing Conditions data are from the 2012 LOSSAN Corridorwide Strategic Implementation Plan "Long-Term Operations Analysis"; 2029 Opening Day projections are extrapolated from the 2012 LOSSAN Corridorwide Strategic Implementation Plan "Long-Term Operations Analysis" (increase of approximately one train every two years for UPRR between Hollywood Burbank Airport and LAUS).
Amtrak = National Railroad Passenger Corporation
LAUS = Los Angeles Union Station
N/A = not applicable
UPRR = Union Pacific Railroad

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3 BIOLOGICAL SETTING

The proposed HSR alignment for the Burbank to Los Angeles Project Section is approximately 14 linear miles and is located on the U.S. Geological Survey *Burbank*, *Hollywood*, and *Los Angeles*, *California* 7.5-minute series topographical quadrangles (Figure 3-1). The proposed alignment lies within the South Coast subregion of the California Floristic Province's Southwestern California region. This floristic subregion extends along the Pacific Coast from Point Conception to Mexico. Historically, coastal sage scrub and chaparral vegetation communities characterized this subregion (Baldwin et al. 2012); however, large segments of land within Los Angeles County have been heavily developed through urbanization within the last two centuries. As such, the proposed alignment passes through mostly urban settings consisting of residential, industrialized warehouse, and commercial business uses that run along the existing railroad transportation corridor. Remaining open space areas in the general project vicinity include Griffith Park located near the northwestern portion of the proposed alignment, and the Verdugo Mountains to the northeast of the proposed alignment. The County of Los Angeles has designated Griffith Park and the Verdugo Mountains as Significant Ecological Areas (SEA) identified for their biological values; however, these SEAs lie outside of the project footprint. The proposed alignment and associated resource study areas (refer to Section 5.1 for definitions) do not contain any identified lands covered in a Habitat Conservation Plan, Natural Community Conservation Plan, or lands designated as Critical Habitat for any state or federally listed as Threatened or Endangered plant or wildlife species.

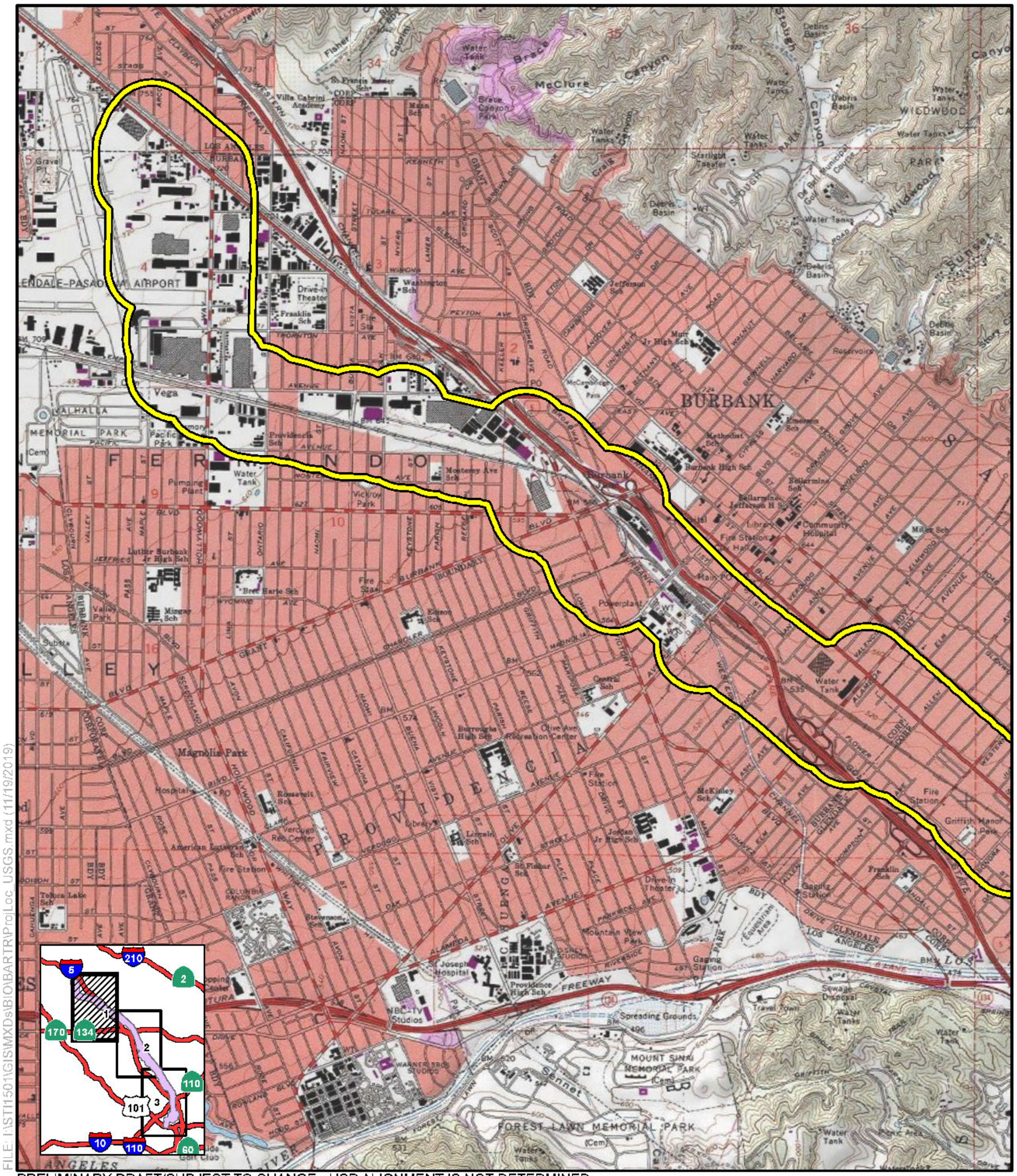
Vegetation communities associated with aquatic resources identified within the study area include fragments of riparian scrub and freshwater emergent marsh, which occur adjacent to the proposed alignment in multiple locations, including in a section of the Los Angeles River that has an earthen bottom, and in a small area at the river's confluence with Verdugo Wash where sediment has accumulated on the concrete lining. Vegetation communities not associated with aquatic resources identified within the study area include annual (ruderal) grassland found in vacant lots and other disturbed sites, mixed ornamental plantings along streetways and city parks, and small areas of planted riparian vegetation within greenways, water runoff basins, and parks adjacent to the Los Angeles River and surrounding neighborhoods.

Los Angeles County is typically dry during the late spring, summer, and early fall and receives most of its rain during the winter months (November through April). The average precipitation in Los Angeles between 1877 and the first half of 2018 was 14.70 inches per year; however, several seasons of very high rainfall levels skews this average upwards.

The proposed alignment is located within the Los Angeles River Hydrologic Unit, which drains a watershed of approximately 530,000 acres (824 square miles), as shown on Figure 3-2. Flows within the Los Angeles River Hydrologic Unit travel south to the Pacific Ocean in the City of Long Beach.

Water flowing in the Los Angeles River and its tributaries consists of freshwater, with a significant portion of the water sourced from urban runoff, wastewater treatment plant secondary effluent discharges, and storm water. Three tributaries to the Los Angeles River are also located within the study areas, including Burbank Western Channel, Verdugo Wash, and Arroyo Seco; these are mainly concrete-lined channels, as is much of the Los Angeles River.

Elevations within the study areas range from approximately 300 feet (above sea level) near LAUS and the low-lying areas along the Los Angeles River to approximately 500 feet in the northern part of the proposed alignment in the City of Burbank (Gesch 2007). The topography is relatively flat throughout the length of the alignment.



FILE: I:\STI1501\GIS\MXDs\BIO\BARTR\ProjLoc_USGS.mxd (11/19/2019)

PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: USA Topo Maps (2018); CHSRA (11/2019)

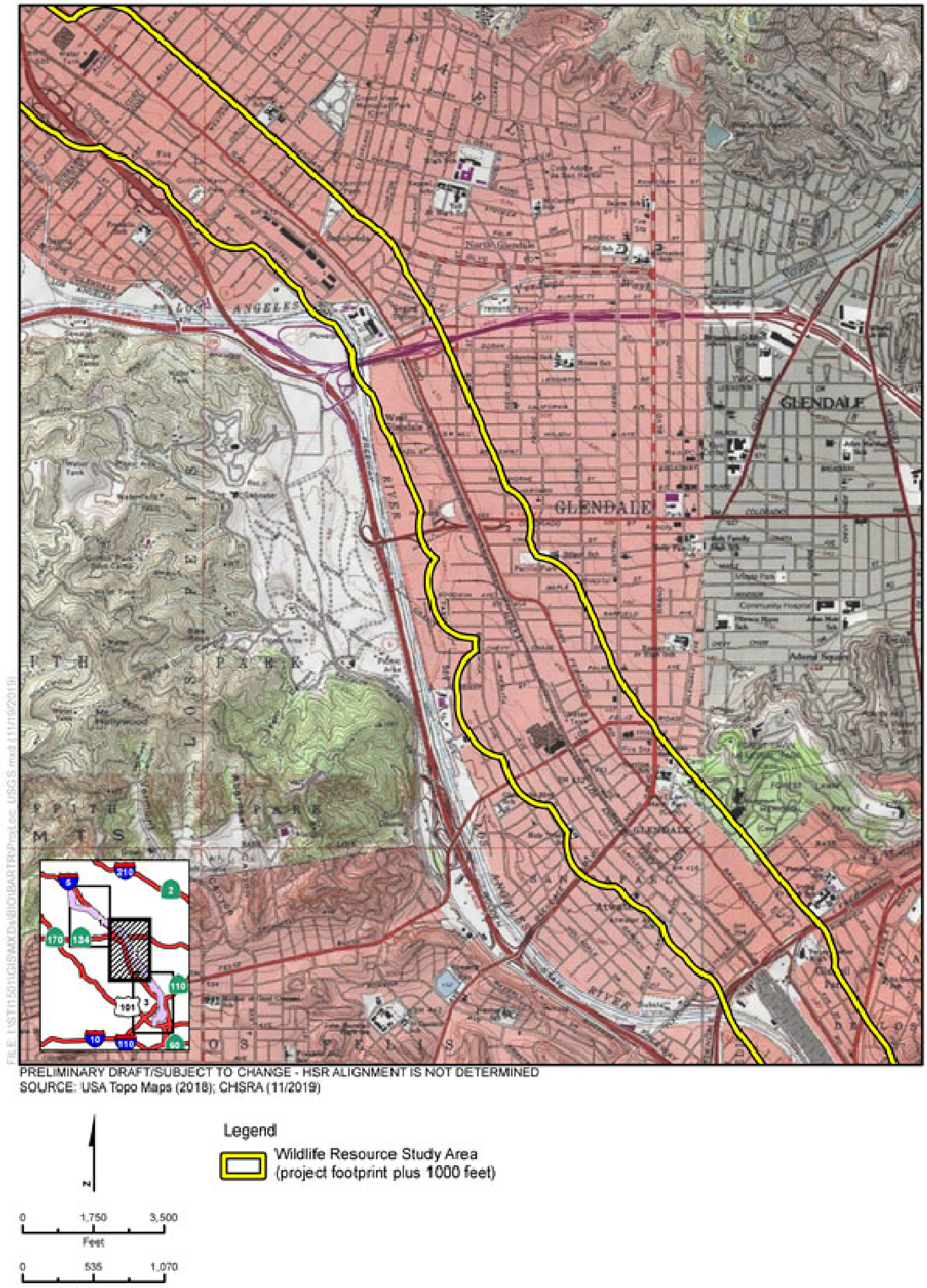
N

Legend
Wildlife Resource Study Area (project footprint plus 1000 feet)

0 1,750 3,500
Feet

0 535 1,070
Meters

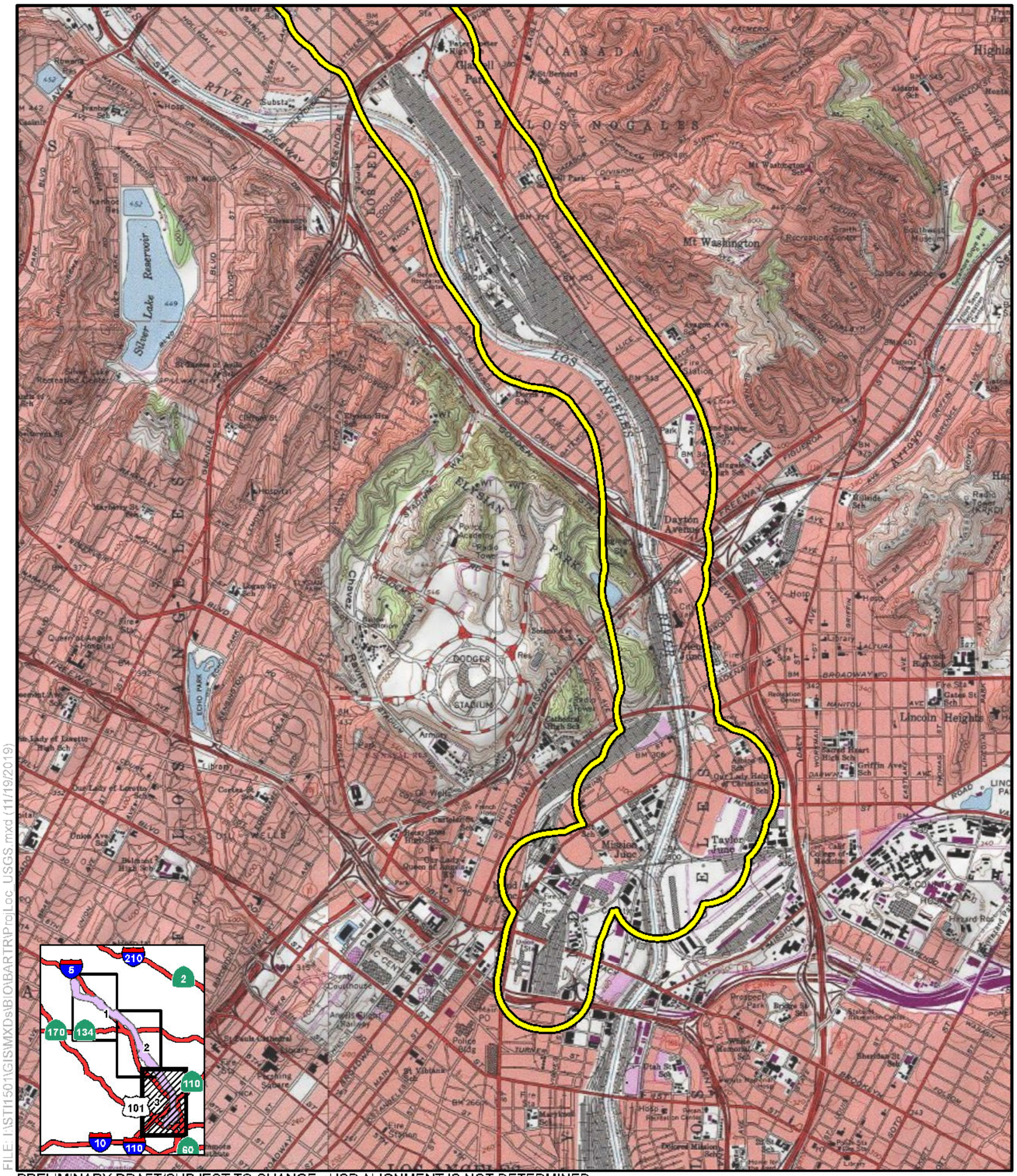
Figure 3-1 Project Location
(Sheet 1 of 3)



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: USA Topo Maps (2018); CHSRA (11/2019)

Figure 3-1 Project Location

(Sheet 2 of 3)



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: USA Topo Maps (2018); CHSRA (11/2019)

N

0 1,750 3,500
Feet

0 535 1,070
Meters

Legend

Wildlife Resource Study Area (project footprint plus 1000 feet)

Figure 3-1 Project Location

(Sheet 3 of 3)

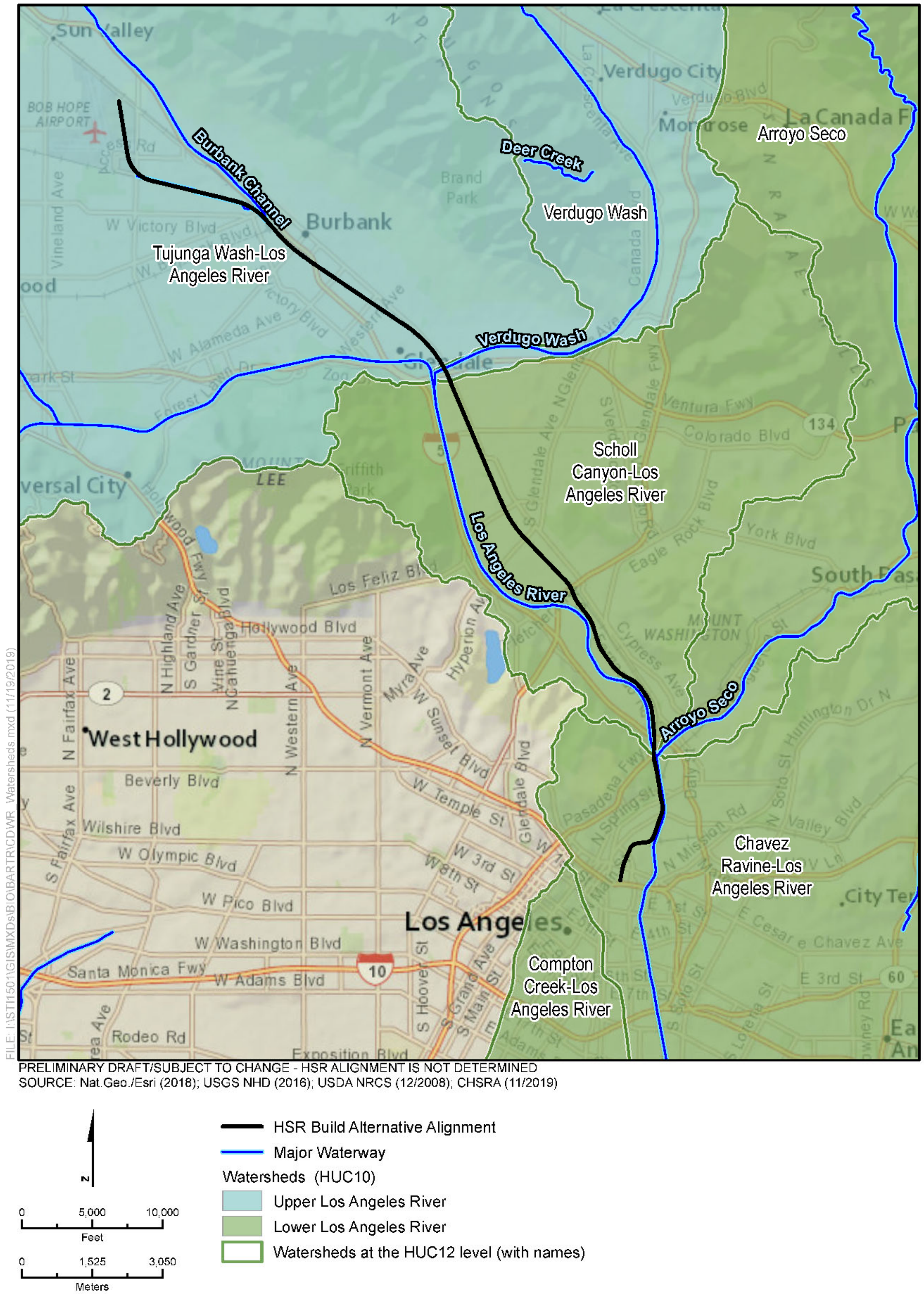


Figure 3-2 Watersheds and Surface Waters

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4 REGULATORY SETTING

This chapter identifies the federal, state, and local laws, regulations, orders, or plans that were considered for potential jurisdiction for the Burbank to Los Angeles Project Section of the California HSR System.

4.1 Federal Regulations

The following federal laws and regulations were identified and considered for jurisdiction in regard to the protection of biological resources in the Burbank to Los Angeles Project Section.

4.1.1 Endangered Species Act of 1973 (16 U.S.C. § 1531 et seq.)

The Federal Endangered Species Act (FESA) and subsequent amendments provide guidance for conserving federally listed species and the ecosystems upon which they depend. The applicable sections of FESA are further discussed below.

- Section 7 requires federal agencies to consider whether actions they authorize, fund, or carry out may affect federally listed species or their designated critical habitat. In the event of a “may affect” determination, federal agencies must consult with the United States Fish and Wildlife Service (USFWS) or the National Oceanic and Atmospheric Administration (NOAA) Fisheries, as appropriate, to ensure that the actions are not likely to jeopardize the continued existence of Threatened or Endangered fish, wildlife, or plant species or result in the destruction or adverse modification of designated critical habitat for any such species. As part of the consultation, the USFWS and NOAA Fisheries will issue a concurrence with a “may affect, but not likely to adversely affect determination” or a biological opinion, and may include an incidental take statement for wildlife species to exempt the Section 9 take prohibition.
- Section 9 and its implementing regulations prohibit the “take” of any fish or wildlife species listed under the FESA as Endangered or Threatened, unless otherwise authorized by federal regulations. Section 9 also prohibits a number of specified activities with respect to Endangered and Threatened plants.
- Section 10 provides a process by which nonfederal entities may obtain an Incidental Take Permit from USFWS or NOAA Fisheries for otherwise lawful activities that might incidentally result in “take” of Endangered or Threatened species, subject to specific conditions.

4.1.2 Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 et seq.)

The amended Magnuson-Stevens Fishery Conservation and Management Act, also known as the Sustainable Fisheries Act (Public Law 104-297), requires that all federal agencies consult with NOAA Fisheries on activities or proposed activities authorized, funded, or undertaken by that agency that may adversely affect essential fish habitat of commercially managed marine and anadromous fish species.

4.1.3 Clean Water Act (33 U.S.C. § 1251 et seq.)

The federal Clean Water Act (CWA) serves as the primary federal law protecting the quality of the nation’s surface waters, including wetlands. The potentially applicable sections of the CWA are further discussed below.

- Under Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the U.S. must obtain certification from the state in which the discharge would originate or from the interstate water pollution control agency with jurisdiction over affected waters. In circumstances where a proposed project crosses multiple Regional Water Quality Control Board (RWQCB) jurisdictional boundaries, the State Water Resources Control Board (SWRCB) will generally assume regulatory responsibilities pursuant to CWA Section 401 and the Porter-Cologne Water Quality Control Act (discussed below). In general, SWRCB and RWQCB Section 401 jurisdiction is consistent with the jurisdictional boundaries identified under CWA Section 404, which USACE administers. The SWRCB or RWQCB(s), as delegated by the USEPA, have principal authority to issue a CWA Section 401 water quality certification or waiver.

The SWRCB is processing Section 401 permits for each of the HSR project sections in consultation with the appropriate RWQCB to ensure compliance with requirements set forth in the regional basin plan.

- Under Section 402, all point source discharges including, but not limited to, construction-related stormwater discharges to surface waters, are regulated through the National Pollutant Discharge Elimination System (NPDES) program. Project sponsors must obtain an NPDES permit from the SWRCB.
- Under Section 404, the U.S. Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency (USEPA) regulate the discharge of dredged and fill materials into the waters of the U.S. Project sponsors must obtain a permit from the USACE for discharges of dredged or fill materials into proposed aquatic resources over which the USACE determines it will assert jurisdiction.

4.1.4 Rivers and Harbors Act of 1899 (33 U.S.C. § 401 et seq.)/General Bridge Act of 1946 (33 U.S.C. § 525 et seq.)

The Rivers and Harbors Act is a federal law regulating activities that may affect navigation on the nation’s waterways, and a discussion of those sections follows.

- Sections 9 and 10 of the Rivers and Harbors Act and Section 9 of the General Bridge Act require authorization for structures (including bridges) in or over any navigable waters of the U.S.
- Section 14 of the Rivers and Harbors Act (33 U.S.C 408), commonly referred to as “Section 408” provides that the Secretary of the Army, on the recommendation of the Chief of Engineers, may grant permission for the temporary occupation or use of any sea wall, bulkhead, jetty, dike, levee, wharf, pier, or other work built by the United States. Permission from the USACE is required for the use, including modifications or alterations, of any flood control facility work built by the U.S. to ensure that the usefulness of the federal facility is not impaired. The permission for occupation or use is to be granted by the “appropriate real estate instrument in accordance with existing real estate regulations.” For USACE facilities, the Section 408 approval, known as Section 408 permit, is required. The Los Angeles River is a USACE facility under Section 14 (“Section 408”) of the Rivers and Harbors Act of 1899.

4.1.5 U.S. Fish and Wildlife Coordination Act (16 U.S.C. § 661–666c)

The U.S. Fish and Wildlife Coordination Act applies to federal projects for which any body of water is impounded, diverted, deepened, or otherwise modified. Project proponents are required to consult with the USFWS and the California Department of Fish and Wildlife (CDFW) (formerly known as the California Department of Fish and Game [CDFG]).

4.1.6 Migratory Bird Treaty Act (16 U.S.C. § 703–712)

The federal Migratory Bird Treaty Act (MBTA) of 1918 prohibits the take of the nests, eggs, birds, or any parts thereof (listed at 50 Code of Federal Regulations [C.F.R.] Part 10.13 as modified by 75 Fed. Reg. § 9281). The MBTA and the Migratory Bird Treaty Reform Act of 2004 are implemented by the USFWS Division of Migratory Bird Management. Section 703 makes it unlawful to take any migratory bird.[4]

[4] According to the U.S. Department of the Interior Solicitor’s Opinion M-37050 dated December 22, 2017, the MBTA applies only to affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs.

The Migratory Bird Treaty Reform Act of 2004 amends Sections 703 to 712 such that 94 nonnative bird species that have been introduced by humans to the United States or its territories are excluded from protection. Only species considered native in 1918 are included.

4.1.7 Bald and Golden Eagle Protection Act (16 U.S.C. § 668–668(d); 50 C.F.R. Part 22)

The Bald and Golden Eagle Protection Act prohibits anyone from taking, possessing, or transporting bald eagle (*Haliaeetus leucocephalus*) or golden eagle (*Aquila chrysaetos*), or the parts, nests, or eggs of such birds without prior authorization. The Bald and Golden Eagle Protection Act regulations authorize issuance of incidental take permits of bald and golden eagles under limited circumstances.

4.2 State Regulations

The following state laws and regulations were identified and considered for jurisdiction in regard to the protection of biological resources in the HSR Burbank to Los Angeles Project Section.

4.2.1 California Endangered Species Act (Cal. Fish and Game Code, §§ 2050–2085)

The California Endangered Species Act (CESA) prohibits the take of any fish, wildlife, or plant species listed as Endangered or Threatened, or designated as candidates for listing under the CESA. Take refers to mortality or injury of the listed species itself and not the modification of a listed species' habitat. Comparable to the FESA process, the CESA contains a procedure for the California Department of Fish and Wildlife (CDFW) to issue a Section 2081 incidental take permit authorizing the take of listed and candidate species incidental to an otherwise lawful activity, subject to specified conditions, including that the take impacts are fully mitigated.

4.2.2 California Fish and Game Code

Other applicable elements of the California Fish and Game Code can be divided into three sections. Fully Protected Species (Sections 3511, 4700, 5050, and 5515), Bird Protections (Sections 3503, 3503.5, and 3513), and Lake and Streambed Alterations (Section 1600 et seq.) are enforced by the CDFW.

- Sections 3511, 4700, 5050, and 5515 designate 37 fully protected species and prohibit the take or possession at any time of such species with certain limited exceptions.
- Sections 3503, 3503.5, and 3513 protect birds. Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by code or any regulation made pursuant thereto. Section 3503.5 prohibits the take, possession, or destruction of any nests, eggs, or birds in the orders Falconiformes (New World vultures, hawks, eagles, ospreys, and falcons, among others) or Strigiformes (owls). Section 3513 prohibits the take or possession of any migratory nongame bird or part thereof, as designated in the MBTA. To avoid violation of the take provisions, it is generally required that project-related disturbance at active nesting territories be reduced or eliminated during the nesting cycle.
- Section 1600 et seq. requires notifying the CDFW prior to any project activity that might (1) substantially divert or obstruct the natural flow of any river, stream or lake; (2) substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake; or (3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. If, after this notification, the CDFW determines that the activity may substantially adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement will need to be obtained.

4.2.3 California Native Plant Protection Act (Cal. Fish and Game Code, §§ 1900–1913)

The California Native Plant Protection Act requires all state agencies to use their authority to carry out programs to conserve Endangered and Rare native plants. The California Native Plant Protection Act gives the CDFW the power to designate native plants as "Endangered" or "Rare" and prohibits the take of such plants, with certain exceptions.

4.2.4 Natural Communities Conservation Planning Act (Cal. Fish and Game Code, §§ 2800–2835)

The Natural Communities Conservation Planning Act was enacted to encourage broad-based planning to provide for effective protection and conservation of the state's wildlife resources while continuing to allow appropriate development and growth. Natural Community Conservation Plans may be implemented, which identify measures necessary to conserve and manage natural biological diversity within the planning area while allowing compatible and appropriate economic development, growth, and other human uses.

4.2.5 Porter-Cologne Water Quality Control Act (Cal. Water Code § 13000 et seq.)

The Porter-Cologne Water Quality Control Act of the California Water Code established nine RWQCBs to oversee water quality on a day-to-day basis at the local and/or regional level. Their duties include preparing and updating water quality control plans and requirements, and issuing Section 401 water quality certifications. This Act grants ultimate authority to the SWRCB over state water rights and water quality policy. In circumstances where a proposed project crosses multiple RWQCB jurisdictional boundaries, the SWRCB will generally assume regulatory responsibilities pursuant to CWA Section 401 and the Porter-Cologne Water Quality Control Act, and issues National Pollutant Discharge Elimination System permits for point-source discharges and waste discharge requirements for nonpoint-source discharges. The definition of waters under the jurisdiction of the State of California is broad and includes any surface water or groundwater including saline waters within the boundaries of the state. Isolated waters that may not be subject to regulations under federal law are considered to be waters of the state and regulated accordingly.

On April 2, 2019, the SWRCB adopted its proposed State Wetland Definition and Procedures for Discharges of Dredge or Fill Material to Waters of the State ("Procedures"). Among other provisions, the Procedures define certain "wetlands" as "waters of the State" under the Porter-Cologne Water Quality Control Act. The Procedures also provide a jurisdictional framework for the determination of aquatic features as "wetlands." Such "wetland" features under the Procedures are identified and analyzed as "aquatic resources" throughout this document. Compliance with the SWRCB Procedures for the Burbank to Los Angeles Project Section will be achieved through adherence to the provisions set forth in a Memorandum of Understanding between the SWRCB and the Authority (dated January 19, 2017; amended March 11, 2019).

4.3 Regional and Local Regulations

The HSR project is an undertaking of the Authority and the FRA, in their capacities as state and federal agencies, and is not required to be consistent with local plans. However, an understanding of the regional and local plans, ordinances, or guidelines is important to provide a context for this section of the HSR system.

The county and city laws and regulations pertaining to the protection of biological resources are listed in Table A-1 in Appendix A, Summary of Regional and Local Laws and Regulations. The organization of these policies and regulations begins with Los Angeles County, then the cities of Burbank, Glendale, and Los Angeles. The majority of these regulations are found in general plans, ordinance codes, and park master plans.

5 METHODOLOGIES

This section defines and describes the project study areas limitations, and field survey efforts and also summarizes the methods used to complete the report's effects analysis.

5.1 Definition of the Study Area

5.1.1 Resource Study Area

The resource study area (RSA) is the study area for environmental investigations specific to biological resources (including wildlife corridor analyses) and aquatic resource data searches, and encompasses all potential direct and indirect impacts within the HSR project's Burbank to Los Angeles Project Section.

The RSA is subdivided into four distinct study areas (discussed in the following sections), each with a fixed buffer extending beyond the potential area of disturbance, as shown on Figure 5-1. These distinct study areas were used during record searches and focused surveys to address specific biological and aquatic resources within the overall RSA. The varied buffer sizes for each study area are based on the level of detail necessary to assess potential affects to the specific biological and aquatic resources within the project footprint. The entire potential area of disturbance associated with the project footprint includes the proposed HSR right-of-way and associated facilities (e.g., switching and paralleling stations), grade separations, HSR stations, and all other construction areas (including laydown, storage, and similar areas). Potential indirect effects would occur in areas outside of the project footprint.

5.1.1.1 Supplemental Habitat Study Area

The Supplemental Habitat Study Area extends up to 3 miles outward from the project footprint. Records searches were conducted based on the Supplemental Habitat Study Area. Species-specific habitats were identified based on aerial photograph interpretation, documented occurrences of a species (e.g., California Natural Diversity Database [CNDDB] records), and field observations of special-status species and their habitats. The wildlife movement corridor analysis included this large study area. The Supplemental Habitat Study Area was determined based on guidance from appropriate regulatory agencies, literature, and best professional judgment.

5.1.1.2 Wildlife Resource Study Area

The Wildlife RSA consists of the project footprint plus a 1,000-foot buffer around project elements to evaluate direct and indirect impacts on special-status wildlife species and the habitat areas they may utilize. Project-specific vegetation mapping was conducted within this 1,000-foot buffer. Species-specific habitats were identified based on vegetation mapping, aerial photograph interpretation, documented species occurrences (e.g., CNDDB records), and field survey observations.

5.1.1.3 Aquatic Resource Study Area

The Aquatic RSA includes a 250-foot buffer around the project footprint to evaluate both direct and indirect impacts on aquatic resources and associated plant communities. The USFWS National Wetlands Inventory (NWI) was reviewed to identify potential aquatic resources in the Aquatic RSA. These features were located on aerial imagery to assist with the identification of sites during desktop review and mapping. Reconnaissance-level field surveys were conducted to verify biological and aquatic resource conditions identified during the desktop review.

5.1.1.4 Botanical Resource Study Area

The Botanical RSA consists of the project footprint plus a 100-foot buffer around project elements to evaluate direct and indirect impacts on special-status plant species. Records searches were conducted and species-specific habitats were identified based on aerial photograph interpretation, documented occurrences of a species (e.g., CNDDB records), and field survey observations.

Figure 5-1 Resource Study Areas

5.2 Resource Definitions

5.2.1 Special-Status Species

Special-status species are plants or animals legally protected under FESA, CESA, the California Native Plant Protection Act, the California Fully Protected Species statutes, or other regulations, as well as species considered sufficiently rare by the scientific community to qualify for such listing. Special-status species include the following:

- Species listed or proposed for listing as Threatened or Endangered under FESA (50 C.F.R. 17.12 [listed plants]); 50 C.F.R. 17.11 (listed animals); and various notices in the *Federal Register* (proposed species).
- Review of native species that are candidates for listing as Endangered or Threatened (*Federal Register* Volume 80, Page 80583, December 24, 2015).
- Species listed or proposed for listing by the State of California as Threatened or Endangered under CESA (California Code of Regulations [Cal. Code Regs.] Title 14, Part 670.5).
- Bald and golden eagles protected under the Bald and Golden Eagle Protection Act (United States Code [U.S.C.] Title 16, Sections 668 to 668d, 54 Statute 250).
- Species that meet the definitions of “Rare” or “Endangered” under the California Environmental Quality Act (CEQA) (CEQA Guidelines, Sections 15380 and 15125).
- Plants presumed by the California Native Plant Society (CNPS) to be “extinct in California” (California Rare Plant Rank [CRPR] 1A [CNPS 2015a]).
- Plants considered by the CNPS to be “Rare, Threatened, or Endangered in California” (CRPR 1B and 2B [CNPS 2015b]).
- Plants listed by CNPS as plants about which more information is needed to determine their status (CRPR 3 [CNPS 2015b]), and which may be included as special-status species on the basis of local significance or recent biological information.
- Plant species listed as Rare under the California Native Plant Protection Act (California Fish and Game Code, Section 1900, et seq.).
- Animal species of special concern to the CDFW (formerly the CDFG) (CDFW 2015a).
- Animals that are fully protected in California (California Fish and Game Code Sections 3511 [birds], 4700 [mammals], 5050 [amphibians and reptiles], and 5515 [fish]) (CDFW 2015b).

5.2.2 Special-Status Natural Communities

Special-status natural communities are plant communities of limited distribution statewide or within a county or region that are often vulnerable to the environmental impacts of projects. The list of special-status plant communities in California is currently maintained by the CDFW. In addition, plant communities listed as important plant communities within Los Angeles County according to the county’s general plan (Los Angeles County Regional Planning Department 2015) were considered special-status plant communities and addressed in this report even if they were ranked as secure in California.

All special-status plant communities would typically be based on a vegetation classification system developed by Sawyer and Keeler-Wolf from *A Manual of California Vegetation* (Sawyer et al. 2009), but the RSA is within a highly urbanized environment and, therefore, does not have any special-status plant communities that strictly correspond to the classifications in that system.

5.2.3 Aquatic Resource Areas

Aquatic resources, including wetlands, are regulated by the federal government (USACE) and/or the State of California (SWRCB) under the CWA and/or the Porter-Cologne Water Quality Control Act. USACE concurrence regarding the extent of all mapped features presented in the *Burbank to Los Angeles Project Section Aquatic Resources Delineation Report* (Appendix D; Authority

2019a) was received in July 2018. Because all identified aquatic resources within the Aquatic RSA are jurisdictional under Sections 404/401 of the CWA, there are no waters of the state within the Aquatic RSA that are not also waters of the U.S. under the currently effective definitions. As such, the term "waters of the U.S.," as used herein, includes aquatic resources regulated under currently effective SWRCB permitting requirements. Lakes, streams, and riparian areas, as defined in the California Fish and Game Code 1600 et. seq. and regulated by the CDFW, are also presented in this report (Appendix E, California Fish and Game Code Section 1600 Aquatic Resources) and are discussed further in Section 6.7.2.

Definitions of the categories that are included in the following sections are presented below.

5.2.3.1 Waters of the United States

The federal Clean Water Act (CWA 33 U.S.C. § 1251 et seq.) defines waters of the U.S. as follows:

> (a)(1) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
>
> (a)(2) All interstate waters, including interstate wetlands;
>
> (a)(3) The territorial seas;
>
> (a)(4) All impoundments of waters otherwise identified as waters of the United States under this section;
>
> (a)(5) All tributaries, as defined in paragraph (c)(3) of this section, of waters identified in paragraphs (a)(1) through (3) of this section;
>
> (a)(6) All waters adjacent to a water identified in paragraphs (a)(1) through (5) of this section, including wetlands, ponds, lakes, oxbows, impoundments, and similar waters;
>
> (a)(7) All waters in paragraphs (a)(7)(i) through (v) of this section where they are determined, on a case-specific basis, to have a significant nexus to a water identified in paragraphs (a)(1) through (3) of this section. The waters identified in each of paragraphs (a)(7)(i) through (v) of this section are similarly situated and shall be combined, for purposes of a significant nexus analysis, in the watershed that drains to the nearest water identified in paragraphs (a)(1) through (3) of this section. Waters identified in this paragraph shall not be combined with waters identified in paragraph (a)(6) of this section when performing a significant nexus analysis. If waters identified in this paragraph are also an adjacent water under paragraph (a)(6), they are an adjacent water and no case-specific significant nexus analysis is required.
>
>> (i) Prairie potholes. Prairie potholes are a complex of glacially formed wetlands, usually occurring in depressions that lack permanent natural outlets, located in the upper Midwest.
>>
>> (ii) Carolina bays and Delmarva bays. Carolina bays and Delmarva bays are ponded, depressional wetlands that occur along the Atlantic coastal plain.
>>
>> (iii) Pocosins. Pocosins are evergreen shrub and tree dominated wetlands found predominantly along the Central Atlantic coastal plain.
>>
>> (iv) Western vernal pools. Western vernal pools are seasonal wetlands located in parts of California and associated with topographic depression, soils with poor drainage, mild, wet winters and hot, dry summers.
>>
>> (v) Texas coastal prairie wetlands. Texas coastal prairie wetlands are freshwater wetlands that occur as a mosaic of depressions, ridges,

intermound flats, and mima mound wetlands located along the Texas Gulf Coast.

(a)(8) All waters located within the 100-year floodplain of a water identified in paragraphs (a)(1) through (3) of this section and all waters located within 4,000 feet of the high tide line or ordinary high water mark of a water identified in paragraphs (a)(1) through (5) of this section where they are determined on a case-specific basis to have a significant nexus to a water identified in paragraphs (a)(1) through (3) of this section. For waters determined to have a significant nexus, the entire water is a water of the United States if a portion is located within the 100-year floodplain of a water identified in paragraphs (a)(1) through (3) of this section or within 4,000 feet of the high tide line or ordinary high water mark. Waters identified in this paragraph shall not be combined with waters identified in paragraph (a)(6) of this section when performing a significant nexus analysis. If waters identified in this paragraph are also an adjacent water under paragraph (a)(6), they are an adjacent water and no case-specific significant nexus analysis is required.

(b) The following are not "waters of the United States" even where they otherwise meet the terms of paragraphs (a)(4) through (8) of this section.

(1) Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act.

(2) Prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

(3) The following ditches:

(i) Ditches with ephemeral flow that are not a relocated tributary or excavated in a tributary.

(ii) Ditches with intermittent flow that are not a relocated tributary, excavated in a tributary, or drain wetlands.

(iii) Ditches that do not flow, either directly or through another water, into a water identified in paragraphs (a)(1) through (3) of this section.

(4) The following features:

(i) Artificially irrigated areas that would revert to dry land should application of water to that area cease;

(ii) Artificial, constructed lakes and ponds created in dry land such as farm and stock watering ponds, irrigation ponds, settling basins, fields flooded for rice growing, log cleaning ponds, or cooling ponds;

(iii) Artificial reflecting pools or swimming pools created in dry land;

(iv) Small ornamental waters created in dry land;

(v) Water-filled depressions created in dry land incidental to mining or construction activity, including pits excavated for obtaining fill, sand, or gravel that fill with water;

(vi) Erosional features, including gullies, rills, and other ephemeral features that do not meet the definition of tributary, non-wetland swales, and lawfully constructed grassed waterways; and

(vii) Puddles.

(5) Groundwater, including groundwater drained through subsurface drainage systems.

Wetlands are included as a sub-classification of waters of the U.S., as described below.

5.2.3.2 Wetlands

CWA regulations define the term wetlands to mean “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.” 33 C.F.R. 328.3(b). Methodology for practical field determination of wetlands has been established in both national and region-specific USACE guidelines (USACE 2014, 2008a, 2005, 2001, 1987). According to the USACE Environmental Laboratory’s *Wetland Delineation Manual* (1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0) (2008b), three criteria must be satisfied to classify an area as a wetland: (1) a predominance of plant life that is adapted to life in wet conditions (hydrophytic vegetation); (2) soils that saturate, flood, or pond long enough during the growing season to develop anaerobic conditions in the upper part (hydric soils); and (3) permanent or periodic inundation or soils saturation, at least seasonally (wetland hydrology).

Features meeting these three parameters are classified as wetlands for purposes of this report.

5.2.3.3 Other Aquatic Resources

Other aquatic resources that do not meet wetland criteria are defined by the presence of an established bed, bank, and ordinary high water mark (OHWM) in the absence of hydrophytic vegetation. The extent of these features includes the portions of flowing waters such as rivers, streams, and creeks that are located below the OHWM. The OHWM is defined as “that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas” (33 C.F.R. 328.3(e)). For purposes of Section 404 of the CWA, the lateral limits of federal jurisdiction over non-tidal water bodies extend to the OHWM in the absence of adjacent wetlands. When adjacent wetlands are present, federal CWA jurisdiction extends beyond the OHWM to the limits of the adjacent wetlands.

Waters of the state are broadly defined by the Porter-Cologne Water Quality Control Act (Cal. Water Code § 13050(e)) to mean any surface water or groundwater, including saline waters within the boundaries of the state. Under this definition, isolated wetlands and other waters that may not be subject to regulations under federal law may be considered waters of the state and regulated accordingly.

Under California Fish and Game Code Section 1602, the CDFW takes jurisdiction over rivers, streams, and lakes. The state’s jurisdiction generally includes the streambed/lakebed to tops of bank. Although not specifically defined in California Fish and Game Code Section 1602, jurisdiction in some instances may include adjacent riparian vegetation (CDFG 1994) (discussed below). The term “stream” is commonly understood as a watercourse having a source and terminus, banks, and channel, through which waters flow at least periodically. A “streambed” under Section 1602 includes the channel of a watercourse, which is generally defined as including the depression between the banks worn by the regular and usual flow of the water.

5.2.3.4 Riparian Areas

The classification “riparian areas” is used in this report to refer to transitional zones between terrestrial and aquatic ecosystems typically considered jurisdictional under the California Fish and Game Code Section 1600 et seq. and characterized by gradients in biophysical conditions, ecological processes, and biota which distinguish these areas from the surrounding landscape (National Research Council [NRC] 2002; Gregory et al. 1991). For delineation purposes, this area is defined from the outer dripline of native/natural riparian vegetation and comprises any associated vegetation that could affect the water quality functions described above. Typically, riparian areas are regulated under the Lake and Streambed Alteration Program of the CDFW and include stream or water-dependent vegetation adjacent to a USACE or SWRCB-jurisdictional stream, lake, or other flowing waterbody. Riparian areas are not discussed in the *Burbank to Los Angeles Aquatic Resources Delineation Repor*t (Authority 2019a), because that document is focused on potentially jurisdictional features under either the CWA or the Porter-Cologne Water Quality Control Act. However, riparian areas were mapped during the aquatic resources delineation surveys and are presented in Section 6.7.2 and Appendix E of this report.

5.2.4 Habitats of Concern

5.2.4.1 Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.) requires all federal agencies to consult with the NOAA Fisheries on all actions or proposed actions (permitted, funded, or undertaken by the agency) that may adversely affect marine and anadromous fish habitats. It also requires cooperation among the NOAA Fisheries, the councils, fishing participants, and federal and state agencies to protect, conserve, and enhance essential fish habitat, which is defined as those waters and substrates needed by fish for spawning, breeding, feeding, and growth to maturity.

5.2.4.2 Critical Habitat

Critical habitat includes areas identified under Section 4 of FESA (15 U.S.C. § 1531–1544, FESA Section 3(5)(A)). Designated critical habitats are described in 50 C.F.R. 17 and 226. Specifically, critical habitat includes areas for federally listed species consisting of the specific areas within the geographic area occupied by the species at the time it is listed, in accordance with the provisions of Section 4 of FESA, on which are found those physical or biological features (constituent elements) that are essential to the conservation of the species and that may require special management consideration or protection. Critical habitat also includes specific areas outside the geographical area occupied by the species at the time it is listed, in accordance with the provisions of Section 4 of FESA, on a determination by the Secretary of the Department of the Interior or Commerce that such areas are essential for the conservation of the species.

5.2.4.3 Wildlife Movement Corridors

Wildlife movement corridors and wildlife habitat linkages are areas prioritized for conservation because they are expected to promote wildlife movement at various scales (e.g., daily foraging, seasonal migration, or dispersal). Wildlife movement corridors consist of natural areas connecting larger habitat blocks that provide critical resources (e.g., food, cover, water, and space) necessary for populations to survive and thrive. These corridors also provide opportunities for genetic and demographic exchange across these core habitat areas. Connections between smaller habitat areas that might otherwise be isolated from larger areas of habitat are particularly important. Limiting movement and constraining intra-specific genetic exchange has the potential to contribute to genetic isolation and in some circumstances, may lead to population reductions and collapse. Well-designed wildlife crossings that are properly located in the landscape may facilitate effective wildlife movement and recolonization, maintain and ensure future genetic exchange, and safeguard species populations against stochastic environmental changes and/or natural disasters (Beier and Loe 1992; Beier et al. 2008).

5.2.4.4 Protected Trees

Protected trees are trees or tree communities that have special significance and are afforded protection by, and specifically identified in, county and city ordinances, codes, or general plans. The types of trees and specific physical characteristics required to meet the local definitions vary by city and county. The county and city laws and regulations pertaining to protected trees are contained in Table A-1 in Appendix A. The organization of these policies and regulations begins with Los Angeles County, then the cities of Burbank, Glendale, and Los Angeles.

5.3 Background Information Review and Survey Data

Prior to initiating field surveys, existing background information was reviewed to identify the locations of jurisdictional waters, special-status plant and wildlife species, special-status plant communities, protected trees, wildlife movement areas, and federally designated or proposed critical habitat units recorded or potentially occurring in or near the Burbank to Los Angeles Project Section.

This section summarizes the background information reviewed for the RSA.

5.3.1 Background Information Review

5.3.1.1 Special-Status Species

A list of known or potentially occurring special-status plant and wildlife species and their designated and proposed critical habitat, special-status plant communities, and wildlife movement corridors was reviewed based on existing federal, state, and private databases, and agency information (Appendices B and C, Occurrence Records of Special-status Plant Species in or near the Study Area, and USFWS Official Species List, respectively). Database queries included all reported special-status wildlife species occurrences within the Wildlife RSA (1,000-foot buffer of the project footprint) and all reported special-status plant species occurrences with the Botanical RSA (100-foot buffer of the project footprint) based on the following data sources:

- **USFWS Information for Planning and Conservation (IPaC) Online System:** An IPaC Trust Resources Report was generated for the project area in 2016 (USFWS 2016). The report lists all proposed, candidate, threatened, and endangered species managed by the Endangered Species Program of the USFWS that have the potential to occur on or near a particular site. This database also lists all known critical habitats, national wildlife refuges, and migratory birds that could potentially be impacted by activities from a proposed project. An updated official species list was obtained from the Carlsbad Fish and Wildlife Office on April 24, 2019 (USFWS 2019).
- **California Natural Diversity Database (CNDDB)/RareFind:** In August 2016, lists were prepared of special-status plant and wildlife species and special-status plant communities through a four-quad search using the RareFind program (CDFW 2016a). This search was repeated in November 2019 to verify the latest occurrence records within the four-quad search area (CDFW 2019).
- **CNPS Online Inventory of Rare and Endangered Plants of California:** A list and map were generated of the CNPS special-status plant species that may occur in the nine-quad search area using the online inventory database in August 2016 (CNPS 2016). This search was repeated in November 2019 to verify the latest occurrence records within the nine-quad search area (CNPS 2019).
- **CDFG Natural Communities List Arranged Alphabetically by Life Form (2010a):** A list of plant communities or alliances, based on the *Manual of California Vegetation* (Sawyer et al. 2009), with rarity rankings determined by the CDFW (then called the CDFG), was used to designate the plant communities for the vegetation mapping.
- **eBird (http://ebird.org/content/ebird/):** eBird is a real-time, online checklist program launched in 2002 by the Cornell Lab of Ornithology and National Audubon Society. It provides rich data sources for basic information on bird abundance and distribution at a variety of spatial and temporal scales. eBird occurrence records within the Supplemental Habitat Study Area (project footprint plus a 3-mile buffer) were reviewed in September 2016 and November 2019.

Additionally, biologists familiar with the region and its biota used personal knowledge, published literature, and unpublished reports to round out the list of species potentially present within the RSAs.

5.3.1.2 Aquatic Resources

Pre-field survey investigations generally consisted of reviewing available background information (e.g., NWI, online aerial photography, and previous studies) to gather relevant data for aquatic resources potentially subject to federal CWA jurisdiction. Refer to the *Burbank to Los Angeles Aquatic Resources Delineation Report* (Authority 2019a) in Appendix D for specific background information reviewed for the delineation of waters of the U.S. within the Aquatic RSA.

5.3.1.3 Special-status Plant Communities and Vegetation Mapping

In preparation for mapping of special-status plant communities, the CNDDB (CDFW 2016a) was searched for occurrences of special-status communities in the Botanical and Wildlife RSAs (i.e., within 100 and 1,000 feet, respectively, of the project footprint). Aerial imagery and the *Manual of California Vegetation* (Sawyer et al. 2009) were also reviewed for potential plant communities present within the RSA. To identify the requirements for protected trees, county and city ordinances and codes, as well as available general plans and habitat conservation plans, were reviewed (Appendix A).

All vegetation mapping efforts would typically be based on the vegetation classification system developed by Sawyer and Keeler-Wolf from *A Manual of California Vegetation* (Sawyer et al. 2009). However, the RSA is within a highly urbanized environment and, therefore, does not have any plant communities that strictly correspond to the classifications in that system. As such, vegetation communities identified within the RSA were mapped and classified based on a combination of descriptions contained in *A Manual of California Vegetation* (Sawyer et al. 2009), the California Wildlife Habitat Relationships System (CDFG 1988, CDFW 2016b), and riparian habitats mapped on the USFWS NWI Wetlands Mapper (USFWS 2017, Cowardin et. al. 1979). These sources were reviewed prior to field surveys.

5.3.1.4 Critical Habitat

Proposed and Designated Critical Habitat geographic information system (GIS) layers from the USFWS Carlsbad field office website (May 2012 and April 2015) and the USFWS Environmental Conservation Online System shapefiles (last updated October 24, 2019) were reviewed to determine if any designated or proposed critical habitat occurs within the Wildlife RSA. In May 2017, the Carlsbad Fish and Wildlife Office provided an official USFWS species list containing information regarding designated critical habitat areas. The latest updated official species list was obtained on February 19, 2020.

5.3.1.5 Wildlife Movement Corridors

Previous studies, master plans, and published articles related to regional wildlife movement and opportunities to conserve or enhance linkages across the Los Angeles Basin were reviewed to identify potential wildlife movement corridors in the general project vicinity. Specific literature reviewed during the pre-survey investigations include: *Rim of the Valley Corridor Draft Special Resource Study and Environmental Assessmen*t (National Park Service [NPS] 2015); the *Los Angeles River Ecosystem Restoration Final Integrated Feasibility Report* (USACE 2015); *Common Ground: From the Mountains to the* Sea, *Watershed and Open Space Plan for the San Gabriel and Los Angeles Rivers* (The California Resources Agency, San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy, and Santa Monica Mountains Conservancy 2001); the *Arroyo Seco Watershed Restoration Feasibility Study* (North East Trees and the Arroyo Seco Foundation 2002); the Arroyo Seco Master Plans (*Hahamongna Watershed Park Master Plan*, *Central Arroyo Master Plan* and *Lower Arroyo Master Plan*; City of Pasadena 2003); the *Arroyo Seco Watershed Ecosystem Restoration Study, Los Angeles County* (USACE 2011); the *Los Angeles River Revitalization Master Plan* (City of Los Angeles 2007); and the *Greater Los Angeles County Integrated Regional Water Management Plan* (IRWMP 2014).

In addition, biologists conducted an interview with City of Los Angeles Animal Control Officer, Dinh Hoang, in November 2016. Mr. Hoang provided input on his experiences and observations regarding wildlife movement throughout the general project vicinity.

5.3.2 Field Surveys and Assessments

This section provides the survey dates, describes the survey types, and summarizes the methods used to complete the field surveys. Field surveys were conducted in 2016 and 2017. The following sections summarize the various field surveys.

5.3.2.1 Reconnaissance Field Surveys

Reconnaissance-level field surveys for this assessment were conducted by biologists on February 25, March 24, August 9 and 22, September 13 and 27, October 4, and November 3 and 15, 2016, as well as on May 9 and 12, 2017. These field surveys were conducted to ascertain the presence or absence of potential biological or aquatic resources identified during the aerial imagery, data, and literature reviews. The biologists drove and walked the proposed alignment in the public right-of-way and areas where permission to enter was granted by the Los Angeles County Department of Public Works and USACE (e.g., the Los Angeles River and flood control channels).

5.3.2.2 Delineation of Aquatic Resources

On February 25, March 24, and August 22, 2016, a team of qualified biologists conducted field surveys to confirm the presence and extent of aquatic resources mapped by the NWI and to delineate all other aquatic features potentially under jurisdiction of the USACE, the SWRCB, and the CDFW in the Aquatic RSA (250-foot buffer). The objective of the surveys was to characterize and map each of the aquatic resources in the Aquatic RSA that may potentially fall under federal and/or state jurisdiction(s). Jurisdictional features within the Aquatic RSA were classified as Riverine, Freshwater-Forested and Shrub Wetland, and Freshwater Emergent Wetland.

Areas of potential jurisdiction in the Aquatic RSA were evaluated according to USACE criteria. The boundaries of the potential jurisdictional areas were observed in the field and mapped on a series of aerial photographs (each with a scale of 1 inch = approximately 300 feet), which together show the entire RSA. Areas that were inaccessible due to lack of permission to enter (e.g. private lots and properties) were visually assessed from the nearest accessible public right-of-way. Aerial photographs of inaccessible areas were also used to verify the presence or absence of potential jurisdictional areas. Measurements of federal and state jurisdictional areas mapped during the course of the field investigation were determined by a combination of direct measurements taken in the field and measurements taken from the aerial photographs.

Refer to the *Burbank to Los Angeles Aquatic Resources Delineation Report* (Authority 2019a) in Appendix D for further details on the methodology for determining the extent of jurisdiction using USACE definitions. Riparian areas potentially subject to CDFW jurisdiction were also mapped during the aquatic resources delineation surveys and are presented in Section 6.7.2 and Appendix E of this report. A field verification survey of delineated features within the Aquatic RSA was conducted with USACE, SWRCB, and CDFW personnel on February 14, 2018.

5.3.2.3 Botanical/Special-Status Plant Surveys and Vegetation Mapping

Initially, biologists conducted a methodical examination of recent aerial photographic imagery to evaluate current site conditions and identify any potentially suitable habitat or conditions for special-status botanical resources, including special-status plant species and natural communities, within the study area. As the majority of the Wildlife RSA is within a highly urbanized environment, areas lacking the potential to support special-status botanical resources (e.g., completely developed lots) were eliminated from further review. Locations identified within the RSA to conduct focused botanical surveys included various undeveloped lots, public parks, and greenways where permission to enter was granted.

On August 9, 2016, a biologist surveyed these select areas from public rights-of-way to determine the potential for special-status plant species and to map vegetation communities. Additional surveys along select areas within the Wildlife RSA, including the Los Angeles River, Lockheed Channel, and Burbank Western Channel, were conducted on September 13 and 27, October 4, and November 3 and 15, 2016, as well as on May 9 and 12, 2017. As stated, vegetation communities identified within the RSA were mapped and classified based on a combination of *A Manual of California Vegetation* (Sawyer et al. 2009), the California Wildlife Habitat Relationships System (CDFG 1988, CDFW 2016b), and riparian habitats mapped on the USFWS NWI Wetlands Mapper (USFWS 2017). The vegetation communities identified within the Wildlife RSA during the botanical surveys are shown on the Vegetation Communities figure in Appendix F. The following subsections describe each vegetation classification used during this assessment:

- **Non-Native Grassland/Ruderal:** Introduced annual grasses are the dominant plant species in this habitat. These include wild oats (*Avena* spp.), soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), red brome (*Bromus madritensis*), wild barley (*Hordeum murinum*), and foxtail fescue (*Festuca myuros*). Common forbs include broadleaf filaree (*Erodium botrys*), redstem filaree (*Erodium cicutarium*), true clovers (*Trifolium* spp.), bur clover (*Medicago* spp.), and many others. Ruderal grassland consists of exposed dirt and early successional nonnative grassland species, including pioneering herbaceous plants that readily colonize ground that has been disturbed by natural or human causes.
- **Urban Vegetation:** To distinguish between different types of planted and/or introduced vegetation types, multiple subcategories of urban vegetation and land cover types were used, as follows:
  - **Parks and Greenways:** This vegetation type consists of introduced trees, shrubs, flowers, and grasses, with nonnative turf grass as the main understory component.
  - **Mixed Ornamental Plantings:** This vegetation type was used to map groves of ornamentally-planted trees and shrubs with both native and nonnative species components. These plantings occur mainly along city streets, neighborhoods, and freeway ramps, as well as some open-space areas with dense stands of ornamental trees and shrubs.
  - **Riparian Plantings:** This vegetation type was used to map planted riparian plant communities located in city parks, water treatment facilities, and created basins along the proposed project alignment. These plantings consist mainly of native species such as Fremont cottonwood (*Populus fremontii*), arroyo willow (*Salix lasiolepis*), mulefat (*Baccharis salicifolia*), California bulrush (*Schoenoplectus californicus*), California wild rose (*Rosa californica*), and other plant species associated with riparian areas.
  - **Developed:** Areas mapped as developed include paved roads and highways; parking lots; commercial, industrial, and residential buildings; and other hardscapes such as bike paths and walkways. Areas that were under construction during the time of surveys were also mapped as developed. Developed areas include urban landscaping such as street trees, shrubs, and turf grass that is generally surrounded by hardscape.

5.3.2.4 Wildlife Surveys and Habitat Assessment

Reconnaissance-level field surveys for this assessment were conducted by biologists on February 25, March 24, and August 9, September 13 and 27, October 4, and November 3 and 15, 2016, as well as on May 9 and 12, 2017, in order to assess the potential for the vegetation communities and structures within the Wildlife RSA to support wildlife species. The vegetation communities that may serve as wildlife habitat within the Wildlife RSA are shown on the Vegetation Communities figure in Appendix F. Structures that were surveyed for their potential to support special-status bat species are shown in the *Daytime Bat Habitat Suitability Assessment and Nighttime Survey Memorandum* in Appendix H.

5.3.2.5 Wildlife Movement and Migration Corridor Assessment

Potential wildlife movement corridors that were identified during the pre-survey background information review were confirmed during the reconnaissance-level field surveys. Investigations of wildlife use of potential corridors were conducted during each field survey and all signs of wildlife use (e.g., scat, tracks, fur, or vegetation disturbance) were noted and recorded.

5.3.3 Limitations That May Influence Field Survey Results

Limitations were encountered during the field surveys that resulted in limited access within the RSAs and may influence the results of the studies presented in this report. These limitations are beyond the Authority's control and are associated with the following issues:

- Lack of permission to enter on private properties
- Appropriate timing for seasonal surveys/variable annual weather conditions

Areas within the public right-of-way and where permission to enter was granted (e.g., the Los Angeles River and flood control channels) were thoroughly surveyed. For areas where field access was limited (e.g., private lots), data could not be collected on the ground. Therefore, estimations and assumptions regarding the presence of jurisdictional waters, special-status species, and plant communities are based on assessments from adjacent areas, aerial photographic interpretation, or post-survey GIS analysis.[5]

[5] Approximately 793 acres within the 4,980.64-acre Wildlife RSA were directly surveyed, including areas containing habitat potentially suitable for special-status plant and wildlife species (e.g., open space areas, vacant lots, city parks, and flood control channels/culverts). Additional areas were assessed from within the public right-of-way and where permission to enter was granted. More than 90 percent of the Wildlife RSA consists of urban development and private properties. All exterior areas within the proposed construction footprint (approximately 607 acres) and along the existing railroad right-of-way were thoroughly surveyed.

6 SURVEY FINDINGS AND RESULTS

6.1 Introduction

This chapter provides a description of the biological setting, the results of the background review for protected biological resources, and a summary of the field survey results, including the findings for special-status plant and animal species, botanical resources (including special-status natural communities), the delineation of jurisdictional waters, and habitats of concern.

6.2 Vegetation Communities and Land Cover Types

As noted in Section 3, Biological Setting, the proposed HSR Build Alternative passes through mostly urban settings consisting of residential, industrialized warehouse, and commercial business uses along the existing railroad transportation corridor. Vegetation communities within the Wildlife RSA include ornamental plantings along city streets, neighborhoods, parks, and greenways; nonnative (ruderal) grassland communities within vacant lots and other disturbed sites; and fragments of riparian vegetation associated with the Los Angeles River and other areas supporting aquatic resources. Table 6-1 provides a summary of all mapped vegetation and other land cover types within the Wildlife RSA, using the vegetation classifications described in Section 5.3.2.3 and vegetation communities identified by the NWI (USFWS 2017). Vegetation mapped within the Wildlife RSA is shown on the Vegetation Communities figure in Appendix F.

Table 6-1 Summary of Vegetation Communities and Land Cover Types Within the Wildlife Resource Study Area

Vegetation/Land Cover Type	Total Acreage
Mapped Vegetation Communities and Land Cover Types	
Nonnative Grassland/Ruderal	49.75
Parks and Greenways	123.45
Mixed Ornamental Plantings	95.65
Riparian Plantings	4.26
Developed	4,578.74
National Wetlands Inventory Vegetation Communities	
Freshwater Emergent Wetland	4.06
Freshwater Forested/Shrub Wetland	34.73
Freshwater Pond	4.18
Riverine	85.82
Grand Total	**4,980.64**

Source: Calculations generated using ESRI ArcGIS version 10.4 from data gathered during field surveys and aerial photograph interpretation

6.3 Special-Status Plant Species

During the literature review, 28 special-status plant species were identified as potentially occurring in or near the Botanical RSA (Appendix B). Of these 28 species, seven are federally listed as Threatened or Endangered, or state-listed as Threatened, Endangered, or Rare. All of these species were assessed for their likelihood of occurrence in the Botanical RSA. This assessment was based in large part on the results of the CNDDB (CDFW 2019) and CNPS (2019) searches for plant occurrences. Additional occurrence information was obtained from the Consortium of California Herbaria website (2019) and the USFWS (2019). These special-status plant species occurrences identified within the U.S. Geological Survey quadrangles encompassing and surrounding the Botanical RSA (i.e., Burbank, Pasadena, Hollywood, and Los Angeles). Table 6-2 provides a summary of occurrence records of special-status plant species within or near the 3-mile Supplemental Habitat Study Area. Most of these records are greater than 85 years old and are not site-specific. There are no known site-specific occurrence records of special-status plant species within the Botanical RSA. Since nearly the entire Botanical RSA is already developed and highly disturbed, field surveys were limited to reconnaissance-level surveys for the purpose of verifying site conditions observed through analysis of aerial photography. No special-status plant species were observed during the reconnaissance-level field surveys.

Table 6-2 Occurrence Records of Special-Status Plant Species Within or near the Supplemental Habitat Study Area

Plant Species	Status[1]	Occurrence Record Date(s)
Berberis nevinii Nevin's barberry	US: FE CA: SE CRPR: 1B	2000, 2007
Chorizanthe parryi var. *fernandina* San Fernando Valley spineflower	US: FC CA: SE CRPR: 1B	1890
Dodecahema leptoceras Slender-horned spineflower	US: FE CA: SE CRPR: 1B	1906
Atriplex serenana var. *davidsonii* Davidson's saltscale	US: – CA: – CRPR: 1B	1902
California macrophylla Round-leaved filaree	US: – CA: – CRPR: 1B	1906
Calochortus clavatus var. *gracilis* slender mariposa lily	US: – CA: – CRPR: 1B	2009, 2014, 2018
Calystegia felix lucky morning-glory	US: – CA: – CRPR: 3	1899
Centromadia parryi ssp. *australis* southern tarplant	US: – CA: – CRPR: 1B	1930

Plant Species	Status[1]	Occurrence Record Date(s)
Dudleya multicaulis many-stemmed dudleya	US: – CA: – CRPR: 1B	1925
Helianthus nuttallii ssp. *parishii* Los Angeles sunflower	US: – CA: – CRPR: 1A	1901
Horkelia cuneata var. *puberula* mesa horkelia	US: – CA: – CRPR: 1B	1895, 1902, 1906, 1918
Malacothamnus davidsonii Davidson's bush-mallow	US: – CA: – CRPR: 1B	1931, 2003, 2005, 2015
Navarretia prostrata prostrate vernal pool navarretia	US: – CA: – CRPR: 1B	1907
Pseudognaphalium leucocephalum white rabbit-tobacco	US: – CA: – CRPR: 2B	1932
Ribes divaricatum var. *parishii* Parish's gooseberry	CRPR: 1A	1882
Symphyotrichum greatae Greata's aster	CRPR: 1B	1902, 1932

Source: California Department of Fish and Wildlife (December 2018)
This table represents the known occurrences of the species listed here as of the date of this version. There may be additional occurrences or additional species within this area that have not yet been reported. Lack of information in the California Natural Diversity Database regarding a species or an area can never be used as proof that no special-status species occur in an area.
[1] US: Federal Classifications:
FE: Listed as Endangered
CA: State Classifications:
SE: State-listed as Endangered
CRPR: California Rare Plant Ranks are assigned by a committee of government agency and nongovernmental botanical experts, including experts from the California Native Plant Society, and are not official state designations of rarity status.
California Rare Plant Rank 1A—Presumed extinct in California
California Rare Plant Rank 1B—Rare, Threatened, or Endangered in California and elsewhere
California Rare Plant Rank 2B—Rare, Threatened, or Endangered in California, but more common elsewhere
California Rare Plant Rank 3—A review list of plants about which more information is needed

Of the 28 special-status plant species identified in the literature review, it was determined that only one (i.e., southern tarplant [*Centromadia parryi* ssp. *australis*]), which is not federally or state-listed but which does have a rank of CRPR 1B.1, currently has at least a low potential of occurring in the Botanical RSA. This species is discussed in more detail below. The remaining 27 species are not expected to occur within the Botanical RSA because existing habitat conditions are unsuitable or completely absent. Table B-1 in Appendix B summarizes the habitat requirements and range of each species and the reasoning behind the determinations of potential occurrence.

6.3.1 Southern Tarplant (*Centromadia parryi* ssp. *australis*)

Southern tarplant is an annual herb that has a blooming period of May through November. This species typically inhabits the margins of marshes and swamps, vernal pools, and vernally wet areas in grasslands. In addition, it is often associated with ruderal, disturbed areas (e.g., edges of drainage ditches, dirt road ruts and edges, and shallow depressions). Southern tarplant is known to occur below an elevation of 1,575 feet and generally along coastal Southern California from Santa Barbara County south to northern Baja California and possibly on Santa Catalina Island.

Principal threats to this species include urbanization, development, grazing, habitat disturbance, and competition from nonnative plants (CNPS 2019).

Potentially suitable habitat for this species is present within the Botanical RSA along the margins of the Los Angeles River, as well as on and along various dirt access roads with shallow depressions, road ruts, or roadside ditches. However, the nearest recorded population of southern tarplant (recorded in 1930) is somewhere in the Eagle Rock neighborhood of northeast Los Angeles approximately 2 miles northeast of the Botanical RSA. Although this database record indicates southern tarplant occurred on a vacant lot, locality information is very vague and nonspecific, and it is unknown if the population or the vacant lot continues to exist today. Potential habitat within the Botanical RSA is restricted to isolated sites due to many decades of development throughout the Los Angeles area. Most of these sites are subject to ongoing disturbances that reduce the likelihood that a large population of southern tarplant would persist in the Botanical RSA. Therefore, this species is considered to have a low-to-moderate probability of occurring in the study area.

6.4 Special-Status Wildlife Species

More than 75 special-status wildlife species were initially evaluated for their potential to occur within the Wildlife RSA. 43 of these species were ruled out due to the lack of suitable habitat, conversion of natural areas by human development, and local or regional extirpations, or because the Wildlife RSA is outside their known geographic range. The remaining 32 special-status wildlife species, listed in Table G-1 in Appendix G, Special-status Animals Potentially Occurring in the Study Area, are further evaluated in the body of this technical report for their potential to occur in the Wildlife RSA. Of the species evaluated, eight are federally or state-listed species or fully protected species, including four species for which critical habitat has been federally designated or proposed. (Critical habitat for the American peregrine falcon [*Falco peregrinus anatum*] was adopted in 1977, but the species has since been delisted.) The nearest designated critical habitat is for the southwestern willow flycatcher and is located at Hansen Dam, approximately 4 miles north of the project footprint. No special-status wildlife species were observed during the reconnaissance-level field surveys.

This evaluation was informed by the results of the CNDDB search for special-status wildlife species occurrences within the Wildlife RSA, eBird (an online database of bird sightings), and an unpublished report prepared by the Natural History Museum of Los Angeles County (*The Biota of the Los Angeles River,* 1993, K. L. Garrett, ed., prepared for CDFW). Table 6-3 summarizes the CNDDB occurrence records of special-status wildlife species within or near the 3-mile Supplemental Habitat Study Area. Figure 6-1 shows the eBird occurrence records of special-status bird species in the vicinity of the Wildlife RSA.

The special-status animal species discussed in the remainder of this section include two fish species, six reptile species, 14 bird species, and 10 mammal species. Federally and state-listed species and fully protected species (Sections 6.4.1 through 6.4.8) are addressed first in phylogenetic order, followed by other special-status species (Section 6.5) in the same order.

6.4.1 Bald Eagle (*Haliaeetus leucocephalus*)

The bald eagle is state-listed as Endangered and is a state fully protected species. It has been federally delisted but remains a bird species of concern and a U.S. Bureau of Land Management sensitive species. Bald eagles are found primarily near seacoasts, rivers, swamps, and large lakes throughout much of North America. In California, the species is found at few locations during the breeding season and is more widespread at other times of the year. An opportunistic forager, the bald eagle seeks out aquatic habitats for foraging. It prefers fish but also uses birds and mammals often as carrion, especially in the winter.

This species has been reported in the project vicinity outside the breeding season (eBird data), but not specifically within the Wildlife RSA. It is very rare in the Los Angeles Basin and is considered to have a low probability of occurrence.

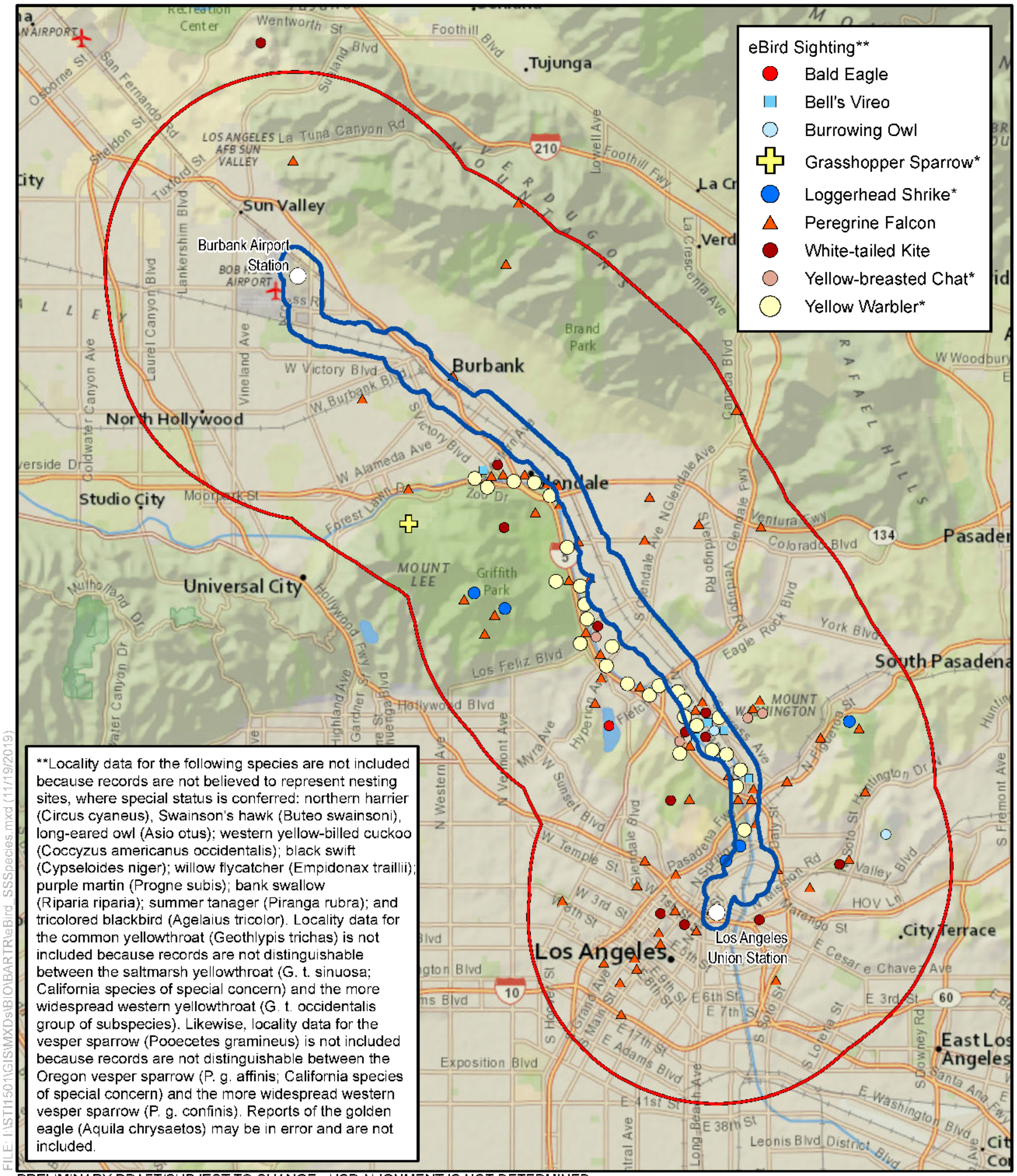
Table 6-3 Occurrence Records of Special-Status Plant Species Within or near the Supplemental Habitat Study Area

Wildlife Species	Status[1]	Occurrence Record Date(s)
Empidonax trallii extimus southwestern willow flycatcher	US: FE CA: SE (nesting)	1894, 1906
Vireo bellii pusillus least Bell's vireo	US: FE CA: SE	1893, 1897, 1898, 1911, 1913, 1914, 1922
Polioptila californica coastal California gnatcatcher	US: FT CA: SSC	1901, 1991
Riparia riparia bank swallow	US: – CA: ST (nesting)	1894
Phrynosoma blainvilli coast horned lizard	US: – CA: SSC	1931
Anniella spp. (A. *pulchra* and A. *stebbinsi*) California legless lizard	US: – CA: SSC	various non-specific records prior to 1970, 2009, 2016, 2018
Arizona elegans occidentalis California glossy snake	US: – CA: SSC	1937
Emys marmorata western pond turtle	US: – CA: SSC	1917
Athene cunicularia burrowing owl	US: – CA: SSC	1921
Neotoma lepida intermedia San Diego desert woodrat	US: – CA: SSC	2006
Nyctinomops macrotis big free-tailed bat	US: – CA: SSC	1985
Eumops perotis californicus western mastiff bat	US: – CA: SSC	1972, 1987, 1990
Lasiurus xanthinus western yellow bat	US: – CA: SSC	1984
Antrozous pallidus pallid bat	US: – CA: SSC	1905
Perognathus longimembris brevinasus Los Angeles pocket mouse	US: – CA: SSC	1903
Onychomys torridus ramona southern grasshopper mouse	US: – CA: SSC	1904

Source: California Department of Fish and Wildlife (December 2018)
This table represents the known occurrences of the species listed here as of the date of this version. There may be additional occurrences or additional species within this area that have not yet been reported. Lack of information in the California Natural Diversity Database regarding a species or an area can never be used as proof that no special status species occur in an area.

[1] US: Federal Classifications
FE Listed as Endangered
FT Listed as Threatened

CA: State Classifications
SE State-listed as Endangered
ST State-listed as Threatened
SSC California Species of Special Concern



FILE: I:\STI1501\GIS\MXDs\BIO\BARTR\eBird_SSSpecies.mxd (11/19/2019)

PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: Esri/National Geogrphic (2018); CHSRA (11/2019); eBird (9/28/2016)

N

Wildlife Resource Study Area (project footprint plus 1000 feet)
Supplemental Habitat Study Area (project footprint plus 3 miles)
HSR Stations

0 6,600 13,200
Feet
0 2,010 4,020
Meters

* Loggerhead shrike; records for years 2006-2016 only
Yellow warbler; records at potential nesting sites only
Yellow-breasted chat; records at potential nesting sites only
Grasshopper sparrow; records at potential nesting sites only

Figure 6-1 eBird Occurrence Records of Special-Status Bird Species

6.4.2 White-Tailed Kite (*Elanus leucurus*)

The white-tailed kite is a state fully protected species. White-tailed kites inhabit open grasslands and savannahs and breed in a variety of habitats, including grasslands, cultivated fields, oak woodlands, and suburban areas where prey (small mammals, reptiles, and occasionally birds) is abundant. Nests are typically built in trees near a water source and may occur in suburban areas next to open habitats. Breeding occurs between February and July, but this species may be double-brooded in some years (Baicich and Harrison 2005). During the nonbreeding season, white-tailed kites may roost communally. This species inhabits California year-round west of the Sierra Nevada. While the species is not considered migratory, it may make seasonal movements in response to prey availability (CDFG 2005).

According to eBird data, white-tailed kites are occasionally seen within the Wildlife RSA. As such, the species is considered present within the Wildlife RSA but is not known to nest in the area and is not expected to do so given the limited amount of suitable foraging habitat available.

6.4.3 Golden Eagle (*Aquila chrysaetos*)

The golden eagle is a state fully protected species and is protected under the Bald and Golden Eagle Protection Act, the MBTA, and the Migratory Bird Treaty Reform Act. Golden eagles inhabit deserts, grasslands, savannahs, oak and pine woodlands, and agricultural fields, and are typically associated with areas of little or no development. They nest on cliffs and in large trees in open areas. Golden eagles exhibit strong site fidelity and will reuse the same nest from year to year. However, it is not uncommon for a breeding pair to have several alternate nest sites in the same territory (Kochert and Steenhof 2002). The breeding season begins between February and May, depending on the latitude. Golden eagles are single-brooded and may take more than six months to completely rear a single young (Kochert and Steenhof 2002). During the nonbreeding season, they may leave nesting areas and occupy open habitats such as grasslands, savannahs, scrub, and oak woodlands. Throughout much of California, including the RSA, golden eagles inhabit the region year-round. Prey consists primarily of small to medium-sized mammals, including black-tailed jackrabbits, cottontails, and California ground squirrels.

According to eBird data, the golden eagle is occasionally seen in the Wildlife RSA, but there is generally no suitable nesting or foraging habitat present within the Wildlife RSA; therefore, this species' probability of occurrence within the Wildlife RSA is low.

6.4.4 Western Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*)

The western yellow-billed cuckoo is federally listed as Threatened and state-listed as Endangered. Its breeding range includes western North America (generally west of the Continental Divide) from southern British Columbia (historically) through the western U.S. to Baja California Sur and Zacatecas, Mexico. In California, the western yellow-billed cuckoo's breeding distribution is considered to be restricted to isolated sites in the Sacramento, Kern, and Colorado River valleys, and the species is most likely to be found in contiguous riparian forest habitats greater than 200 acres in size (Halterman et al. 2015). Cuckoos breed in extensive humid willow and cottonwood forests adjacent to slow-moving watercourses, backwaters, and seeps.
The species prefers habitats that are structurally complex with tall trees, multistoried vegetative understory, and low, woody vegetation. Single birds have been detected in smaller, isolated patches and linear riparian habitats during migration or early in the breading season (Halterman et al. 2015).

In California, cuckoos feed primarily on large insects such as caterpillars (especially large sphinx moth larvae), grasshoppers, and cicadas. They most frequently forage by gleaning insects from leaves and stems, usually while perched, but occasionally while hovering.

Although fragments of riparian habitat along the Los Angeles River are marginally suitable for the western yellow-billed cuckoo in restricted locales, the species is now so rare in Southern California that there is a very low probability of occurrence within the Wildlife RSA. Nesting within the Wildlife RSA is not expected.

6.4.5 American Peregrine Falcon (*Falco peregrinus anatum*)

The American peregrine falcon has been federally and state delisted but remains a state fully protected species. Peregrines inhabit forests, woodlands, open habitats, and, increasingly, cities. They nest on a variety of natural and artificial sites. Nests, which are usually a scrape or a depression, may be built on cliffs, ledges, banks, dunes, mounds, trees, bridges, or tall buildings. As peregrine falcons increase in number, nesting pairs are found more commonly breeding in urban habitats, using bridges, building ledges, and highway overpasses as nest sites. Peregrines typically breed from early March through late August. During the nonbreeding season, peregrines inhabit riparian areas and coastal and inland wetlands. They prey primarily on birds as large as ducks but will occasionally eat small mammals, reptiles, and insects (Peeters and Peeters 2005).

According to eBird data, the peregrine falcon is regularly seen along the Los Angeles River within the Wildlife RSA and is, therefore, considered (anecdotally) present; however, the species is not known to nest in the area and there is little suitable nesting habitat within the Wildlife RSA. Therefore, this species' probability of nesting within the Wildlife RSA is low.

6.4.6 Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

The southwestern willow flycatcher is federally and state-listed as Endangered. The breeding range is restricted to the extreme southwestern U.S. and (at least formerly) extreme northwestern Mexico. Its winter range extends from southern Mexico to northern South America. Southwestern willow flycatchers typically nest in moist, shrubby areas, often with standing or running water (e.g., thickets of willows, whether along streams in broad valleys, in canyon bottoms, around mountainsides, or at the margins of ponds and lakes). Willow flycatchers feed almost exclusively on insects that are caught on the wing, either via hawking or foliage gleaning.

Although linear fragments of riparian habitat along the Los Angeles River are marginally suitable for the southwestern willow flycatcher, the species is now so rare in Southern California that its probability of occurrence within the Wildlife RSA is very low.

6.4.7 Least Bell's Vireo (*Vireo bellii pusillus*)

Least Bell's vireo is a federally and state-listed Endangered species. Least Bell's vireos are native to California and northern Mexico, and historically bred throughout much of California. Least Bell's vireos typically breed from March into July. Breeding habitat consists of dense, shrubby riparian woodland and scrub (Brown 1993) and is typically associated with willow, mulefat, wild blackberry, or mesquite in desert localities. Nests are typically hung from branches and suspended by the rim between two twigs. The least Bell's vireo resides in California only in the spring and summer and winters in Mexico. Their diet consists primarily of insects and occasionally fruit (Bent 1950).

Since 2011, the least Bell's vireo has been found several times within the Wildlife RSA along the Los Angeles River and at the adjacent Rio de Los Angeles State Park (eBird data) and is, therefore, considered (anecdotally) present. Suitable nesting habitat exists in these areas within the RSA, but the species has no records of nesting in the area since 1914 (CDFW 2016a).

6.4.8 Coastal California Gnatcatcher (*Polioptila californica californica*)

The coastal California gnatcatcher is a California Species of Special Concern and a federally-listed as Threatened species. Coastal California gnatcatchers are resident (non-migratory) in coastal sage scrub habitats from southern Ventura County in southwestern California southward throughout the Baja California Peninsula. Typical breeding and foraging habitat consists of low shrubs (mostly 3-6' tall), generally dominated by California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), sages (*Salvia* spp.), and prickly-pear cactus (*Opuntia* spp.).

While there is a historical occurrence record near Roscoe Elementary School (north of Hollywood Burbank Airport) dated 1901 (CDFW 2016a), and small, isolated pockets of potentially suitable habitat were identified within the Wildlife RSA near Rio de Los Angeles State Park, habitat suitability is generally very low within the Wildlife RSA and there are no recent occurrence records within the Wildlife RSA. The species is considered to have a low probability of occurrence within the Wildlife RSA.

6.5 Other Special-Status Species

6.5.1 River-Related Special-Status Species

Two special-status fish species are listed in Table G-1 in Appendix G: the arroyo chub (*Gila orcuttii*) and Santa Ana speckled dace (*Rhinichthys osculus* ssp. 3). However, both species are believed to be extirpated from the Wildlife RSA due to the lack of suitable habitat, impaired water quality, and introduction of nonnative fish species in the concrete-lined channels within the Wildlife RSA.

Also believed to be extirpated from the Los Angeles River due to lack of suitable habitat and impaired water quality is one special-status reptile species, the western pond turtle (*Emys marmorata*).

Two special-status reptile species (California Species of Special Concern) that may persist along the river within the Wildlife RSA are the California legless lizard (*Anniella pulchra* [or *A. Stebbinsi*]) and two-striped garter snake (*Thamnophis hammondii*).

Legless lizards are typically restricted to undisturbed moist, loose, mulchy, sandy soils such as sand, loam, or humus. These lizards are commonly found in washes, loose soil near the base of slopes, and in the vicinity of streams. Their preferred habitats include streamside growth of sycamores, cottonwoods, and oaks. California legless lizards forage for insects and spiders at the base of shrubs and vegetation. *Anniella pulchra* was recently split into five distinct species, including *A. Stebbinsi,* and there are nonspecific historical occurrence records of these species within the Supplemental Habitat Study Area. The California legless lizard has a low probability of occurrence within the Wildlife RSA, particularly in undeveloped areas around the Los Angeles River.

The two-striped garter snake is highly aquatic. It is found only in or near permanent sources of water, such as streams with rocky beds supporting willows or other riparian vegetation. The two-striped garter snake has a moderate probability of occurrence within the Wildlife RSA, particularly within select vegetated portions of the Los Angeles River.

In addition to the three listed riparian bird species discussed in more detail above in Sections 6.4.4, 6.4.6, and 6.4.7, the saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*), yellow warbler (*Setophaga petechia*), and yellow-breasted chat (*Icteria virens*) are included in Table G-1. The yellowthroat is a winter visitor to Southern California and is believed to have a low likelihood of occurrence in the Wildlife RSA. In Southern California, the other two species are closely associated with riparian habitat such as that found along the Los Angeles River in the Wildlife RSA. The warbler is common and known to nest in the Wildlife RSA along riparian habitats associated with the Los Angeles River.

6.5.2 Special-Status Upland Species

Three special-status reptile species are included in Table G-1, but all are given a low probability of occurrence due to the presence of marginally suitable habitat near Elysian Park: coast horned lizard (*Phrynosoma blainvilli*), coastal whiptail (*Aspidoscelis tigris stejnegeri*), and California glossy snake (*Arizona elegans occidentalis*). Natural upland habitat is essentially nonexistent within the Wildlife RSA, and the horned lizard is believed to be extirpated from the area altogether (Bezy et al. 1993).

Three additional special-status upland bird species are listed in Table G-1 due to the presence of isolated pockets of potentially suitable habitat within undeveloped lots: burrowing owl (*Athene cunicularia*), loggerhead shrike (*Lanius ludovicianus*), and grasshopper sparrow (*Ammodramus savannarum*). All are typical of open spaces and were once common in the Los Angeles Basin but now have a low probability of nesting within the Wildlife RSA (Allen et al. 2016). Historic and ongoing developments within the Wildlife RSA limit the potential for these species to occur.

Two special-status upland mammal species are also included in Table G-1, both of which have a low probability of occurrence due to the presence of potentially suitable habitat near Elysian Park. Like the two special-status upland bird species, the San Diego black-tailed jackrabbit (*Lepus californicus*) historically was once common in open spaces of the Los Angeles Basin but is now extirpated from most areas. The San Diego desert woodrat (*Neotoma lepida intermedia*) has been observed in Griffith Park as recently as 2006, but habitat within the Wildlife RSA is restricted to isolated pockets near Elysian Park.

6.5.3 Special-Status Bat Species

Eight special-status bat species have the potential to occur in the Wildlife RSA: Townsend's big-eared bat (*Corynorhinus townsendii*), California leaf-nosed bat (*Macrotus californicus*), western mastiff bat (*Eumops perotis californicus*), pocketed free-tailed bat (*Nyctinomops femorosaccus*), big free-tailed bat (*Nyctinomops macrotis*), western red bat (*Lasiurus blossevillii*), western yellow bat (*Lasiurus xanthinus*), and pallid bat (*Antrozous pallidus*). All are considered to have at least a moderate probability of occurring in the Wildlife RSA except for the California leaf-nosed bat and Townsend's big-eared bat, which are probably extirpated from the Wildlife RSA due to the high degree of anthropogenic disturbance and loss of suitable habitats for these species.

While the Los Angeles River may provide foraging opportunities for all of these bat species, potentially suitable breeding and roosting habitats are more limited within the Wildlife RSA. Urban areas are likely to provide limited foraging habitat, although several of these species may roost in structures associated with urban land use. Potential roost sites are expected to be scattered and limited to areas where suitable trees, buildings, bridges, culverts, caves or cave analogues, or rock crevices are present.

Bat roosting was confirmed during the habitat assessment surveys[6] by direct observations of bats and/or bat sign (e.g., guano, urine staining, or vocalizations) at 20 structures within and adjacent to the Wildlife RSA, and the probability of roosting is moderate to high at an additional 26 structures where bats and bat sign were not observed during the field surveys. Yuma myotis (*Myotis yumanensis*) was the only bat species observed during the field surveys and was detected roosting within multiple drainage structures in the Wildlife RSA. Other bat species that may roost in structures within the Wildlife RSA include Mexican free-tailed bat (*Tadarida brasiliensis*), big brown bat (*Eptesicus fuscus*), and pallid bat. One type of guano observed during the habitat assessment was consistent in size and deposition with either big brown bat or pallid bat. Bat species that may roost in trees within the Wildlife RSA include western yellow bat, western red bat, and hoary bat. Refer to Appendix H, *Daytime Bat Habitat Suitability Assessment and Nighttime Survey Memorandum*, for further information regarding the bat habitat assessment conducted for the Burbank to Los Angeles Project Section.

6.6 Special-Status Natural Communities

Special-status natural communities (also known as special-status plant communities) have been determined to be significant or to represent rare vegetation types and/or to have limited distribution statewide or within a county or region. These include riparian areas that are jurisdictional to the CDFW under the California Fish and Game Code Section 1600 et seq., as well as other unique environments. The CDFW maintains a list of special-status natural communities in California in its *Vegetation Classification and Mapping Program—Natural Communities List* (CDFG 2010).

Two special-status natural communities, Freshwater-Forested and Shrub Wetland and Freshwater Emergent Wetland, are identified by the NWI and were confirmed as occurring within the Aquatic RSA during the aquatic resources delineation surveys. They are associated with the Los Angeles River and Verdugo Wash, and are shown on Figure 6-2 and on the Vegetation Communities figure in Appendix F.

[6] Bat habitat assessment surveys were conducted throughout the Wildlife RSA on September 13 and 27, October 4, and November 3 and 15, 2016, and on May 9 and 12, 2017.

Figure 6-2 National Wetlands Inventory Occurrence Records of Special-Status Natural Communities

(Sheet 1 of 2)

PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: Bing Maps (2018); CHSRA (11/2019); NWI (2017)

Aquatic Resource Study Area (project footprint plus 250 feet)

Special-Status Natural Communities

Freshwater Forested/Shrub Wetland

Freshwater Emergent Wetland

N

0 400 800
Feet

0 120 240
Meters

Figure 6-2 National Wetlands Inventory Occurrence Records of Special-Status Natural Communities

(Sheet 2 of 2)

Freshwater-Forested and Shrub Wetland and Freshwater Emergent Wetland are also considered aquatic resources and are included in Section 6.7.1, Wetlands.

The following five other special-status vegetation communities occur within the 3-mile supplemental habitat study area: California Walnut Woodland, Southern Coast Live Oak Riparian Forest, Southern Cottonwood Willow Riparian Forest, Southern Sycamore Alder Riparian Woodland, and Walnut Forest (CDFW 2019). Each of these special-status natural communities occur outside of the Wildlife RSA within larger open space areas such as the Verdugo Mountains and Griffith Park.

6.6.1 Freshwater-Forested and Shrub Wetland

Freshwater-Forested and Shrub Wetland consists generally of riparian scrub habitat and occurs within distinct sections of the Los Angeles River where the river has an earthen bottom, as well as within Verdugo Wash at its confluence with the Los Angeles River. Dominant species in riparian scrub include mulefat (*Baccharis salicifolia*), willow (*Salix* spp.) trees, and Fremont's cottonwood (*Populus fremontii*). Occasionally, small stands of marsh species such as California bulrush (*Schoenoplectus californicus*) and cattails (*Typha* sp.) are interspersed with riparian scrub. Nonnative weedy species commonly observed included giant reed (*Arundo donax*), poison hemlock (*Conium maculatum*), and broad-leaved peppergrass (*Lepidium latifolium*). Much of the Freshwater-Forested and Shrub Wetland within the Aquatic RSA is impacted by trash and other disturbances stemming unauthorized access and pollution (homeless encampments, urban runoff, etc.). Nonnative species components constitute approximately 25 percent of the vegetative cover within these areas.

6.6.2 Freshwater Emergent Wetland

Freshwater Emergent Wetland occurs in the Glendale Narrows area at the confluence of Verdugo Wash with the Los Angeles River and within the earthen-bottom areas of the Los Angeles River. Within the Aquatic RSA, Verdugo Wash is a concrete trapezoidal channel until it passes beneath San Fernando Road, where it transitions into an area containing vegetation characteristic of wetlands before joining the Los Angeles River. This portion of Verdugo Wash containing Freshwater Emergent Wetland components consists of areas where enough sediment has accumulated on the concrete lining to support emergent hydrophytic vegetation and a small area where there appears to be an earthen bottom. Species typically found in freshwater marsh habitat include California bulrush, cattails, nonnative smartweed (*Persicaria* sp.), and water speedwell (*Veronica anagallis-aquatica*). This particular area of Verdugo Wash also contains native willow trees and nonnative giant reed. Much of the Freshwater Emergent Wetland within the Aquatic RSA is impacted by trash and other disturbances stemming from unauthorized access and pollution (homeless encampments, urban runoff, etc.), and is subject to shift or being washed away during high-flow events. Nonnative species components constitute up to 50 percent of the vegetative cover within these areas.

6.7 Aquatic Resources

This section presents the results of the delineation of aquatic resources in the Aquatic RSA, including waters, wetlands, and riparian areas. Aquatic resources in the project vicinity, including waters of the U.S., waters of the state, and state streambeds, lakes, and associated riparian vegetation are regulated by the USACE, the SWRCB, and the CDFW, respectively. A field verification survey of delineated features within the Aquatic RSA was conducted with USACE, SWRCB, and CDFW personnel on February 14, 2018. A Preliminary Jurisdictional Determination confirming the extent of mapped jurisdictional waters of the U.S. was received for the project section from the USACE in July 2018. Further information regarding the delineation of aquatic resources subject to federal CWA jurisdiction can be found in Appendix D.

6.7.1 Wetlands

The following two wetland types identified by the NWI were confirmed as occurring within the Aquatic RSA during the aquatic resources delineation surveys: Freshwater-Forested and Shrub Wetland, and Freshwater Emergent Wetland. Although they are primarily concrete channels, the

Los Angeles River channel and Verdugo Wash, at its confluence with the Los Angeles River, contain sections in the Aquatic RSA where there is an earthen bottom and where sufficient sediment has accumulated to support wetlands. Refer to Sections 6.6.1 and 6.6.2 for a detailed description of the two wetland types, their associated vegetation, and conditions encountered during the field surveys.

The total acreage of delineated USACE wetland waters of the U.S. within the Aquatic RSA is 12.08 acres, as shown in Table 6-4. These areas are also considered special-status natural communities and are shown on Figure 6-2. All wetlands identified by the NWI were confirmed during the aquatic resources delineation surveys and additional surveys conducted within the Aquatic RSA.

Table 6-4 Summary of Potential Waters of the U.S. Within the Resource Study Area

Waters Type	Acreage
Freshwater Emergent Wetland	
Los Angeles River	0.77
Verdugo Wash	0.58
Freshwater Forested/Shrub Wetland	
Los Angeles River	10.28
Verdugo Wash	0.45
Riverine	
Los Angeles River	50.11
Verdugo Wash	0.42
Arroyo Seco	0.41
Lockheed Channel	3.42
Burbank Western Channel	4.25
Total Acreage	**70.69**

Source: Calculations generated using ESRI ArcGIS version 10.4 from data gathered during field surveys and aerial photograph interpretation
U.S. = United States

6.7.2 Other Aquatic Resources

The NWI categorizes areas within the Lockheed Channel, Burbank Western Channel, Los Angeles River, Verdugo Wash, and Arroyo Seco that lack vegetation and are concrete-lined, as Riverine. The Los Angeles River generally runs parallel to the project alignment throughout the RSA. Based on the findings presented in the July 6, 2010, letter from the USEPA Region IX Administrator to Colonel Mark Toy, P.E., the Los Angeles River has been designated a traditionally navigable water from its origins at the confluence of Arroyo Calabasas and Bell Creek to San Pedro Bay at the Pacific Ocean, a distance of approximately 51 miles. The USEPA letter documents the CWA jurisdictional determination for the Los Angeles River based on a “special case” made by USEPA Region IX pursuant to the USEPA-USACE 1989 memorandum of agreement regarding coordination on matters of geographic jurisdiction. Lockheed Channel, Burbank Western Channel, Verdugo Wash and Arroyo Seco appear to have relatively permanent waters that flow into the Los Angeles River. The Los Angeles River, a traditionally navigable water, connects with the Pacific Ocean, also a traditionally navigable water.

The total delineated USACE non-wetland waters within the Aquatic RSA is 58.61 acres. These areas are classified by the NWI as Riverine and are shown in Appendix F, Vegetation Communities.

Under California Fish and Game Code Section 1602, the CDFW takes jurisdiction over lakes and streambeds, to top-of-bank or edge of adjacent riparian vegetation where it extends beyond top-of-bank. CDFW jurisdiction generally includes the streambed/lakebed and bank, together with the adjacent riparian vegetation. Within the Aquatic RSA, California Fish and Game Code Section 1600 aquatic resources generally coincide with delineated waters of the U.S. within Lockheed Channel, Burbank Western Channel, Verdugo Wash, Arroyo Seco, and the Los Angeles River. However, California Fish and Game Code aquatic resources extend beyond the ordinary high water mark, where present, to the top-of-bank within trapezoidal portions of the Los Angeles River, and do not include waters within underground/covered portions of the Lockheed Channel and Burbank Western Channel. Delineated California Fish and Game Code Section 1600 aquatic resources are shown in Appendix E and summarized in Table 6-5.

Table 6-5 Summary of California Fish and Game Code Section 1600 Aquatic Resources Within the Resource Study Area

Feature	Acreage
Arroyo Seco	0.41
Burbank Western Channel	3.37
Los Angeles River	79.87
Lockheed Channel	2.24
Verdugo Wash	1.46
Grand Total	**87.35**

Source: Calculations generated using ESRI ArcGIS version 10.4 from data gathered during field surveys and aerial photograph interpretation

6.8 Habitats of Concern

There are no Natural Community Conservation Plan or Habitat Conservation Plan areas in any of the biological RSAs. There are, however, two Los Angeles County-designated SEAs in relatively close proximity to the proposed project footprint. The Griffith Park SEA is located in between Interstate 101 and Interstate 5, south of SR 134, approximately 0.42 miles west of the nearest proposed HSR project components. While Griffith Park provides habitat for many regional wildlife species, the open space area has become increasingly isolated over the years due to urban development throughout the Los Angeles Basin. Griffith Park's connection to the Los Angeles River is important for the future of wildlife and plant connectivity in the region.

The Verdugo Mountains SEA is located within the Verdugo Mountains, approximately 0.38 miles northeast of the nearest proposed HSR project components (e.g., Burbank Airport Station). This SEA encompasses the Verdugo Mountains south of Interstate 210 and east of Interstate 5, as well as a portion of open space north of Interstate 210. The Verdugo Mountains are connected to the Los Angeles River channel at the base of the Santa Monica Mountains and are an important source of habitat for regional wildlife species otherwise isolated by urban development.

6.8.1 Essential Fish Habitat

The Los Angeles River does not currently provide habitat for anadromous fish, primarily because the river's concrete lining replaced suitable habitat for the species. Historically, the Los Angeles River supported a population of Southern California steelhead trout (*Oncorhynchus mykiss irideus*), an anadromous fish species that is federally listed as Endangered; however, the species has been extirpated from the Los Angeles River (Moyle et al. 1995). Moreover, steelhead habitat generally does not warrant consideration under the Magnuson-Stevens Fishery Conservation and Management Act since it is not a targeted commercial species. The Southern California Steelhead Recovery Plan includes the Los Angeles River in its Distinct Population Segment Recovery Planning Area and indicates that the plan would involve large-scale ecosystem restoration, including the removal of the river's concrete lining and barriers to fish passage.

The Southern California Steelhead Recovery Plan has not yet been implemented, and there is currently no suitable steelhead trout or essential fish habitat present within the Wildlife RSA. Furthermore, the HSR Build Alternative will not place any barriers to fish passage within the Los Angeles River. Therefore, the proposed project will not adversely affect marine or anadromous fish habitat, and the Authority will not be required to consult with NOAA Fisheries under the Magnuson-Stevens Fishery Conservation and Management Act for the Burbank to Los Angeles Project Section.

6.8.2 Critical Habitat

Critical habitat is an area identified under Section 7 of FESA (15 U.S.C. 1531–1544, FESA Section 3(5)(A)) for a particular federally listed species. Both proposed and designated critical habitats require special management consideration or protection. Critical habitat is further described in 50 C.F.R. 17.94, 402, and 424. There is no critical habitat for any species within the Wildlife RSA.

6.8.3 Wildlife Movement Corridors

The Burbank to Los Angeles Project Section's Wildlife RSA is located in a highly developed urban environment. There are several large regionally important open spaces that remain relatively undeveloped outside of the Wildlife RSA that provide core habitat for wildlife including Griffith Park at the eastern extension of the Santa Monica Mountains (west of the proposed HSR alignment) and the Verdugo Mountains, San Rafael Hills, San Gabriel Mountains (north and east of the proposed HSR Build Alternative (NPS 2015). In addition to these large habitat blocks, there are numerous smaller open space areas, pocket parks, landscape strips, and less dense development that may also serve as habitat islands that provide connectivity bridges between the more distant core habitat blocks. Some of these habitat areas are listed in Table 6-6. In order to traverse these dispersed habitats, wildlife in urban environments may travel through a network of streets, alleyways, freeways, yards, parking lots, storm drains, and other built structures as part of their regular daily or seasonal movement pattern.

Table 6-6 List of Parks and Open Spaces in the Project Vicinity

West of Proposed HSR Alignment	East of Proposed HSR Alignment
Santa Monica Mountains	Verdugo Mountain Park
Griffith Park	La Tuna Canyon Park
Los Angeles Equestrian Center	Wildwood Canyon Park
Bette Davis Picnic Area	North Atwater Park
Silver Lake	Los Feliz Golf Course
Rowena Reservoir	Glassell Park
Echo Park	Montecito Heights
Elysian Park	Rose Hill Park
Los Angeles State Historic Park	Ernest E. Debs Regional Park
–	Hermon Park
–	Rio De Los Angeles State Park
–	Mount Washington
–	Lincoln Park
–	Hazard Recreation Center
–	Ascot Hill Park

HSR = high-speed rail

City of Los Angeles Animal Control Officer, Dinh Hoang (personal communication 2016), provided input on his experience working in the area. He reported that mammals such as coyote, raccoon, opossum, and skunk have adapted to the densely developed urban environment. These species are found throughout the Wildlife RSA and are known to navigate the network of roads, freeways, and yards at the local level. These species are also known to traverse residential, commercial, and industrial areas, as well as utilize the flood control/storm drainage channel system as movement corridors. Mr. Hoang describes these species as being highly capable and adapted to the urban environment with the ability to find their way through culverts, as well as scale over or squeeze through gaps in fences. Coyote movement is generally broad throughout the urban environment compared to the more localized movement patterns of raccoon, opossum, and skunk. Although less prevalent, mountain lions have been seen east of Interstate 5 from Burbank to SR 134 (Hoang, personal communication 2016). Mountain lions have also been well documented using habitat in the Griffith Park area (NPS 2013).

Some of the existing linear barriers include the freeways and roads, railroad corridor, and drainage channels. The freeways in the Wildlife RSA include Interstate 5, SR 134 (Ventura Freeway), SR 2 (Glendale Freeway), and SR 101 (Arroyo Seco Parkway). Interstate 5 generally parallels the HSR alignment, and SR 134, SR 2, and SR 101 bisect the HSR alignment. Most of these freeways provide a relatively continuous high volume of traffic and are lined with chain-link fence or block wall that restrict most wildlife movement. The existing railroad corridor is mostly fenced and is also heavily used by commuter and freight trains on a daily basis. Wildlife crossing opportunities are limited to drainage channels and culverts, as well as freeway and roadway undercrossings and overcrossings.

The extensive flood control and drainage system within the Wildlife RSA provide both opportunities as movement corridors and barriers. The main drainage channels within the Wildlife RSA include the Los Angeles River, Burbank Western Channel, Lockheed Channel, Verdugo Wash, and Arroyo Seco. The HSR alignment generally parallels the Burbank Western Channel and Los Angeles River, while Verdugo Wash and Arroyo Seco bisect the HSR alignment. The Burbank Western Channel and Verdugo Wash primarily consist of rectangular open concrete channels with chain-link fence on either side that would prevent wildlife from entering the channels except at the few maintenance vehicle ramps. Wildlife can travel up and down these channels that extend from the Los Angeles River to the Verdugo Mountains (approximately 5 miles) where they outlet near Chandler Canyon (Burbank Western Channel) and Oakmont Country Club golf course (Verdugo Wash); however, their lack of cover within the long rectangular concrete channel may limit use. The Los Angeles River is a wide trapezoidal channel with slope banks that provide a more accessible ingress and egress into the river system. The bottom of the Los Angeles River provides some limited wetland and riparian cover to conceal movement. Arroyo Seco provides a movement corridor between the Los Angeles River near Elysian Park and the San Rafael Hills. The trapezoidal channel provides opportunities for wildlife to enter and exit the channel and the concrete bottom prevents the development of vegetative cover.

These drainage channels are known to facilitate wildlife movement in the heavily developed urban environment (Hoang, personal communication 2016). One coyote was observed within the Los Angeles River near the river's confluence with Verdugo Wash during the November 15, 2016, reconnaissance-level survey. Raccoon tracks were also observed within portions of the Lockheed Channel and Burbank Western Channel during the October and November 2016 reconnaissance-level surveys.

6.8.4 Protected Trees

Protected trees, as defined in the Los Angeles County Code of Ordinances as well as the municipal and administrative codes of the cities of Glendale, Burbank, and Los Angeles, are present throughout the Botanical RSA and along the proposed HSR alignment. Most of these trees are ornamentally planted, nonnative species within the public right-of-way and along the existing railroad corridor. The county and city laws and regulations pertaining to protected trees are contained in Table A-1 in Appendix A.

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7 AFFECTED ENVIRONMENT AND EFFECTS ANALYSIS

This chapter discusses the potential effects of the proposed Burbank to Los Angeles Project Section of the California HSR System on biological and aquatic resources based on survey results, occurrence data, and information gathered during the pre-survey investigations. Potential effects are described separately for two distinct project periods: construction and operation (including maintenance). The major activities included in the construction period, as discussed in Section 2.7 of this report, are site preparation and earthwork; bridge, support structure, and road crossing construction; and railway systems construction. The operations period will begin after construction is complete, and includes activities associated with the operation of the HSR system, including necessary maintenance activities.

7.1 No Project Alternative

Under the No Project Alternative, existing trends affecting biological and aquatic resources within the biological RSAs are expected to continue, including mortality from train and other vehicle strikes; habitat degradation from pollution (e.g., polluted runoff from stormwater and inadvertent spills of hazardous materials); noise, light, and dust from existing roads and highways; and alterations to habitat suitability and hydrology resulting from climate change. Existing regulatory programs, such as the CWA and conservation programs (e.g., establishment of conservation easements and mitigation banks), would continue to abate the amount of habitat loss and degradation from urban development, if feasible. Effects that are expected to continue to occur include those related to programmed and funded improvements to the intercity transportation system through 2040. In some cases, widening existing corridors or new improvements could result in additional impacts on biological and aquatic resources. Each of these improvement projects would be subject to environmental impact analysis and evaluation of the impacts of habitat loss, habitat degradation, and “take” of special-status species. Impacts on biological resources and jurisdictional waters would be mitigated as part of those projects, including avoidance of “take” during construction, minimization of impacts during construction and operation, restoration of disturbed sites, and preservation of compensatory habitat.

In addition, foreseeable projects that are planned, committed, or otherwise part of a general plan, master plan, or specific plan are assumed to be implemented regardless of the introduction of the Burbank to Los Angeles Project Section of the HSR system. These plans include the Los Angeles River Revitalization Master Plan, which would include creation and reestablishment of historical riparian strand and freshwater marsh habitat to support increased populations of wildlife and enhance habitat connectivity within the study area, as well as to provide opportunities for connectivity to ecological zones such as the Santa Monica Mountains, Verdugo Hills, Elysian Hills, and San Gabriel Mountains. Other plans related to long-term development and the management of natural resources in the vicinity of the proposed HSR Build Alternative include the Los Angeles County General Plan 2035, the Burbank 2035 General Plan, the City of Glendale General Plan, the City of Los Angeles General Plan, the City of Los Angeles Central City Community Plan, and the City of Los Angeles Specific Plan.

7.2 High-Speed Rail Build Alternative

The Build Alternative for the Burbank to Los Angeles Project Section includes one alignment option, which would be below-grade for approximately 2 miles between the proposed underground Burbank Airport Station and N Sparks Street, and would be at the surface for approximately 12 miles between N Sparks Street and LAUS. Further information regarding the project alignment options previously considered can be found in the Authority’s *Supplemental Alternatives Analysis for the Burbank to Los Angeles Project Section* (Authority 2016). The Build Alternative has been designed to avoid or minimize effects to biological and aquatic resources to the maximum extent practicable. Potential effects to biological and aquatic resources are discussed throughout the following sections.

The HSR stations for the Burbank to Los Angeles Project Section would be located in the vicinity of Hollywood Burbank Airport and at LAUS. However, no significant effects to biological and aquatic resources are anticipated at the station sites due to the developed nature of the sites as well as ongoing disturbances that occur at each site (e.g., traffic, planes, trains, and maintenance activities). No maintenance facilities are proposed to be located within the Burbank to Los Angeles Project Section.

7.3 Vegetation Communities and Land Cover Types

This section provides a summary of potential direct temporary and permanent impacts to mapped upland vegetation communities and land cover types that would occur during construction of the HSR Build Alternative. Potential permanent and temporary impacts to aquatic resources, including wetlands and riparian vegetation communities, are discussed in Section 7.7.2 and Section 7.7.3. No direct impacts to vegetation are anticipated once the HSR Build Alternative is constructed other than the routine trimming or removal of vegetation required to maintain the right-of-way and related HSR infrastructure.

The construction footprint of the HSR Build Alternative would be approximately 607 acres, including both permanent and temporary direct disturbance areas.[7] Table 7-1 provides a summary of the HSR Build Alternative's direct impacts to mapped upland vegetation communities and land cover types. Impacts to aquatic resources are presented in Section 7.7.

Table 7-1 High-Speed Rail Build Alternative Direct Impacts by Upland Vegetation and Land Cover Type

Mapped Vegetation/Land Cover Type	Temporary Impacts (acres)	Permanent Impacts (acres)	Total Direct Impact Acreage
Nonnative Grassland/Ruderal	<0.01	2.15	2.15
Parks and Greenways	2.00	1.03	3.03
Mixed Ornamental Plantings	0.37	2.14	2.51
Developed	216.21	379.97	596.18

Source: Calculations generated using ESRI ArcGIS version 10.4 from data gathered during field surveys and aerial photograph interpretation

Temporary construction impacts would include the trimming and temporary removal of vegetation occurring in staging areas and other temporary construction easement areas.

Permanent construction impacts would occur in areas where the expanded railroad right-of-way and other HSR infrastructure overlap with mapped vegetation and land cover types. No direct removal of any special-status natural communities would occur under the HSR Build Alternative.

7.4 Special-Status Plant Species

Although no special-status plant species have been documented as occurring within the Botanical RSA, construction of the HSR Build Alternative would result in direct and indirect effects to potentially suitable habitat for southern tarplant, a nonlisted special-status plant species identified as having a low-to-moderate probability of occurring within select areas of the Botanical RSA. Potential habitat for southern tarplant is restricted to isolated sites throughout the Botanical RSA (e.g., undeveloped lots and ruderal areas along the margins of waterways and other mesic, disturbed sites). Potentially suitable habitat for southern tarplant that would be directly affected by the HSR Build Alternative is shown on Figure 7-1. Many of these sites are situated along the existing railroad corridor and are subject to ongoing disturbances (i.e., urban runoff, litter, frequent ground disturbance, dust, and vegetation maintenance). The suitability of any of these sites to support southern tarplant is subject to change due to ongoing development throughout the Botanical RSA. Table 7-2 provides further details regarding each of these sites.

[7] The disturbed surface area calculation is approximate and includes the footprint of the stations, grade separations, existing right-of-way, utility relocations, and proposed expansion of right-of-way, as well as construction staging areas and temporary construction easements.

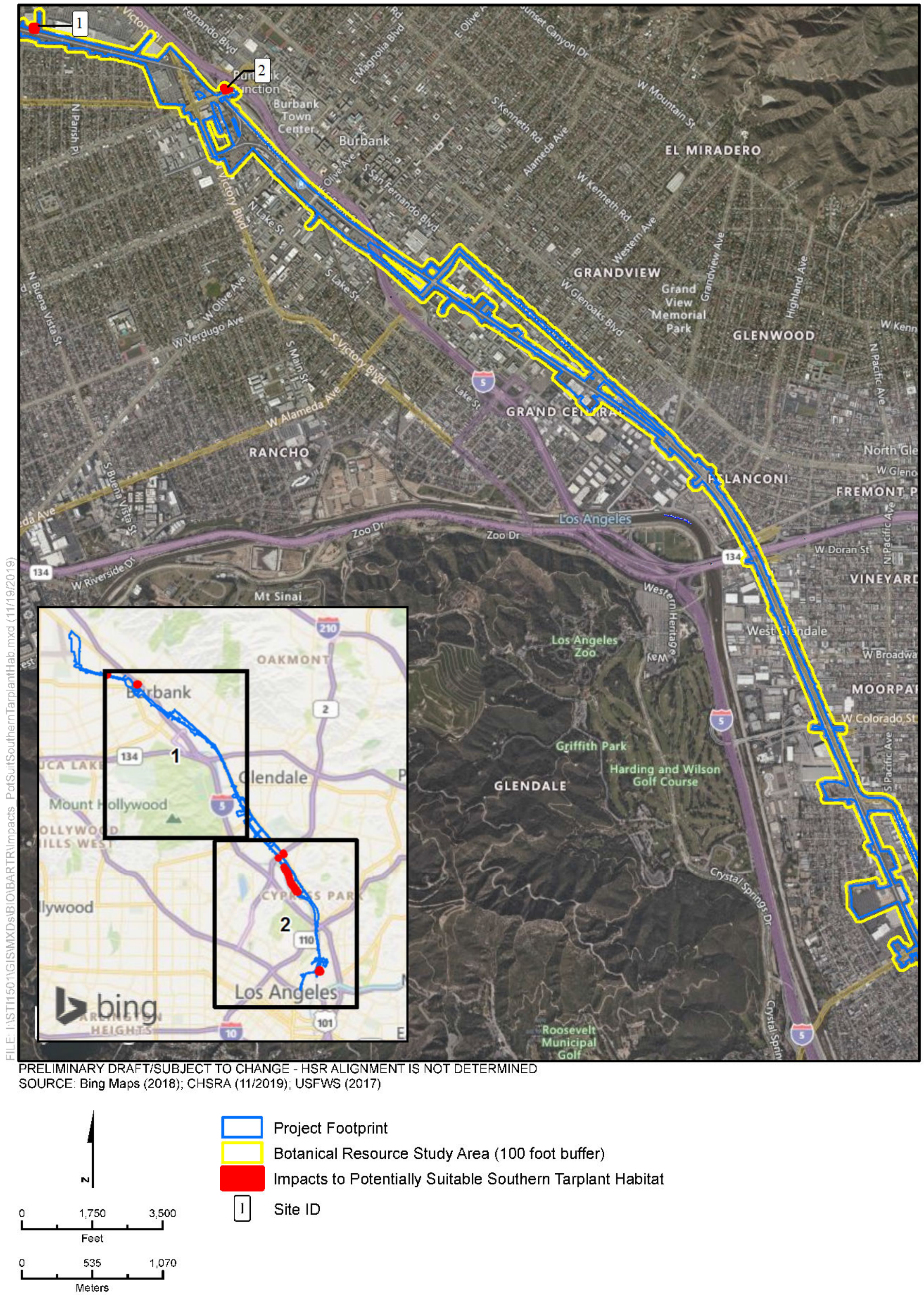
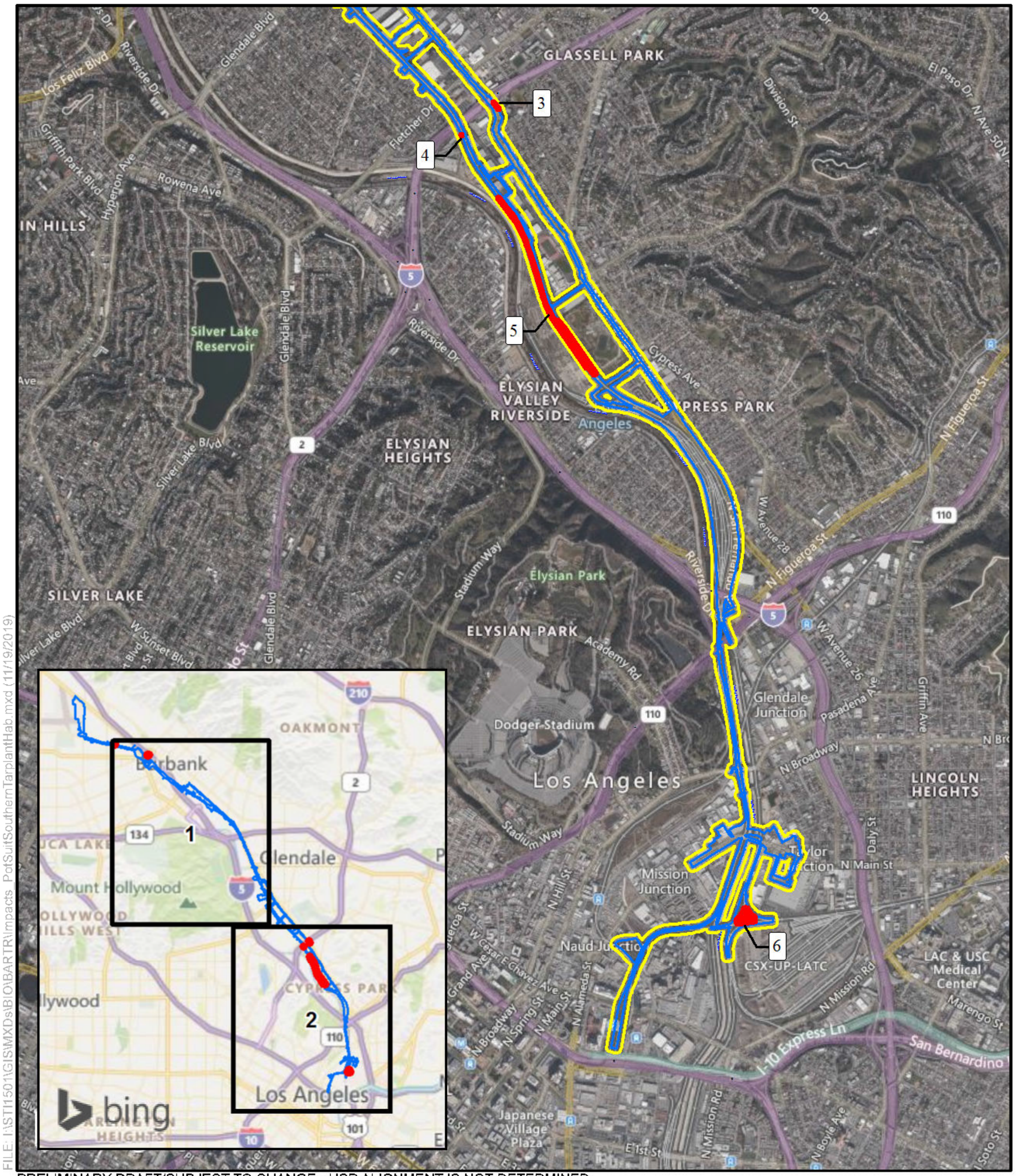


Figure 7-1 Impacts to Potentially Suitable Southern Tarplant Habitat

(Sheet 1 of 2)



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: Bing Maps (2018); CHSRA (11/2019); USFWS (2017)

FILE: I:\STI1501\GIS\MXDs\BIO\BARTR\Impacts_PotSuitSouthernTarplantHab.mxd (11/19/2019)

N

0 1,750 3,500 Feet

0 535 1,070 Meters

- Project Footprint
- Botanical Resource Study Area (100 foot buffer)
- Impacts to Potentially Suitable Southern Tarplant Habitat
- 1 Site ID

Figure 7-1 Impacts to Potentially Suitable Southern Tarplant Habitat

(Sheet 2 of 2)

Table 7-2 High-Speed Rail Build Alternative Direct Impacts to Potentially Suitable Habitat for Southern Tarplant

Site Number[1]	Site Details	Temporary Impacts (acres)	Permanent Impacts (acres)	Proposed Project Features and Activities Resulting in Impacts
1	Vacant lot located adjacent to the existing railroad ROW in the City of Burbank. Consists of disturbed annual grassland/ruderal vegetation.	-	0.43	Expanded railroad ROW; TCE; utility relocations and easements; permanent access
2	Undeveloped area between the existing railroad ROW and Interstate 5 consisting of ruderal and ornamental vegetation. Near the intersection between N Front Street and W Burbank Boulevard in the City of Burbank.	-	0.22	Roadway improvements associated with expanded railroad ROW
3 and 4	Small disturbed ruderal sites along the existing railroad ROW and N San Fernando Road, near State Route 2 in the City of Los Angeles.	0.02	-	TCE; utility relocations and easements
5	Taylor Yard property consisting of disturbed nonnative grassland and ruderal vegetation between the existing railroad ROW and the Los Angeles River, near Rio De Los Angeles State Park. Large portion of property is subject to be restored under the planned Los Angeles River Revitalization Project (City of Los Angeles 2007).	0.31	3.76	Expanded railroad ROW; utility easements; permanent access
6	Disturbed, undeveloped site with ruderal vegetation adjacent to the Los Angeles River, just east of the existing Mission Tower railroad bridge. The site is located between existing Union Pacific Railroad tracks.	-	1.90	Expanded railroad ROW; permanent access

Source: Calculations generated using ESRI ArcGIS version 10.4 from data gathered during field surveys and aerial photograph interpretation
[1]Sites are shown on Figure 7-1, numbered north to south.
ROW = right-of-way
TCE = temporary construction easement

Due to the highly disturbed and developed urban conditions prevalent throughout the entire study area, no other special-status plant species are expected to be directly or indirectly impacted by construction of the proposed project.

A description of potential temporary and permanent effects on southern tarplant as a result of project activities is provided in the subsections below.

7.4.1 Construction Effects on Special-Status Plant Species

Several potential effects typically associated with construction would be minimized and/or completely avoided by incorporation of the project's IAMFs (discussed in Section 8 of this report). Effects associated with the accidental spills of hazardous materials or erosion and sedimentation resulting from construction would be minimized or avoided through implementation of the Storm Water Pollutions Prevention Plan (SWPPP), which has been integrated into the project design. The SWPPP includes spill prevention and response planning, and erosion-control specifications.

Potential temporary and permanent effects on special-status plant species (i.e., southern tarplant) that may result from project construction are described below.

7.4.1.1 Temporary Effects—Southern Tarplant

Should southern tarplant individuals be present in areas where potentially suitable habitat was identified in the Botanical RSA, potential direct and indirect temporary effects on any southern tarplant individuals within or near the project footprint would result from construction vehicle traffic, the temporary use of land for staging and access areas (although these areas will be sited within areas planned for permanent effects to the maximum extent practicable), and other construction-related activities that are temporary in nature and that would allow plant populations to re-establish following construction.

Temporary direct effects on southern tarplant, if present within the project footprint during construction, could occur due to the clearing, grubbing, covering, undercutting, and damaging of roots, or the unearthing of individual plants. The specific locations where suitable southern tarplant habitat was mapped within the project footprint are shown on Figure 7-1. Dust and airborne soil, which may settle on southern tarplant individuals, may inhibit their ability to photosynthesize or reproduce through pollination. Soil compaction and the placement of fill may directly affect southern tarplant by causing decreased fitness or death by root compaction, decreased germination from the seed bank, and/or covering of the plants with soil. Chemical spills have the potential to contaminate the soil and groundwater, resulting in mortality, habitat degradation, or reduced reproductive success of any potential southern tarplant. Temporary construction activities (e.g., grading and excavation) would also alter existing drainage patterns and redirect stormwater runoff, potentially altering suitable southern tarplant habitat in the Botanical RSA. However, it should be noted that temporary construction activities would not substantially alter existing conditions affecting plants within the Botanical RSA.

7.4.1.2 Permanent Effects—Southern Tarplant

Although no special-status plant species have been documented as occurring within the Botanical RSA, construction of the HSR Build Alternative would result in direct construction-period effects to potentially suitable southern tarplant habitat, including the conversion of undeveloped lots to project infrastructure (refer to Figure 7-1 for specific locations). Should southern tarplant individuals be present within the permanent construction footprint, the construction of tracks, stations, maintenance and equipment storage areas, access roads, road overcrossings, and other permanent facilities would result in a permanent impact to individual plants through direct removal or by placing an impenetrable cap over the seed bank. However, most suitable habitat for southern tarplant mapped within the Botanical RSA (approximately 17 acres) lies outside of the construction footprint and would not be permanently removed during construction of the HSR Build Alternative. Approximately 6.31 acres of potentially suitable habitat, which is currently subject to ongoing disturbances associated with the existing urban setting, would be permanently altered by the HSR Build Alternative (refer to Figure 7-1 and Table 7-2 for specific locations).

Indirect permanent effects on potential southern tarplant habitat would occur from the construction of HSR components that alter the landscape and may include changes in habitat due to erosion and sedimentation resulting from construction activities. Displaced sediment and major changes to microtopography could alter the soil and substrate conditions preferred by southern tarplant. Effects on hydrology may affect water availability to support southern tarplant and may inhibit growth, survival during harsh conditions, and germination. Potential habitat fragmentation would result from the construction of permanent features, especially linear features, including track and access roads that bisect suitable habitat for southern tarplant. Such effects could limit population sizes by interrupting seed dispersal. Construction activities would potentially facilitate the introduction and spread of invasive and noxious weeds through the introduction of their seeds by construction equipment, vehicles, and personnel, and could provide ample habitat for colonization where ground-disturbing activities occur. This would result in potential increased competition between invasive, nonnative plant species and the native southern tarplant.

7.4.2 Operations and Maintenance Effects on Special-Status Plant Species

Temporary and permanent operation effects on southern tarplant, a nonlisted special-status species with a low-to-moderate potential of occurrence within the RSA, are considered below. No other special-status plant species are expected to be directly or indirectly impacted by operation and maintenance of the proposed project.

7.4.2.1 Temporary Effects—Southern Tarplant

No direct temporary effects on special-status plant species are anticipated during project operation due to the lack of suitable habitat and conditions required for such species to occur within the operational disturbance limits.

Potential indirect effects from maintenance activities such as unintentional pollution and/or contamination of adjacent habitat areas suitable for southern tarplant, would be avoided through implementation of the IAMFs listed in Section 8.

7.4.2.2 Permanent Effects—Southern Tarplant

No direct permanent effects on special-status plant species are anticipated during project operation due to the lack of suitable habitat and conditions required for such species to occur within the operational disturbance limits. Indirect operational effects would include increasing the potential for introducing and spreading invasive and nonnative plant species in areas adjacent to the railroad right-of-way, which could impact southern tarplant (if present) through increased competition and degradation of suitable habitat.

7.5 Special-Status Wildlife Species

In total, 32 special-status wildlife species were determined to have at least a low potential of occurrence within the Wildlife RSA, eight of which are federally or state-listed species or fully protected species. However, general habitat suitability is low for the majority of these species throughout the Wildlife RSA, and the construction and operation of the HSR Build Alternative is expected to have minimal direct and indirect effects on special-status wildlife species and their habitats. Habitats mapped within the Wildlife RSA are shown on the Vegetation Communities figure in Appendix F, and Appendix G, Table G-1, contains detailed descriptions of each species' probability of occurrence within the Wildlife RSA. Table 7-1 includes a summary of potential direct impacts on mapped upland vegetation communities and land cover types. Potential permanent and temporary impacts to riparian and wetland vegetation communities are discussed in Section 7.6.1 and Section 7.6.2.

Based on mapped suitable habitat and species occurrence records within the study areas, as well as the implementation of the IAMFs listed in Section 8 of this report, the Burbank to Los Angeles Project Section of the California HSR System is not likely to adversely affect, or result in the incidental take of any state or federally listed wildlife species. This determination is to be confirmed by the USFWS and CDFW during consultations with each respective agency, as applicable. The EIR/EIS that will be prepared for this project will also propose appropriate mitigation measures to reduce or eliminate the potential for such effects.

A general description of potential effects as a result of the Burbank to Los Angeles Project Section is provided in the subsections below.

7.5.1 Construction Effects on Special-Status Wildlife Species

The project would not substantially affect any potential habitat for special-status species other than special-status bat species, which may roost in buildings that may be removed or in bridges that are planned to be widened or retrofitted for the project. Nearby areas inhabited by other special-status species, primarily along the Los Angeles River, will likely be subjected to increased noise during construction, but noise levels are already elevated by existing train operations on the railroad right-of-way and the urbanized setting of the Wildlife RSA. Potential temporary and permanent effects on special-status wildlife species that may result from project construction are described in the subsections below.

With implementation of the IAMFs listed in Section 8, effects to these resources would be minimized, reduced, and/or avoided. The EIR/EIS that will be prepared for this project will also propose appropriate mitigation measures to reduce or eliminate the potential for such effects and compensate for unavoidable effects where necessary.

7.5.1.1 Temporary Effects

Temporary construction effects on special-status wildlife species may result from activities such as construction vehicle traffic; the temporary use of land for staging and access areas (although these areas will be sited within areas planned for permanent effects to the maximum extent practicable); noise, light, and vibration from construction activities; and other construction-related activities that are temporary in nature.

Reptiles

No special-status reptile species are expected to occur in areas directly affected by construction. The two-striped garter snake may be present in the Los Angeles River and may be affected by increased noise and lighting levels during construction.

With implementation of the IAMFs listed in Section 8, effects to these resources would be minimized, reduced, and/or avoided. The EIR/EIS that will be prepared for this project will also propose appropriate mitigation measures to reduce or eliminate the potential for such effects and compensate for unavoidable effects where necessary.

Birds (Including Migratory Birds Covered Under the Migratory Bird Treaty Act)

Construction activities may affect special-status bird species and migratory birds through the disturbance of potential nesting habitat. Habitat along the Los Angeles River is of greatest concern, where the listed least Bell's vireo has been documented as occurring.

Such disturbance includes noise and vibration associated with construction activities and equipment. If construction occurs during the breeding season (February 1 through September 1), active nests could be disturbed, potentially causing the loss of eggs or developing young (i.e., nest abandonment during the incubation, nestling, or fledgling stages of these species).

With implementation of the IAMFs and best management practices (BMP) listed in Section 8, effects to these resources would be minimized, reduced, and/or avoided. The EIR/EIS that will be prepared for this project will also propose appropriate mitigation measures to reduce or eliminate the potential for such effects and compensate for unavoidable effects where necessary.

Mammals

Construction activities also have the potential to directly and indirectly affect special-status bat species. Occupied bridges, culverts, and structures that contain highly suitable roosting features within the construction footprint along the existing railroad right-of-way are of particular concern and include the following:

- Lockheed Channel crossings and modifications (City of Burbank)
- Burbank Western Channel crossings and modifications (City of Burbank)
- Magnolia Boulevard grade separations (City of Burbank)
- Modifications to the existing Burbank Metrolink Station (City of Burbank)[8]
- Olive Avenue overcrossing (City of Burbank)
- Alameda Avenue undercrossing (City of Burbank)
- Various overcrossings in the vicinity of Verdugo Wash (City of Glendale)

[8] The proposed Downtown Burbank Metrolink Station modifications are included as an early investment project (refer to Section 2 for further details).

- Culverts within the Los Angeles River channel adjacent to the existing railroad right-of-way (City of Los Angeles)
- Various bridges over the Los Angeles River channel adjacent to the existing railroad right-of-way (City of Los Angeles)
- Buildings that would be removed during construction
- Railway and roadway grade separations currently under construction or planned to be constructed for unrelated projects along the existing railroad right-of-way

Temporary effects (e.g., increased noise, dust, and vibration) would indirectly affect bats roosting in adjacent structures during construction activities. Lighted construction areas would disorient bats in the vicinity of such activities and would disrupt nocturnal foraging activities.

With implementation of the IAMFs listed in Section 8, effects to these resources would be minimized, reduced, and/or avoided. The EIR/EIS that will be prepared for this project will also propose appropriate mitigation measures to reduce or eliminate the potential for such effects and compensate for unavoidable effects where necessary.

7.5.1.2 Permanent Effects

The permanent construction effects of the HSR Build Alternative involve the removal of buildings for construction or staging areas, the widening of an existing rail bridge over Verdugo Wash, modifying various bridges and crossing structures along the existing railroad right-of-way, a realignment and partial undergrounding of storm channels, and the creation of new bridges in the southern portion of the RSA. Any of these types of structures that contain suitable roosting features (e.g., hinges, crevices, or perches) may be used by a variety of bat species for roosting. New and expanded bridges and realigned underground storm channels may provide additional habitat for special-status bat species, resulting in a beneficial project effect. Given the developed nature of the permanent construction footprint, no other special-status species are expected to be permanently affected by construction of the HSR Build Alternative.

7.5.2 Operations and Maintenance Effects on Special-Status Wildlife Species

Potential temporary and permanent effects on special-status wildlife species that may result from project operations and maintenance activities are described in the subsections below.

With implementation of the IAMFs listed in Section 8, effects to these resources would be minimized, reduced, and/or avoided. The EIR/EIS that will be prepared for this project will also propose appropriate mitigation measures to reduce or eliminate the potential for such effects and compensate for unavoidable effects where necessary.

7.5.2.1 Temporary Effects

While maintenance activities associated with the HSR Build Alternative would be mostly restricted to access roads and project infrastructure (where special-status wildlife species are not anticipated to occur), several maintenance activities (e.g., vegetation maintenance or structural maintenance requiring equipment that would generate noise, dust, and vibration) have potential to directly and indirectly affect special-status bird species and migratory birds through the disturbance of potential nesting habitat. Habitat along the Los Angeles River is of greatest concern, where the occurrence of the listed least Bell's vireo (*Vireo bellii pusillus*) has been documented.[9] While the direct removal of riparian habitat would not occur under the HSR Build Alternative, anticipated indirect disturbances include noise and vibration associated with

[9] A FESA Section 7 consultation with the USFWS will be required for potential indirect impacts to least Bell's vireo and a Biological Assessment will be prepared. Minimization and mitigation measures included in the project EIR/EIS will be provided in the Biological Assessment. The Biological Assessment will be provided to the USFWS and it is expected that concurrence with a *May Affect, Not Likely To Adversely Affect* determination will be requested for least Bell's vireo. No other listed special-status species are anticipated to be directly or indirectly affected by the project.

maintenance activities and equipment. If such maintenance activities occur during the breeding season (February 1 through September 1; January 1 to September 1 for raptors), active nests could be disturbed, potentially causing the loss of eggs or developing young (i.e., nest abandonment during the incubation, nestling, or fledgling stages of these species).

No other temporary effects on special-status wildlife species are anticipated during project operation due to the lack of suitable habitat and conditions required for such species to occur within the operational disturbance limits.

7.5.2.2 Permanent Effects

Permanent operations effects, which include frequent noise, light, vibration, and wind generated from moving trains, would occur on a daily basis from the operation of the HSR system. The HSR Build Alternative would operate within an existing railroad corridor, so these effects would not be new to the RSA, but they would be additive to existing conditions.

Indirect effects from noise, vibration, and wind could result in localized displacement of some special-status bird and bat species. There would also be an increased potential for mortality from colliding with the moving trains or the project infrastructure, although HSR fencing and implementation of the IAMFs listed in Section 8 and appropriate mitigation measures included in the EIR/EIS for this project, as well as the limited operation of the HSR system during nighttime hours, would reduce the potential for direct operational effects. Direct and indirect operational effects are most likely to occur near suitable bat roosting structures (Appendix H) as well as areas adjacent to riparian habitats in the Los Angeles River and Verdugo Wash, where multiple special-status bird species have at least a low potential to occur. Such effects may result in shifts in foraging patterns or territories, or dispersal movements, increased predation, decreased reproductive success, and reduced population viability. However, most wildlife currently occupying habitats adjacent to the existing railroad corridor are likely habituated to frequent wind, noise, vibration, and other indirect effects associated with the urban setting of the Wildlife RSA and existing rail system operations.

The EIR/EIS that will be prepared for this project will also propose appropriate mitigation measures to reduce or eliminate the potential for such effects and compensate for unavoidable effects where necessary.

7.6 Special-Status Natural Communities

Two special-status vegetation communities, Freshwater-Forested and Shrub Wetland and Freshwater Emergent Wetland, as identified by the NWI and confirmed during field surveys, occur within the Aquatic RSA and are associated with the Los Angeles River and Verdugo Wash. These natural communities are locally important according to the Los Angeles County General Plan (Los Angeles County Regional Planning Department 2015), and include aquatic resources and riparian habitats under the jurisdiction of the CDFW, USACE, and SWRCB (discussed further in Section 7.7). No direct removal of vegetation within these special-status natural communities would occur during construction of the HSR Build Alternative. Indirect effects on these special-status natural communities are expected to occur temporarily and would be associated with proposed construction activities near the Glendale Narrows and Verdugo Wash. Such indirect affects would not substantially modify the aquatic resources and riparian habitat within these plant communities (e.g., no fill or modification of streambed or riparian vegetation would occur within special-status natural communities); therefore, the indirect impacts described below are not regulated activities under Cal. Fish and Game Code Section 1602, CWA Section 404/401, or the Porter-Cologne Act. No other special-status natural communities would be affected due to the heavily developed conditions within and surrounding the proposed project footprint. While overall project effects on special-status natural communities are expected to be minimal due to the heavily-developed conditions of the proposed alignment, a description of potential effects on special-status natural communities from project construction and operation is provided in the subsections below.

7.6.1 Construction Effects on Special-Status Natural Communities

The HSR Build Alternative would be constructed in a highly developed environment. Due to the limited extent of special-status natural communities along the proposed HSR alignment (Figure 6-2), substantial effects to special-status natural communities from construction activities are not expected.

Several potential effects typically associated with the construction of linear transportation projects would not be likely to occur based on the incorporation of specific design features. Those effects include accidental spills of hazardous materials or erosion and sedimentation resulting from construction. These effects would be minimized or avoided through implementation of the SWPPP that has been integrated into the project design. The SWPPP includes spill prevention and response planning, as well as erosion-control specifications. Potential temporary and permanent effects on special-status natural communities that may result from project construction are described in the subsections below.

7.6.1.1 Temporary Effects

Temporary effects on special-status plant communities, where present within the Aquatic RSA, may result from activities such as construction vehicle traffic; the temporary use of land for staging and access areas (although these areas will be sited within areas planned for permanent effects to the maximum extent practicable); noise, light, and vibration from construction activities; and other construction-related activities that are temporary in nature.

Indirect effects on special-status plant communities, where present within the Aquatic RSA, could occur as a result of changes in erosion and sedimentation from construction activities. Displaced sediment and changes to microtopography could alter the soil and substrate conditions preferred by vegetation. Temporary construction activities could facilitate the spread of invasive and noxious weeds through introduction of seeds by construction equipment, vehicles, and personnel. While there are already high levels of disturbance and invasive plant species within the Aquatic RSA and any such impacts associated with the project would be minimal, the introduction or spread of invasive plant species have potential to decrease cover by native plant species within these areas, which could influence the functions and values of special-status natural communities within the Aquatic RSA.

7.6.1.2 Permanent Effects

Permanent effects on special-status natural communities may result from shading by expanded bridges and aerial structures. Specifically, the proposed widening of an existing clear-span rail bridge over Verdugo Wash (from the current width of approximately 30 feet to 91 feet) has potential to cause additional shading on the Freshwater Emergent Wetland habitat below (established on a concrete lining); however, this area is already substantially shaded due to the channel's east-west orientation and approximately 30-foot high concrete channel walls, the San Fernando Road Bridge, a clear-span utility crossing, the elevated Ventura Freeway, and the elevated Fairmont Avenue roadway ramp and bridge that crosses over Verdugo Wash at this location. In addition, the Freshwater Emergent Wetland habitat under the existing Verdugo Wash rail bridge consists of accumulated sediment and emergent vegetation on a concrete lining, which is subject to shifting and being washed away during seasonal storm events. Therefore, the increasing in shading that would occur in the Verdugo Wash area under the HSR Build Alternative would have a negligible effect on existing special-status natural communities.

Other potential indirect effects on special-status natural communities, where present within the RSA, could occur as a result of changes from erosion and sedimentation. Displaced sediment and major changes to microtopography could alter the soil and substrate conditions preferred by current vegetation and favor other vegetation types. Construction activities could facilitate the spread of invasive and noxious weeds through introduction of seeds by construction equipment, vehicles, and personnel. The egress and ingress of machinery and personnel could also spread or inadvertently introduce harmful or devastating pathogens to special-status plant communities, which are more susceptible when fragmented (although given the already high levels of disturbance within the Aquatic RSA, any such impacts associated with the project would be minimal). The introduction of invasive plant species adjacent to special-status natural communities could have indirect effects that last longer than the temporary project construction window. Such effects include the displacement of native species and habitat by introduced invasive species, as well as changes in soil chemistry that reduce the ability of native species to establish in areas temporarily impacted during construction. However, no direct permanent impacts to special-status natural communities are expected to occur as a result of the HSR Build Alternative, and indirect effects would be minimized or avoided through the implementation of the project IAMFs. The EIR/EIS that will be prepared for this project will also propose appropriate mitigation measures to reduce or eliminate the potential for such effects and compensate for unavoidable effects where necessary.

7.6.2 Operations and Maintenance Effects on Special-Status Natural Communities

Potential temporary and permanent effects on special-status natural communities, where present within the RSA, that may result from project operation are described in the subsections below. Due to the limited extent of special-status natural communities along the proposed HSR alignment (Figure 6-2), substantial effects to special-status natural communities from HSR operations and maintenance activities are not expected; however, potential project effects are considered below.

7.6.2.1 Temporary Effects

Direct temporary effects on special-status natural communities are not expected to occur during the operational phase of the HSR Build Alternative due to the absence of such communities within the operational disturbance limits. Limited indirect temporary effects (e.g., dust, shading, and increased erosion or runoff) could affect special-status natural communities within the RSA (e.g., riparian and wetland communities within the Los Angeles River and Verdugo Wash) due to infrequent maintenance activities along the proposed HSR alignment.

7.6.2.2 Permanent Effects

Existing special-status natural communities in proximity to the HSR alignment are substantially disturbed by existing conditions (e.g., trains, cars, litter, and urban runoff). Furthermore, the special-status natural communities within the Los Angeles River and Verdugo Wash are located below the grade of the proposed expanded railroad right-of-way. Nevertheless, maintenance activities involving ground disturbance have potential to introduce and/or spread invasive and nonnative plant species, which could have a negative impact (e.g. decreased cover by native plants, increased competition for water and sunlight) on adjacent special-status natural communities.

7.7 Aquatic Resources

The following sections provide a summary of potential effects of the Burbank to Los Angeles Project Section on aquatic resources within the Aquatic RSA, including include aquatic resources under the jurisdiction of the CDFW, USACE, and SWRCB. Further information regarding anticipated project effects on potential USACE aquatic resources can be found in the *Burbank to Los Angeles Project Section Aquatic Resources Impact Memorandum* (Authority 2019b).

7.7.1 Construction Effects on Jurisdictional Aquatic Resources

Construction and operation of the project would result in direct and indirect effects to jurisdictional aquatic resources. The HSR alignment for the project section would require modifications to existing structures that would cross jurisdictional watercourses as well as the construction of one new crossing structure over the Los Angeles River and modifications to concrete-lined storm channels, as described in the following sections and depicted on Figure 7-2. The Build Alternative includes project components that would cross and/or alter the Burbank Western Channel, Lockheed Channel, Verdugo Wash, and the Los Angeles River. These HSR Build Alternative components include the following, from north to south:

1. Realignment of portions of the existing Lockheed Channel
2. Reconfiguration of the Lockheed Channel and Burbank Western Channel confluence
3. Replacement of a clear-span bridge with a wider clear-span bridge over Verdugo Wash
4. A utility realignment along San Fernando Road that would cross over Verdugo Wash
5. A new electrification system and utilization of the Metrolink tracks on the existing Downey Bridge over the Los Angeles River
6. A new roadway bridge over the Los Angeles River to grade-separate Main Street
7. Construction of an additional track on the existing Mission Tower Bridge, which crosses over the Los Angeles River

The existing railroad bridge over Arroyo Seco is included in the Aquatic RSA, although there are no proposed changes to the structure.

Because California Fish and Game Code aquatic resources do not include waters within underground portions of the Lockheed Channel, the impacts to California Fish and Game Code aquatic resources would be less than the impacts to waters of the U.S for the proposed modifications to this concrete-lined storm channel. For all other proposed project components resulting in impacts on aquatic resources, impacts within each jurisdiction would be coequal.

7.7.2 Temporary Effects

Temporary effects on aquatic resources would result from the placement of temporary fill during construction in jurisdictional waters. Temporary fill would be placed in jurisdictional waters during the construction or modification of bridges and storm channels. The temporary fill would result in a temporary reduction of storm channel capacity; potential effects on the physical, chemical, and biological characteristics of aquatic substrates and food webs; and a potential increase in erosion and sediment transport into adjacent or downstream aquatic areas. Chemical spills or leaks of fuel, transmission fluid, lubricating oil, or motor oil from construction equipment could also contaminate waters and degrade their quality. These effects would be minimized or avoided through implementation of the SWPPP that has been integrated into the project design. The SWPPP includes spill prevention and response planning, as well as erosion control specifications.

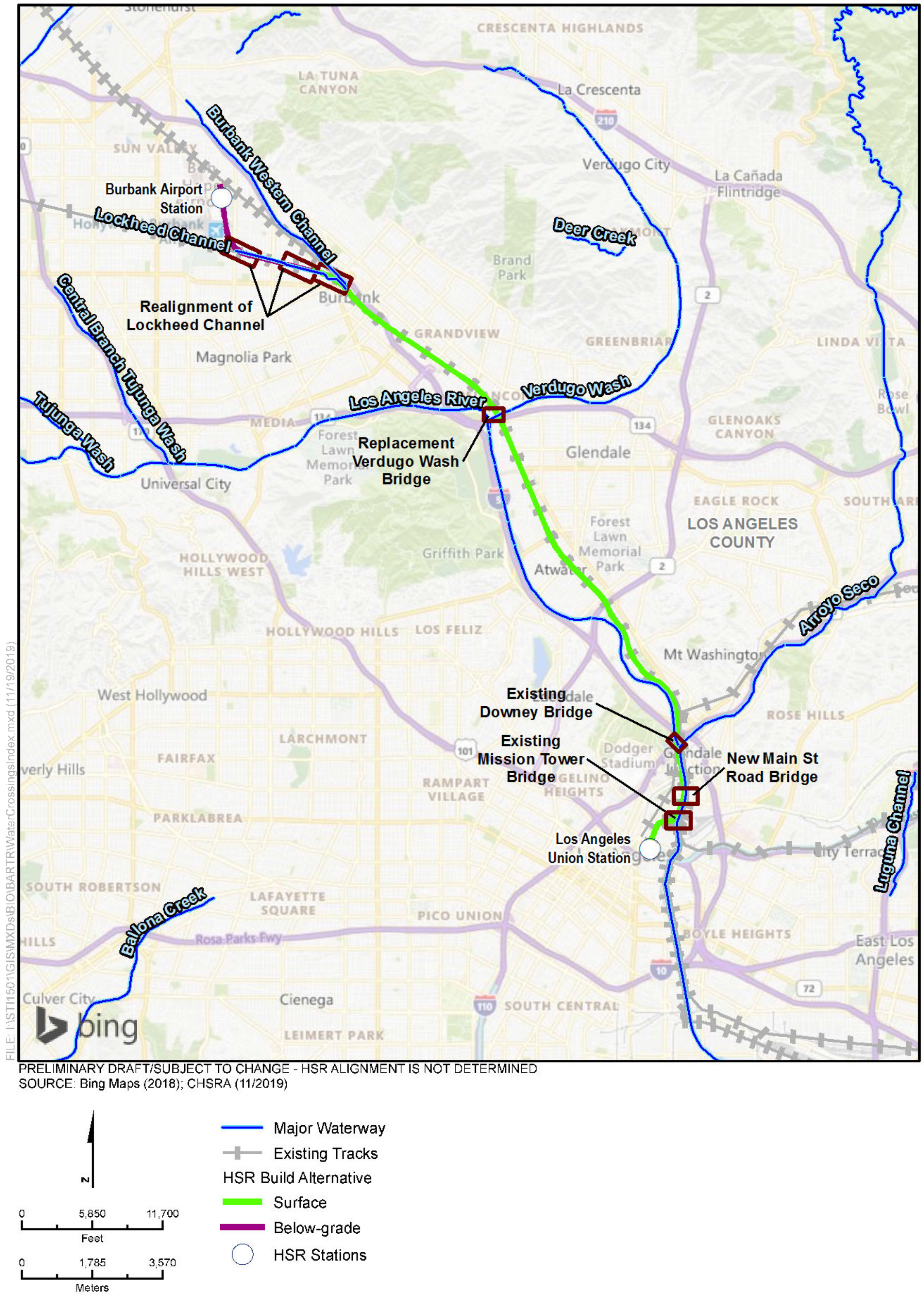


Figure 7-2 Overview of Water Crossings and Channel Modifications

7.7.2.1 Lockheed Channel and Burbank Western Channel Modifications

The proposed Lockheed Channel and Burbank Western Channel modifications would involve the removal or filling of portions of the existing Lockheed Channel and the reconfiguration of the Lockheed Channel/Burbank Western Channel confluence. However, the construction of a realigned channel would replace the existing channel and associated aquatic resources within these concrete-lined features.

Collectively, 2.05 acres of temporary effects to aquatic resources associated with modifying and realigning the Lockheed Channel would occur under the Build Alternative. In total, 2.02 acres of new (realigned) channel would be constructed. A net gain of approximately 0.015 acre of nonwetland aquatic resources would occur under the HSR Build Alternative due to the proposed Lockheed Channel realignment.

Approximately 0.23 acre of the Burbank Western Channel would be temporarily affected during the reconfiguration of the Lockheed Channel/Burbank Western Channel confluence.

Table 7-3 summarizes the anticipated direct temporary effects on aquatic resources associated with the Lockheed Channel and Burbank Western Channel modifications. This table does not include quantified temporary effects on aquatic resources caused by construction access within the channels because construction access points have not yet been defined based on the preliminary design. These potential temporary effects will be further defined during the regulatory permitting processes with the CDFW, SWRCB, and USACE.

Table 7-3 Anticipated Temporary Direct Effects on Aquatic Resources from Proposed Channel Modifications

Project Component	Potential Effect	Effect Type	Proposed Project Design Features
Lockheed Channel	2.05 acres[1] modified, abandoned, or filled; 2.02 acres constructed	Temporary Fill	Realign channel and convert open portions to run underground. The realigned portion is approximately 0.015 acre greater in area than the existing channel alignment.
Burbank Western Channel	0.23 acre	Temporary Fill	Reconfigure confluence with new Lockheed Channel alignment

Source: Calculations generated using ESRI ArcGIS version 10.4 from data gathered during field surveys and aerial photograph interpretation
[1] Of the 2.05 acre of temporarily affected aquatic resources within Lockheed Channel, 1.65 acre is within an open portion of the channel and is therefore considered a California Fish and Game Code aquatic resource. The remaining 0.40 acre of affected aquatic resources within the Lockheed Channel is within underground portions of the storm channel and is therefore not considered a California Fish and Game Code aquatic resource.

7.7.2.2 New and Modified Los Angeles River Crossing Structures

Approximately 1.7 acres of nonwetland (Riverine) waters of the U.S. within channelized, concrete-lined portions of the Los Angeles River would be temporarily affected by construction access and the temporary placement of materials associated with the construction, replacement, and modifications of the Los Angeles River crossing structures listed in Section 7.7.1. These potential temporary effects associated with construction access would not result in the permanent loss of waters of the U.S. Potential temporary fills within jurisdictional waters associated with construction activities (e.g., dewatering or water diversions) will be further defined during the regulatory permitting processes with the CDFW, SWRCB, and USACE, as applicable.

7.7.3 Permanent Effects

The proposed HSR alignment is expected to result in the discharge of less than 0.5 acre of permanent fill into delineated waters of the U.S. (as well as areas potentially subject to SWRCB and CDFW jurisdiction) at the proposed Main Street roadway bridge location. Impact estimates are an approximation of the permanent disturbance area associated with the project feature gathered from overlaying engineering shapefiles onto delineated aquatic resources. Specifically, the HSR Build Alternative is estimated to permanently impact 0.028 acre of nonwetland (Riverine) waters of the U.S. and a total of 0.028 acre of Cal. Fish and Game Code aquatic resources within channelized, concrete-lined portions of the Los Angeles River. There are no anticipated direct permanent impacts on wetlands or to Lockheed Channel, Burbank Western Channel, Verdugo Wash, or Arroyo Seco.

There is a slight chance of indirect permanent/ongoing effects on jurisdictional waters in the form of water-quality-related effects (i.e., dust/siltation, and increased runoff into natural and constructed water features and fill downstream of the construction footprint). For most aquatic features, these indirect effects would be minor, and hydrologic changes would be minimal. These effects would be minimized or avoided through implementation of the SWPPP that has been integrated into the project design. The SWPPP includes spill prevention and response planning, as well as erosion-control specifications.

A breakdown of the project's anticipated permanent impacts on aquatic resources is contained in Table 7-4.

Table 7-4 Anticipated Permanent Effects on Aquatic Resources

Project Component	Potential Effect on Waters of the U.S. (acres)	Potential Effect on CFGC Aquatic Resources (acres)	Effect Type	Proposed Project Design Features
New Main Street Roadway Bridge	0.028 acre	0.028 acre	Permanent Fill	New roadway bridge for Main Street grade separation; three columns with pier wall in Los Angeles River

Source: Calculations generated using ESRI ArcGIS version 10.4 from data gathered during field surveys and aerial photograph interpretation
CFGC = California Fish and Game Code
U.S. = United States

7.7.3.1 New Main Street Roadway Bridge

To accommodate HSR operations, a new Main Street roadway bridge is proposed to cross over the railroad corridor and the Los Angeles River in the City of Los Angeles. The existing Main Street Bridge would remain in place, as it is protected as a historical structure. The proposed Main Street Bridge would have one row of three 8-foot-diameter columns (10-foot-diameter bases) with a pier wall located within the Los Angeles River and another row of three 8-foot-diameter columns located on the west side of the concrete channel. This project component would result in 0.028 acre of new permanent fill (e.g., concrete columns with a pier wall) within a fully concrete-lined portion of the Los Angeles River. This proposed structure is an early investment project (refer to Section 2.6 for further information).

7.7.4 Operations and Maintenance Effects on Jurisdictional Aquatic Resources

The following paragraphs describe temporary and permanent effects on jurisdictional waters that may result from project operation.

7.7.4.1 Temporary Effects

Operation of the HSR Build Alternative would require periodic inspections of rail and ancillary facilities sited within aquatic resources, infrequent maintenance of structures (e.g., repairs to piers, maintenance access roads), and removal of sediment and vegetation from the vicinity of structures sited within aquatic resources. These activities may temporarily alter drainage patterns within the footprint of these activities, in addition to downstream waters through the use of surface water diversions and dewatering equipment, as well as through the removal of sediment and vegetation. In addition, these maintenance activities would modify flow patterns through the obstruction of flow, changes in the direction or velocity of water circulation, or increasing erosion, siltation, or runoff. Increased sedimentation through erosion, as well as accidental spills from trains or maintenance vehicles and equipment, could introduce contaminants/pollutants into aquatic resources. It should be noted that the aquatic resources within the Aquatic RSA are already subject to routine maintenance activities (given that the Los Angeles River and its tributaries within the Aquatic RSA are used for stormwater control purposes), so such effects would not be new to the area. Furthermore, given the limited aquatic resource areas within the operational footprint of the project, such temporary activities are not anticipated to result in substantial changes to the existing conditions of aquatic resources within the Aquatic RSA.

7.7.4.2 Permanent Effects

The operation of the HSR Build Alternative could increase the amount of the pollutants associated with rail operations because of increased rail service. Specifically, dust generated by braking would be continuously generated and released by trains. Brake dust consists of particulate metals, primarily iron, but may also include copper, silicon, calcium, manganese, chromium, and barium. Although brake dust consists primarily of particulate metals, some of these metals could become dissolved in rainwater. Although brake dust would be released into the environment during operations, the electric trains would use regenerative braking technology, resulting in reduced physical braking and associated wear compared to conventional petroleum-fueled trains. Brake dust would not be generated in equal amount throughout the HSR alignment. The primary locations where brake dust would be generated are areas where the trains must reduce their travel speed, such as approaches to stations, turns, and elevation changes (primarily descents). Long stretches of flat terrain with a straight rail alignment would generate less brake dust than other areas. In addition, brake dust is generally anticipated to be retained in track ballast. Parking lots associated with the stations would also be a primary source of pollutants, including heavy metals, organic compounds, trash and debris, oil and grease, nutrients, pesticides, and sediments.

In consideration of the potential for brake-pad particles and parking lot runoff to be conveyed to surface waters, the Authority would prepare a stormwater management and treatment plan that complies with the Phase II MS4 permit requirements (HYD-IAMF#1). The plan would include post-construction BMPs and low-impact development techniques to reduce the quantity and improve the quality of stormwater runoff before runoff is discharged into a surface waterbody. A variety of BMPs would be considered, including, but not limited to, surface infiltration basins, subsurface infiltration systems, seasonal dry detention ponds, sand and media filters, and infiltration trenches. Of these potential treatment BMPs, all are capable of reducing particulate and dissolved metal concentrations in runoff. Post-construction BMPs would minimize potential continuous impacts from brake dust deposited on impervious surfaces by capturing runoff and improving the quality of runoff prior to discharge into waterbodies. Along at-grade and retained-fill portions of the HSR alignment, brake dust is generally anticipated to be retained in track ballast. Accordingly, post-construction BMPs would minimize potential continuous impacts from brake dust deposited on impervious surfaces by capturing and improving the quality of runoff prior to discharge into waterbodies.

7.8 Habitats of Concern

7.8.1 Essential Fish Habitat

No project-related effects to essential fish habitat are anticipated, as no essential fish habitat is present within the RSA.

7.8.2 Critical Habitat

No project-related effects to designated critical habitat are anticipated, as no designated critical habitat is present within the Wildlife RSA.

7.8.3 Wildlife Movement

Specific wildlife movement corridors between Burbank and Los Angeles are described in Section 6.8.3. There are limited connections throughout this region that may be used as wildlife movement corridors, one being the upland and riparian connections from Verdugo Wash to the surrounding mountain areas. Wildlife may move throughout the area as part of their daily activities using roads, drainage channels, and backyards. This section evaluates the temporary, permanent, direct, and indirect effects on wildlife movement that could result from the construction and operation of the HSR project.

7.8.3.1 Construction Effects on Wildlife Movement

Temporary Effects

The wildlife species that commonly occur within the Wildlife RSA are already adapted to the urban environment and urban-wildland interface and would likely continue to adapt. Direct effects from placement of temporary barriers (e.g., temporary fencing), construction staging areas, increased vehicular traffic, or construction laydown may restrict wildlife movement from their previous daily and seasonal patterns. The noise, vibrations, light, dust, or human disturbance within construction areas may only temporarily deter wildlife from using areas in the immediate vicinity construction activity. These direct effects could alter migration corridors, territories, or foraging habitats. However, because these are temporary effects, it is likely that wildlife would alter their normal functions for the duration of the project construction and then re-establish these functions once all temporary construction effects have been removed.

The activities listed above may also result in indirect effects on wildlife movement, including changes in the frequency of visitation by one or more wildlife species to select habitats, increased foraging competition, or increased human/wildlife conflict. However, these indirect effects are unlikely to last if wildlife re-establish their movement patterns and habitat use once all temporary construction activities and equipment have been completed and removed.

Permanent Effects

The Burbank to Los Angeles Project Section would utilize an existing railroad corridor and would not impede wildlife movement through the Burbank Western Channel, Los Angeles River, Verdugo Wash, or Arroyo Seco, which are potentially used as the primary movement corridors within the Wildlife RSA. The construction of the HSR fence may directly affect wildlife movement in various locales where wildlife currently cross the existing railroad alignment, as only portions of the existing railroad alignment are fenced. In addition, the Chevy Chase Drive at-grade crossing would be closed and private Los Angeles Department of Water and Power road crossing will be eliminated. The existing at-grade railroad crossings at Sonora Avenue, Grandview Avenue, Flower Street, and Goodwin Avenue would be grade-separated with undercrossings and a new Main Street roadway bridge would cross over the railroad right-of-way and the Los Angeles River. The current railroad crossing configurations at Colorado Street, Los Feliz Boulevard, Glendale Boulevard, and Kerr Road would be permanently modified but would remain grade-separated. Each of these new and modified grade separations may affect wildlife use at these crossings. Direct effects from the installation of physical barriers, such as fencing along the existing railroad alignment, could hinder wildlife movement through the Wildlife RSA, although no permanent barriers to wildlife movement would be placed within any existing wildlife movement corridor (e.g., the Los Angeles River and flood control channels). In addition, grade-separating each of the existing at-grade railroad crossings may prevent wildlife collisions within the railroad right-of-way. Permanent facilities will be generally located within previously developed areas, and any wildlife currently present would likely adapt by avoiding such structures.

7.8.3.2 Operations and Maintenance Effects on Wildlife Movement

Temporary Effects

Maintenance or any other activities along the proposed project infrastructure that occur infrequently or on a temporary basis may directly affect wildlife crossings by temporarily limiting their use. Occasional project maintenance activities could cause wildlife to avoid the maintenance area, return at a later time, use another crossing, or eventually habituate to the activity. Nocturnally active species are more likely to eventually adapt their movement patterns to navigate these new landscape features because no HSR trips are scheduled between the hours of midnight and 5:00 a.m. Short-term indirect effects from HSR system operations and maintenance activities are anticipated; however, intermittent maintenance activities are unlikely to affect long-term usage of the existing wildlife movement corridors.

The wildlife that inhabits this urban environment is already highly adapted to conditions associated with constant human activity. It is not known what effects that the operation of the HSR may have on wildlife movement that is already adapted to human activity, vehicles, and trains, but they likely have a higher tolerance to noise, vibration, dust, lighting, and other human activities than wildlife that inhabit environments less effected by human activities. Rapid onset rates of train noise for brief periods (a few seconds) may cause annoyance and startling effects in wildlife. Loud noise may disturb or repel some animals and present a barrier to movement (Minton 1968; Liddle 1997; Singer 1978). A startling effect to wildlife in an area with high vehicle traffic could increase wildlife vehicle collision risk. Loud noise can mask wildlife calls used for identification, mate attraction, and territorial defense, although these effects are less of a concern with short-duration noise than with constant ambient urban noise (e.g., from busy highways). Although noise and vibration may negatively affect animal movement in a natural condition, wildlife that inhabit an urban environment are likely already adapted to loud noise, vibration, and other human activity, and may not substantially change their movement pattern behaviors.

Maintenance or any other activities along the project infrastructure that occur infrequently or on a temporary basis may indirectly affect wildlife crossings by limiting their use by wildlife. Occasional project maintenance activities would likely cause wildlife to avoid the specific maintenance area, resulting in wildlife to either turn back, return at a later time, or use another crossing. Intermittent maintenance activities are unlikely to affect long-term usage of the wildlife movement corridors.

Permanent Effects

Direct effects from daily train operation or regularly scheduled maintenance activities may interfere with wildlife movement, although no permanent barriers to wildlife movement would be placed within any existing wildlife movement corridor (e.g., the Los Angeles River and flood control channels). Regularly passing trains may not provide enough undisturbed time in between passing intervals for some wildlife species to cross the alignment in certain areas. However, the wildlife that has already adapted to the urban environment are expected to habituate to train passage and readily use the existing and new road crossings, as well as the existing drainage features along the proposed HSR alignment.

Regularly scheduled maintenance may deter wildlife from approaching an area or using it as part of a wildlife movement corridor, as wildlife may come to associate it with increased human presence and disturbance. Additionally, regular train operation and maintenance activities may result in indirect effects on population dynamics and genetic exchange if they restrict wildlife movement along the existing railroad corridor.

7.8.4 Protected Trees

Construction and operation of the HSR Build Alternative would result in direct and indirect effects on trees protected under county and local plans and ordinances. Several protected tree species also receive protection as the dominant species within special-status plant communities. Specific effects on individual tree species will be determined by overlaying the final project footprint with mapped plant communities to determine the number of trees that would be affected by the project, and the appropriate county and/or local authorities will be consulted in accordance with the applicable plans and ordinances.

A description of potential project-related effects on protected trees is provided below.

7.8.4.1 Construction Effects on Protected Trees

While construction of the HSR Build Alternative would not result in the removal of any large groves of trees or trees protected as part of any special-status natural community (oak or sycamore woodland, etc.), construction activities would result in direct and indirect effects on individual trees protected under county and local plans and ordinances. The majority of protected trees present within the public right-of-way and along the existing railroad corridor are landscape, ornamental, or nonnative trees, which are less ecologically significant because they do not provide natural habitat and are less likely to provide habitat preservation value for native wildlife species than naturally occurring native trees. Trees within the project footprint would be directly affected, and the appropriate county and/or local authorities would be consulted in accordance with the applicable plans and ordinances. Potential temporary and permanent effects on protected trees that may result from project construction are described below.

Temporary Effects

While temporary impacts to heritage trees or trees of biological significance are not anticipated, direct effects on protected trees from construction activities could occur from trimming or pruning trees for stations, tracks, equipment storage areas, access roads, and road overcrossings. The trees that would be potentially affected are mostly ornamental/nonnative species, but are protected as they are located within public right-of-way and local permits are needed prior to removal or trimming. Direct effects from construction activities could also result from unintentional contamination, such as chemical leaks and spills, which may affect the water or soils on which protected trees depend. These effects could become permanent if the source of the unintentional contamination is not properly removed. Given that the temporary construction areas would be located almost entirely within previously developed and otherwise disturbed areas, direct effects on protected trees from construction activities are expected to be minimal.

Dust, debris, and other airborne pollutants resulting from construction activities may temporarily affect trees by covering their leaves with substances that may inhibit photosynthesis. Soil compaction, the placement of fill and other material, shading by equipment, and alterations to microtopography could stress trees, causing poor growth and loss of leaves or roots during the construction period. However, most trees within the temporary construction footprint currently experience a high degree of disturbance associated with the urban setting.

Indirect effects on protected trees could result from temporary changes in hydrology and topography (as a result of temporary staging areas; access roads; equipment storage; and foot, vehicle, and machine traffic), which may inhibit water and nutrient intake and thereby inhibit growth or cause leaf mortality. Temporary effects on plant species, either common or special-status, could indirectly affect trees if these species provide nitrogen, soil aeration, root protection, and moisture retention.

Permanent Effects

While permanent impacts to heritage trees or trees of biological significance are not anticipated, direct permanent effects on protected trees are anticipated in areas where permanent infrastructure (e.g., rail track and road over/undercrossings) or temporary activities (e.g., materials staging, temporary access roads, and construction rights-of-way) require clearing of existing vegetation. Direct effects from construction activities could also result from unintentional contamination, such as chemical leaks and spills, which could affect water or soils used by protected trees, potentially resulting in their death. These effects could be temporary if contaminants are properly removed.

Indirect permanent effects on protected trees could occur as a result of changes in erosion and sedimentation. Displaced sediment and alterations to microtopography could change the soil and substrate conditions required by protected trees. Permanent changes in hydrology and topography could damage the soil environment surrounding a tree’s roots by affecting the level of necessary symbionts in the soil (e.g., mycorrhizae for oaks) or lead to fungal infections, root rot, lack of proper drainage, or difficulty in obtaining oxygen or other necessary elements. These factors ultimately affect the growth of roots and vegetation and could lead to the death of protected trees.

7.8.4.2 Operations and Maintenance Effects on Protected Trees

Once the HSR Build Alternative is constructed, operational effects on protected trees are anticipated to be minimal due to the absence of such resources within and immediately adjacent to the railroad right-of-way. Potential effects on protected trees that may result from project operation are described in the subsections below.

Temporary Effects

Temporary operation effects may result from maintenance or any other activities along the project infrastructure that occur infrequently or on a temporary basis.

Direct temporary operation effects on protected trees may result from pruning and thinning foliage for access, visibility, and aesthetics. Dust from vehicle and machinery disturbance, and equipment and foot traffic may affect individuals of protected tree species growing adjacent to maintenance areas. Direct effects from maintenance activities could result from unintentional contamination, such as chemical leaks and spills, which could affect water or soils used by protected trees. Litter and accidental refuse associated with the HSR project could limit the soil surface area necessary for nutrient intake. If these contaminations are not removed, they may become permanent.

Operation effects on plant species, either common or special-status, could indirectly affect protected trees if these species provide nitrogen, soil aeration, root protection, seedling protection, and moisture retention. The egress and ingress of machinery and personnel, and of the HSR could also spread or inadvertently introduce invasive and noxious weeds such as tamarisk and gum. These species could compete with protected trees. However, given the developed nature of the project setting, the potential for such indirect operational effects is low. Additionally, with implementation of the IAMFs listed in Section 8, the spread of invasive plant species will be avoided. The EIR/EIS that will be prepared for this project will also propose appropriate mitigation measures to reduce or eliminate the potential for such effects and compensate for unavoidable effects where necessary.

Permanent Effects

Permanent operation effects, which include frequent noise, light, vibration, and wind generated from moving trains, would occur on a daily basis from the operation of the HSR system. Additionally, constant operation effects associated with the proposed stations could include high vehicle and foot traffic.

Direct effects on protected trees in immediate proximity to the tracks may result from constant wind disturbance generated by moving trains. Trees growing adjacent to tracks and stations may be damaged by forceful wind, which would also stunt growth and promote desiccation. Over time, these effects could become permanent. Such effects are anticipated to be minimal due to the spatial separation between protected trees and the railroad right-of-way, as well as the limited number of trees that would be exposed to such effects or permanently affected.

Indirect effects on protected trees could result from permanent changes in hydrology and topography, which may also affect the soil environment surrounding a tree’s roots. Compaction of soil from high foot and vehicle traffic at the proposed stations or in maintenance access areas could inhibit the tree’s oxygen and nutrient intake around the root zone. These changes may also alter the level of necessary symbionts in the soil (e.g., mycorrhizae for oaks) or cause fungal infections, root rot, or lack of proper drainage. These factors may ultimately result in the death of the tree.

Permanent operation effects on wildlife species may also indirectly inhibit the health or survival of trees within specific communities that require wildlife to facilitate aeration or soil composition. Permanent effects on plant species, either common or special-status, could indirectly affect trees if these species provide nitrogen, soil aeration, root protection, and moisture retention.

7.9 Other Regulated Communities

7.9.1 Los Angeles River Revitalization Master Plans

The project is not anticipated to conflict with plans to restore wildlife habitat or other conservation measures identified in the *Los Angeles River Ecosystem Restoration Final Integrated Feasibility*

Report (USACE 2015) through project compliance with CEQA, NEPA, CWA, CESA, and FESA. Additionally, the project is not anticipated to conflict with future plans, such as the establishment of the Los Angeles River as an urban wildlife refuge by the Santa Monica Mountains Conservancy and the master plan for Griffith Park by the City of Los Angeles' Recreation and Parks Department.

7.10 Cumulative Effects

Effects from the project and other proposed projects in the HSR project vicinity could result in limited cumulative effects to special-status plant and animal species, special-status plant communities, jurisdictional waters, and habitats of concern. The HSR Build Alternative would be one of the larger projects constructed in the general vicinity of the Burbank to Los Angeles Project Section. However, due to the nearly complete built environment in the project vicinity and the existing use as a rail corridor, this project would not substantially contribute to cumulative impacts on biological and aquatic resources. Other cumulative projects in the region include various transportation, alternative energy, residential, agricultural, commercial, and industrial projects.

Cumulative effects from these projects could contribute to the overall loss or degradation of biological resources in the Burbank to Los Angeles Project Section. Disturbances could be direct and indirect, and temporary and permanent. They could include the following:

- Impairment to special-status plant and wildlife species populations, dynamics, behavior, and ability to carry out the species' lifecycle.
- Impairment of wildlife movement corridors, including effects on species' genetic variation, population gene flow, and ability to migrate to areas necessary to carry out the species' important lifecycle events (including breeding). However, with the implementation of IAMFs and BMPs listed in Section 8, effects to wildlife movement would be minimized, reduced, and/or avoided. The EIR/EIS that will be prepared for this project will also propose appropriate mitigation measures to reduce or eliminate the potential for such effects.
- Adverse effects to the various functions and values provided by special-status plant and wildlife species habitats.
- Potential adverse modification of special-status plant and wildlife species habitats or conflict with the provisions of a conservation plan relevant to a special-status wildlife species.

The successful implementation of the standard IAMFs and BMPs discussed in the following section would reduce the nature and magnitude of project effects on special-status wildlife species.

The proposed project would also comply with federal, state, and local regulations through regulatory agency consultation and permitting, which would result in further development of specific avoidance and minimization measures, BMPs, and compensatory mitigation options to be implemented. Other cumulative projects in the Burbank to Los Angeles Project Section would be required to comply with regulatory requirements such as federal, state, and local government laws and regulations that protect special-status plant and animal species and wildlife movement corridors. Therefore, cumulative effects associated with these projects are expected to be mitigated through consultation and permitting with the appropriate regulatory agencies.

8 RECOMMENDED IMPACT AVOIDANCE AND MINIMIZATION FEATURES

The IAMFs identified in this section are included as part of the proposed HSR Build Alternative and would avoid, minimize, and/or reduce potential direct and indirect effects to biological resources (e.g., special-status plant and wildlife species, habitats of concern, wildlife movement corridors, and native flora and fauna) associated with the construction of the HSR Build Alternative.

The Authority will consult with the USACE, SWRCB, and CDFW regarding proposed project features that may affect jurisdictional aquatic resources. Regulatory compliance for impacts to jurisdictional waters will be achieved through full compliance with all relevant terms and conditions contained in applicable regulatory agency permits, including any USACE 404 Permit (including Nationwide Permits), SWRCB 401 Permit, and CDFW 1600 Streambed Alteration Agreement.

The following IAMFs would be implemented, as applicable, during all construction and operations and maintenance activities to avoid and/or minimize adverse effects on biological resources to the maximum extent practicable. The EIR/EIS that will be prepared for this project will also propose appropriate mitigation measures to reduce or eliminate the potential for such effects and compensate for unavoidable adverse effects where necessary.

BIO-IAMF #1: Designate Project Biologist, Designated Biologists, Species-Specific Biological Monitors and General Biological Monitors

At least 15 business days prior to commencement of any ground disturbing activity, including but not limited to geotechnical investigations, utility realignments, creation of staging areas, or initial clearing and grubbing, the Authority will submit the name(s) and qualifications of Project Biologists, Designated Biologists, Species-Specific Biological Monitors, and General Biological Monitors retained to conduct biological resource monitoring activities and implement avoidance and minimization measures. No ground disturbing activity will begin until the Authority has received written approval from the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), where applicable, and the California Department of Fish and Wildlife (CDFW) that the biologists and monitors have been approved to conduct the specified work. The Project Biologist is responsible for ensuring the timely implementation of the biological avoidance and minimization measures as outlined in the Biological Resources Management Plan (BRMP), and for guiding and directing the work of the Designated Biologists and Biological Monitors. Designated Biologists will be responsible for directly overseeing and reporting the implementation of general and species-specific conservation measures. In some instances, Designated Biologists will only be approved for specific species, in which case they will only be authorized to conduct surveys and implement measures for the species for which they have been approved. Species-Specific Biological Monitors will be responsible for implementation of species-specific measures for the species for which they have been approved, and will report directly to a Designated Biologist. General Biological Monitors will report directly to a Designated Biologist or to the Project Biologist. General Biological Monitors will be responsible for conducting Worker Environmental Awareness Program (WEAP) training, implementing general conservation measures, conducting general compliance monitoring, and reporting on compliance monitoring activities. The term Project Biologist is used in these IAMFs to mean the Project Biologist, Designated Biologists, Species-Specific Biological Monitors, and General Biological Monitors, as appropriate. When the Authority is specified as implementing an IAMF, it is assumed that the Authority, or its contractor or agent, is implementing the IAMF under the supervision of biologists and biological monitors, as appropriate.

BIO-IAMF #2: Facilitate Agency Access

Throughout the construction period, the Authority will allow access by the USFWS, NMFS, U.S. Army Corps of Engineers (USACE), CDFW, and State Water Resources Control Board (SWRCB) to the project site. Because of safety concerns, all visitors will check in with the Authority's resident engineer prior to entering the project footprint. In the event that agency personnel visit the project footprint, the Project Biologist will prepare a memorandum within 3 business days after the visit documenting the issues raised during the field meeting. The Project Biologist will report any issues regarding regulatory compliance raised by agency personnel to the Authority.

BIO-IAMF #3: Prepare WEAP Training Materials and Conduct Construction Period WEAP Training

Prior to any ground disturbing activity, the Project Biologist will prepare a Worker Environmental Awareness Program (WEAP) for the purpose of training construction crews to recognize and identify sensitive biological resources that may be encountered in the vicinity of the project footprint. The WEAP training materials will be submitted to the Authority for review and approval. A video of the WEAP training prepared and presented by the Project Biologist and approved by the Authority may be used if the Project Biologist is not available to present the training in person.

At a minimum, WEAP training materials will include the following information: key provisions of the federal Endangered Species Act (federal ESA), the California Endangered Species Act (CESA), the Bald and Golden Eagle Protection Act (BGEPA), the Migratory Bird Treaty Act (MBTA), California Fish and Game Code 1600, Porter-Cologne Water Quality Control Act (Porter-Cologne), and the Clean Water Act (CWA); the consequences and penalties for violation or noncompliance with these laws and regulations and project authorizations; identification and characteristics of special-status plants, special-status wildlife, jurisdictional waters, and special-status plant communities and explanations about their ecological value; hazardous substance spill prevention and containment measures; the contact person in the event of the discovery of a dead or injured wildlife species; and review of avoidance, minimization, and mitigation measures.

The Project Biologist will present WEAP training to all construction personnel before they work in the project footprint. As part of the WEAP training, construction timing in relation to species' habitat and life-stage requirements will be detailed and discussed on project maps, which will show areas of planned minimization and avoidance measures. Crews will be informed during the WEAP training that, except when necessary as determined in consultation with the Project Biologist, travel within the project footprint is restricted to established roadbeds, which include all pre-existing and project-constructed unimproved and improved roads. A fact sheet conveying this information will be prepared by the Project Biologist for distribution to the construction crews and to others who enter the project footprint. Fact sheet information will be duplicated in a wallet-sized format and will be provided in other languages as necessary to accommodate non-English speaking workers. All construction staff will attend the WEAP training prior to beginning work on-site, and will attend the WEAP training on an annual basis thereafter.

Upon completion of the WEAP training, each member of the construction crew will sign a form stating that they attended the training, understood the information presented, and agreed to comply with the requirements set out in the WEAP training. The Project Biologist will submit the signed WEAP training forms to the Authority on a monthly basis. On an annual basis, the Authority will certify that WEAP training had been provided to all construction personnel. On a monthly basis, the Project Biologist will provide updates relevant to the training to construction personnel during the daily safety ("tailgate") meeting.

BIO-IAMF #4: Conduct Operation and Maintenance Period WEAP Training

Prior to initiating operation and maintenance (O&M) activities, O&M personnel will attend a WEAP training session arranged by the Authority.

At a minimum, O&M WEAP training materials will include the following information: key provisions of the ESA, CESA, the BGEPA, the MBTA, Porter-Cologne, and the CWA; the consequences and penalties for violation or noncompliance with these laws and regulations and project authorizations; identification and characteristics of special-status plants, special-status wildlife, jurisdictional waters, and special-status plant communities and explanations about their ecological value; hazardous substance spill prevention and containment measures; and the contact person in the event of the discovery of a dead or injured wildlife species. The training will include an overview of provisions of the biological resources management plan, annual vegetation, and management plan, weed control plan and security fencing and wildlife exclusion fencing maintenance plans pertinent to O&M activities. A fact sheet prepared by the Authority environmental compliance staff will be prepared for distribution to the O&M employees. The training will be provided by the Authority environmental compliance staff. The training sessions will be provided to employees prior to their involvement in any O&M activity and will be repeated for all O&M employees on an annual basis. Upon completion of the WEAP training, O&M employees will, in writing, verify their attendance at the training sessions and confirm their willingness to comply with the requirements set out in those sessions.

BIO-IAMF #5: Prepare and Implement a Biological Resources Management Plan

Prior to any ground disturbing activity, the Project Biologist will prepare the BRMP, which would include a compilation of the biological resources avoidance and minimization measures applicable to the HSR section. All project environmental plans, such as the Weed Control Plan (WCP), will be included as appendices to the BRMP. The BRMP is intended to serve as a comprehensive document that sets out the range of avoidance and minimization measures to support the appropriate and timely implementation of those measures. The implementation of these measures will be tracked through final design, construction, and operation phases. The BRMP for the Burbank to Los Angeles Project Section will contain, but not be limited to, the following information:

- A master schedule that shows construction of the project, pre-construction surveys, and establishment of buffers and exclusions zones to protect sensitive biological resources.
- Specific measures for the protection of special-status species.
- Identification (on construction plans) of the locations and quantity of habitats to be avoided or removed.
- Identification of agency-approved Project Biologist(s) and Biological Monitor(s), including those responsible for notification and report of injury or death of federally or State-listed species.
- Measures to preserve topsoil and control erosion.
- Design of protective fencing around Environmentally Sensitive Areas (ESAs) and the construction staging areas.
- Locations of trees to be protected as wildlife habitat (roosting sites) and locations for planting replacement trees, where applicable.
- Specific measures for the protection of riparian areas. These measures may include erosion and siltation control measures, protective fencing guidelines, dust control measures, grading techniques, construction area limits, and biological monitoring requirements.
- Provisions for biological monitoring during ground disturbing activities to confirm compliance and success of protective measures. The monitoring will: (1) identify specific locations of wildlife habitat and sensitive species to be monitored; (2) identify the frequency of monitoring and the monitoring methods (for each habitat and sensitive species to be monitored); (3) list required qualifications of biological monitor(s); (4) identify the reporting requirements; and (5) provide an accounting of impacts to special-status species habitat compared to pre-construction impact estimates.

The BRMP will be submitted to the Authority for review and approval prior to any ground disturbing activity.

BIO-IAMF #6: Establish Monofilament Restrictions

Prior to any ground disturbing activity, the Project Biologist will verify that plastic monofilament netting (erosion control matting) or similar material is not being used as part of erosion control activities. The Project Biologist will identify acceptable material for such use, including: geomembranes, coconut coir matting, tackified hydroseeding compounds, and rice straw wattles (e.g., Earthsaver wattles: biodegradable, photodegradable, burlap). Within developed or urban areas, the Project Biologist may allow exceptions to the restrictions on the type of erosion control material if the Project Biologist determines that the construction area is of sufficient distance from natural areas to ensure the avoidance of potential impacts to wildlife.

BIO-IAMF #7: Prevent Entrapment in Construction Materials and Excavations

At the end of each work day during construction, the Authority will cover all excavated, steep-sided holes or trenches more than 8 inches deep and that have sidewalls steeper than 1:1 (45 degree) slope with plywood or similar materials, or provide a minimum of one escape ramp per 100 feet of trenching (with slopes no greater than 3:1) constructed of earth fill or wooden planks. The Project Biologist will thoroughly inspect holes and trenches for trapped animals at the start and end of each work day.

The Authority will screen, cover, or elevate at least 1 foot above ground, all construction pipe, culverts, or similar structures with a diameter of 3 inches or greater that are stored overnight within the project footprint. These pipes, culverts, and similar structures will be inspected by the Project Biologist for wildlife before such material is moved, buried, or capped.

BIO-IAMF #8: Delineate Equipment Staging Areas and Traffic Routes

Prior to any ground disturbing activity, the Authority will establish staging areas for construction equipment in areas that minimize effects to sensitive biological resources, including habitat for special-status species and wildlife movement corridors. Staging areas (including any temporary material storage areas) will be located in areas that would be occupied by permanent facilities, where practicable. Equipment staging areas will be identified on final project construction plans. The Authority will flag and mark access routes to ensure that vehicle traffic within the project footprint is restricted to established roads, construction areas and other designated areas.

BIO-IAMF #9: Dispose of Construction Spoils and Waste

During ground disturbing activities, the Authority may temporarily store excavated materials produced by construction activities in areas at or near construction sites within the project footprint. Where practicable, the Authority will return excavated soil to its original location to be used as backfill. Any excavated waste materials unsuitable for treatment and reuse will be disposed at an off-site location, in conformance with applicable State and federal laws.

BIO-IAMF #10: Clean Construction Equipment

Prior to any ground disturbing activity, the Authority will ensure that all equipment entering the Work Area is free of mud and plant materials. The Authority will establish vehicle cleaning locations designed to isolate and contain organic materials and minimize opportunities for weeds and invasive species to move in and out of the project footprint. Cleaning may be done by washing with water, blowing with compressed air, brushing, or other hand cleaning. The cleaning areas will be located so as to avoid impacts to surface waters and appropriate Stormwater Pollution Prevention Plan (SWPPP) best management practices (BMPs) will be implemented so as to further control any potential for the spread of weeds or other invasive species. Cleaning stations will be inspected regularly (at least monthly).

BIO-IAMF#11: Maintain Construction Sites

Prior to any ground disturbing activity, the Authority will prepare a construction site BMP field manual. The manual will contain standard construction site housekeeping practices required to be implemented by construction personnel. The manual will identify BMPs for the following topics; temporary soil stabilization, temporary sediment control, wind erosion control, non-storm water management, waste management and materials control, rodenticide use, and other general construction site cleanliness measures.

All construction personnel will receive training on BMP field manual implementation prior to working within the project footprint. All personnel will acknowledge, in writing, their understanding of the BMP field manual implementation requirements. The BMP field manual will be updated by January 31st of each year. The Authority will provide, on an annual basis, training updates to all construction personnel.

BIO-IAMF#12: Design the Project to be Bird Safe

Prior to final construction design, the Authority will ensure that the catenary system, masts, and other structures such as fencing, electric lines, communication towers and facilities are designed to be bird and raptor-safe in accordance with the applicable recommendations presented in Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006 (APLIC 2006) and Reducing Avian Collisions with Power Lines: State of the Art in 2012 (APLIC 2012). Applicable APLIC recommendations include, but are not limited to:

- Ensuring sufficient spacing of phase conductors to prevent bird electrocution
- Configuring lines to reduce vertical spread of lines and/or decreasing the span length if such options are feasible
- Marking lines and fences (e.g. Bird Flight Diverter for fencing and lines) to increase the visibility of lines and reduce the potential for collision. Where fencing is necessary, using bird compatible design standards to increase visibility of fences to prevent collision and entanglement.
- Installing perch guards to discourage avian presence on and near project facilities
- Minimizing the use of guywires. Where the use of guywires is unavoidable, demarcating guywires using the best available methods to minimize avian strikes (e.g. line markers).
- Reusing or co-locating new transmission facilities and other ancillary facilities with existing facilities and disturbed areas to minimize habitat impacts and avoid collision risks
- Structures will be monopole or dual-pole design versus lattice tower design to minimize perching and nesting opportunities. Communication towers will conform to Recommended Best Practices for Communication Tower Design, Siting, Construction, Operation, Maintenance, and Decommissioning (UFWS 2018).

Use of facility lighting that does not attract birds or their prey to project sites. These include using non-steady burning lights (red, dual red and white strobe, strobe-like flashing lights) to meet Federal Aviation Administration requirements, using motion or heat sensors and switches to reduce the time when lights are illuminated, using appropriate shielding to reduce horizontal or skyward illumination, and avoiding the use of high-intensity lights (e.g., sodium vapor, quartz, and halogen). Lighting will not be installed under viaduct and bridge structures in riparian habitat areas.

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9 PERMITS ANTICIPATED TO BE REQUIRED

Table 9-1 shows the permits and actions that are anticipated for this HSR project section.

Table 9-1 Permits Anticipated to Be Required

Agency	Regulations	Permits/Action Required
U.S. Army Corps of Engineers (USACE)	Clean Water Act Section 404	Nationwide Permits 12 and 14, as applicable; Compliance with General and Regional Nationwide Permits Conditions; Avoidance, minimization, and compensatory mitigation efforts, as identified in the EIR/EIS
	Section 14 of the Rivers and Harbors Act of 1899 (Section 408)	Section 408 Authorization
U.S. Fish and Wildlife Service (USFWS)	Federal Endangered Species Act	Concurrence with "not likely to adversely affect" determination; avoidance, minimization, and compensatory mitigation efforts, as identified in the EIR/EIS
	Migratory Bird Treaty Act	Avoidance, minimization, and compensatory mitigation efforts, as identified in the EIR/EIS
	Executive Order 13186 (Protection of Migratory Bird Populations)	
	Bald and Golden Eagle Protection Act	
California Department of Fish and Wildlife (CDFW)	California Fish and Game Code Sections 1600-1616	Notification of Lake or Streambed Alteration
	California Endangered Species Act	Avoidance, minimization, and compensatory mitigation efforts, as identified in the EIR/EIS
	California Fish and Game Code Sections 3511, 4700, 5050, & 5515 (Fully Protected Species)	
	California Fish and Game Code Sections 3503, 3503.5, 3511, & 3513 (Bird Nesting Protections)	
State Water Resources Control Board (SWRCB)	Clean Water Act Section 401	Section 401 Water Quality Standards Certification[1]
	Porter-Cologne Water Quality Control Act	

[1] Compliance with Porter-Cologne Water Quality Control Act Waste Discharge Requirements is anticipated to be satisfied through the Section 401 certification process, pursuant to SWRCB Water Quality Order Number 2003-0017-DWQ.
EIR/EIS = Environmental Impact Report/Environmental Impact Statement

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11 PREPARER QUALIFICATIONS

This section provides a summary of the preparers' qualifications, roles, and responsibilities in the field surveys and preparation of this report.

11.1 Field Surveys

Field surveys were conducted by Authority biologists. The qualifications of the personnel involved with the various field surveys are described below.

11.1.1 Delineation of Jurisdictional Waters Survey Personnel and Experience

Jurisdictional delineation surveys were conducted by Blake Selna, Principal Biologist, and Erin Martinelli, Senior Biologist. Supplemental field work and measurements were conducted by Bo Gould, Biologist. GIS Analysis was conducted by Meredith Canterbury, Senior GIS Specialist.

Project Role	Name	Qualifications
LSA		
Principal Biologist Field Reconnaissance, Research, and Senior Review	Blake Selna	18 years of experience B.S., Environmental and Resource Sciences, University of California, Davis
Senior Biologist Field Reconnaissance, Research, and Report Preparation	Erin Martinelli	10 years of experience M.S. and B.A., Environmental Studies, California State University, Fullerton
Biologist Supplemental Field Reconnaissance and Measurements, Research, and Report Preparation	Bo Gould	5 years of experience B.A., Environmental Studies and Science, Whittier College
GIS Analysis and Cartography Senior GIS Specialist	Meredith Canterbury	12 years of experience B.A., Geography, with Emphasis in Environmental Analysis, California State University, Fullerton

11.1.2 Reconnaissance and Focused Field Surveys Personnel and Experience

Field surveys were conducted by Blake Selna, Principal Biologist; Erin Martinelli, Senior Biologist; Jill Carpenter, Senior Biologist and Bat Specialist; and Bo Gould, Biologist.

Project Role	Name	Qualifications
LSA		
Principal Biologist Field Reconnaissance and General Habitat Assessment Surveys	Blake Selna	18 years of experience B.S., Environmental and Resource Sciences, University of California, Davis
Senior Biologist Field Reconnaissance and General Habitat Assessment Surveys	Erin Martinelli	10 years of experience M.S. and B.A., Environmental Studies, California State University, Fullerton
Senior Biologist and Bat Specialist Bat Habitat Suitability Assessment Surveys	Jill Carpenter	17 years of experience B.S., Biological Sciences, University of California, Irvine
Biologist General Habitat Assessment Surveys, Botanical Surveys, and Bat Habitat Suitability Assessment Surveys	Bo Gould	5 years of experience B.A., Environmental Studies and Science, Whittier College

11.2 Report Preparation

Project Role	Name	Qualifications
LSA		
Author, Biologist	Bo Gould	5 years of experience B.A., Environmental Studies and Science, Whittier College
Author, Senior Biologist	Erin Martinelli	10 years of experience M.S. and B.A., Environmental Studies, California State University, Fullerton
Wildlife Movement Section Author, Associate/Senior Biologist	John Ko	25 years of experience B.S., Natural Resources Planning and Interpretation, Humboldt State University
Senior Review, Principal Biologist	Blake Selna	18 years of experience B.S., Environmental and Resource Sciences, University of California, Davis
Senior Technical Editor/ Word Processor	Jennette Bosseler-Crockett	17 years of experience B.A., English, with Minor in Professional Writing, University of California, Santa Barbara
GIS Analysis and Cartography Senior GIS Specialist	Meredith Canterbury	12 years of experience B.A., Geography, with Emphasis in Environmental Analysis, California State University, Fullerton

APPENDIX A: SUMMARY OF REGIONAL AND LOCAL LAWS AND REGULATIONS

Table A-1 Summary of Regional and Local Laws and Regulations

Policy Title	Summary
Los Angeles County Code of Ordinances	
Significant Ecological Areas	The Los Angeles County Significant Ecological Areas (SEA) was established by the Los Angeles County General Plan and additionally in the Hillside Management and Significant Ecological Areas Ordinance in 1982. SEA designation is given to land that contains irreplaceable biological resources. The SEA is intended to aid applicants and staff with the implementation of the general plan goals and policies, zoning code regulations, and Department of Regional Planning procedures. The general plan establishes the location of the SEAs, the description of SEA (habitat types, unique resources, etc.), and program policies. The SEA Ordinance, a component of the county zoning code ("Title 22") is the implementation tool of the SEA Program, which establishes the permitting standards and process for development within SEAs.
Los Angeles County Municipal Code	The applicable ordinances are stated below. • **Section 12.28, Brush and Vegetation, Policy 12.28.030:** States that no person shall remove or destroy, or cause the removal or destruction of, natural vegetation (native plants, grasses, shrubs, trees, and roots) on sloping terrain within the unincorporated territory of the County of Los Angeles. • **Section 12.28, Brush and Vegetation, Policy 17.04.340:** States that a person shall not dig, remove, destroy, injure, mutilate, or cut any tree, plant, shrub, grass, fruit, or flower, or any portion thereof, growing in a park. Any removal of wood, turf, grass, soil, rock, sand, or gravel from any park is unlawful. • **Section 12.28, Brush and Vegetation, Policy 17.04.470:** States that a person shall not molest, hunt, disturb, injure, shoot at, take, net, poison, wound, harm, kill, or remove from any park or riding and hiking trail any kind of animal. • **Section 22, Planning and Zoning, Policy 22.56.2060:** States that no person shall cut, destroy, remove, relocate, inflict damage, or encroach into a protected zone of any tree in the oak genus that is 8 inches in diameter or greater measured at 4.5 feet above mean natural grade.
City of Burbank Municipal Code	
5-1-908: Disturbing Nests of Songbirds	No person shall kill, destroy, or rob the nest of any songbird.
7-4-104: Maintenance of Street Trees	A permit is required in order to alter or maintain a tree within a public area and/or public right-of-way.
7-4-105: Determination of Tree Values	In the case of any tree removed or destroyed (as provided for in Section 7-4-111 of this article, or as a result of a violation of Sections 7-4-113, 7-4-115, or 7-4-117 of this article) but not replaced, the city shall be reimbursed the value of the tree, as determined by the most current valuation table established by the International Shade Tree Conference.
7-4-108: Restricted Removal of Certain Trees	The director shall have the authority and responsibility to develop and maintain a restricted list of trees in the city. This list shall include landmark trees, trees of outstanding size and beauty, dedicated trees, etc. These trees shall be identified, mapped and recorded.

Policy Title	Summary
7-4-111: Removal for the Purpose of Construction	Street Trees: Any street tree requested by any person or property owner to be removed for the purpose of any type of construction shall be replaced with a tree of the nearest size available, of a species and in the location to be determined by the director. The person or property owner shall pay the total cost of removal to the city prior to any such action being undertaken. If such tree, or trees, are not replaced, the city shall be reimbursed the value of the tree as established in Section 7-4-105 of this article, in addition to the cost of removal to the city.
7-4-115: Protection of Trees	All trees on any street or other publicly owned property near any excavation or construction of any building, structure, or street work, shall be sufficiently guarded and protected by those responsible for such work so as to prevent any injury to said trees. No person shall excavate any ditches, tunnels, or trenches, or install pavement within a radius of 10 feet from any public tree without prior notification to the director.
Glendale Municipal Code	
Title 12: Streets, Sidewalks and Public Places – Indigenous Trees	A. Except as provided in Sections 12.44.030 and 12.44.060, any person proposing to cut, remove, encroach upon, or move any protected indigenous tree or trees within the city must apply and obtain from the director a permit prior to the proposed tree alteration, removal, encroachment, or relocation. B. When the application pertains to the removal or relocation of a tree, or encroachment upon the protected zone of a tree as a result of proposed development activities that do not require discretionary approval, a qualified tree expert shall prepare a report at the property owner's or developer's expense. The permit applicant shall submit the report with the permit application. In the report, the qualified tree expert shall explain the reason for the removal, relocation, or encroachment. On the front page of the report, the qualified tree expert shall state the expert's name, company name, address, and telephone number. The qualified tree expert shall attach to the report a copy of the expert's certification or registration and state license, if required by law to have one. If the property owner or developer is hiring an individual or a company to perform work on a protected indigenous tree, the permit applicant shall state on the permit application the individual's or company's name, address, daytime telephone number, and state contractor's license number, if required by law to have a license. C. The report must include: 1. A plan or map upon which each tree must be identified by species, diameter measured at a height of 54 inches above the lowest point where the trunk meets the soil, height, drip line, and health. Each tree proposed to be removed, moved, or encroached upon must be so designated on the plan or map. 2. Photographs of the trees to be moved or encroached upon, reflecting the tree(s) position in regard to existing and future proposed structures. The full canopy and a close-up of the leaves must be provided. 3. If a tree will be moved or relocated to another location on the property, the relocation site must be identified, and site preparation and relocation methods must be described. 4. The species, number, and size of any proposed replacement tree or trees must be designated. 5. The qualified tree expert shall state that the expert has inspected and verified the health of any tree declared diseased or dying.

Policy Title	Summary
Title 16: Subdivisions 16.08: Design Standards 16.08.030: Blue-line streams—Preservation	A. Intent and Purpose. Blue-line streams are significant stream channels either with or without year-round running water as mapped on the most recently published U.S. Geological Survey 7.5-minute series topographic maps. Blue-line stream areas provide surface and/or groundwater for vegetation and wildlife, as well as a natural corridor for wildlife movement. Blue-line steam courses are an important defining characteristic of the hillsides and are worthy of preservation for the welfare of all citizens of Glendale. B. Submission of Plans. Tentative tract and parcel maps, building plans, and grading plans for any property with blue-line streams within its boundaries shall include provisions for the complete preservation of areas within 100 horizontal feet of the actual stream course. C. Blue-Line Streams Defined. A blue-line stream shall be any natural stream course mapped with a blue-line pattern or the most recently published U.S. Geological Survey 7.5-minute series topographic maps for the *Burbank, Pasadena, Sunland,* and *Condor Peak* quadrangles, and as indicated on Sheet Nos. OC, OD, 1C, 1D, 2C, 3C, 4A, 4B, 4C, 4D, 5B, 5C, 5D, 6B, 6C, 6D, 6E, 6F, 7B, 7C, 7D, 7E, 7F, 8B, 8C, 8D, 8E, 8F, 8G, 9D, 9E, 9G, 10E, 10F, and 10G of the Glendale, Los Angeles County, California metropolitan area 200-foot scale topographic maps which are attached to the ordinance codified in this title, incorporated herein and by this reference made a part hereof. D. Prohibitions. No grading, engineered slopes, housing construction, streets, utilities, or other built features shall be permitted within 30 feet of the centerline of any identified blue-line stream. Grading may be allowed between 30 and 100 feet from the centerline of any identified blue-line stream, provided that any riparian habitat shall be fully preserved. E. Exceptions, Public Streets and Fire Roads. When no feasible alternative to crossing a blue-line stream with a public street or fire road is available, a plan to preserve the stream course and wildlife corridor shall be developed that provides sufficient mitigation to allow the stream and wildlife corridor to pass underneath the road. Notwithstanding these criteria, this section does not preclude the granting of exceptions pursuant to Section 16.08.040 of this code. F. Clustering of Development into Nonprohibited Areas. Where protection of environmental resources pursuant to subsection (D) of this section necessitates preserving portions of a parcel in an undeveloped state, the city shall permit a density transfer for those dwelling units that otherwise would be allowable pursuant to Chapter 30.11 of this code onto less sensitive portions of the parcel. G. The determination that any specific property or portion thereof falls within the area described by subsection (C) of this section may be appealed pursuant to the city's uniform appeal procedure (Chapter 2.88 of this code) (Ord. 5683 § 2, 2009).

Policy Title	Summary
City of Los Angeles	
Administrative Code Division 6: Special Assessment District Procedures Chapter 6: Street Tree Improvements Article 2: Specific Planning – Comprehensive Zoning Plan	All existing protected trees and relocation and replacement trees specified by the advisory agency in accordance with Sections 17.02, 17.05, 17.06, 17.51, and 17.52 of this code shall be indicated on a plot plan attached to the building permit issued pursuant to this code. In addition, the trees shall be identified and described by map and documentation as required by the advisory agency. A Certificate of Occupancy may be issued by the Department of Building and Safety, provided the owner of the property or authorized person representing the owner of the property (licensed contractor) obtains from the advisory agency, in consultation with the city's Chief Forester, a written or electronic document certifying that all the conditions set forth by the advisory agency relative to protected trees have been met prior to the final inspection for the construction.
Municipal Code Chapter VI: Public Works and Property Article 4.4: Stormwater and Urban Runoff Pollution Control	"Environmentally Sensitive Areas (ESAs)" means any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which would be easily disturbed or degraded by human activities and developments. ESAs include, but are not limited to, areas designated as Significant Ecological Areas by the County of Los Angeles (Los Angeles County Significant Areas Study, Los Angeles County Department of Regional Planning [1976] and amendments), areas designated as Significant Natural Areas by the California Department of Fish and Wildlife's (CDFW) Significant Natural Areas Program and field-verified by the CDFW, and areas listed in the Basin Plan as supporting the "Rare, Threatened, or Endangered Species (RARE)" beneficial use.
Municipal Code Chapter I: General Provisions and Zoning Article 3: Specific Plan – Zoning Supplemental Use Districts Sec. 13.17: "Rio" River Improvement Overlay District	A Purpose. This section sets forth procedures and standards for the establishment of River Improvement Overlay (RIO) districts within river or tributary (river) adjacent areas throughout the city to: 1. Support the goals of the Los Angeles River Revitalization Master Plan 2. Contribute to the environmental and ecological health of the city's watersheds 3. Establish a positive interface between river-adjacent property and river parks and/or greenways 4. Promote pedestrian, bicycle, and other multimodal connections between the river and its surrounding neighborhoods 5. Provide native habitat and support local species 6. Provide an aesthetically pleasing environment for pedestrians and bicyclists accessing the river area 7. Provide safe, convenient access to and circulation along the river 8. Promote the river identity of river-adjacent communities 9. Support the Low Impact Development Ordinance, the city's Irrigation Guidelines, and the Standard Urban Stormwater Maintenance Program.
U.S. Army Corp Engineers and City of Los Angeles: Los Angeles River Ecosystem Restoration Project (2015)	The Los Angeles River Ecosystem Restoration Project would restore approximately 11 miles of the Los Angeles River from Griffith Park to downtown Los Angeles. The project would reestablish riparian strand, freshwater marsh, and aquatic habitat communities and reconnect the river to major tributaries, its historic floodplain, and the regional habitat zones of the Santa Monica, San Gabriel, and Verdugo Mountains while maintaining existing levels of flood risk management. The goals of the project are to restore valley foothill riparian strand and freshwater marsh habitat, increase habitat connectivity, and increase passive recreation.

APPENDIX B: OCCURRENCE RECORDS OF SPECIAL-STATUS PLANT SPECIES IN OR NEAR THE STUDY AREA

Table B-1 Occurrence Records of Special-Status Plant Species in or near the Botanical RSA

Species	Regulatory Status[1]	Bloom Period	Habitat Requirements	Potentially Suitable Habitat in the Botanical RSA[2]	Potential to Occur	Source
Federally or State-Listed Plant Species						
Arenaria paludicola marsh sandwort	US: FE CA: SE CRPR: 1B	May–August	Freshwater or brackish marshes and swamps, sandy areas or openings at 3 to 170 meters (10 to 560 feet) elevation.	Absent.	Not Expected. No suitable habitat/conditions for supporting this species in the Botanical RSA. Extant populations in San Luis Obispo County. Only one occurrence record (dated 1900) of this species in Los Angeles County, and that one is presumed extirpated due to extensive urban development in the area since 1900.	Burbank to Los Angeles CNPS Lit search 09.30.2016 and 12.28.2018
Astragalus brauntonii Braunton's milk-vetch	US: FE CA: -- CRPR: 1B	January–August	Generally shallow calcium carbonate soils derived from marine substrates. Usually on sandstone with carbonate layers following fire but may follow other disturbance and occur on stiff, gravelly clay soils over granite. Typically associated with the fire-dependent chaparral habitat on limestone and on down-wash sites below 640 meters (2,100 feet) elevation.	Absent.	Not Expected. No suitable habitat/conditions for supporting this species occurs in the Botanical RSA. The nearest occurrence record is over 6.5 miles southwest of the Botanical RSA and is very old (dated 1901).	Burbank to Los Angeles CNPS Lit search 09.30.2016 and 12.28.2018 Burbank to Los Angeles IPaC Lit search 09.29.2016

Species	Regulatory Status[1]	Bloom Period	Habitat Requirements	Potentially Suitable Habitat in the Botanical RSA[2]	Potential to Occur	Source
Astragalus pycnostachyus var. *lanosissimus* Ventura marsh milk-vetch	US: FE CA: SE CRPR: 1B	June–October	Coastal salt marsh within reach of high tide or protected by barrier beaches, or more rarely near seeps on sandy bluffs, below 35 meters (120 feet) elevation.	Absent.	Not Expected. No suitable habitat/conditions for supporting this species in the Botanical RSA. Nearest occurrence record is several miles to the west of the study area. Historic records of this species are located closer to the coastline.	Burbank to Los Angeles CNPS Lit search 09.30.2016 and 12.28.2018
Berberis nevinii Nevin's barberry	US: FE CA: SE CRPR: 1B	February–June	Gravelly wash margins in alluvial scrub or coarse soils and rocky slopes in chaparral at 70 to 825 meters (220 to 2,700 feet) elevation.	Absent.	Not Expected. No suitable habitat/conditions for supporting this species exist in the Botanical RSA. The nearest occurrence is beyond the Botanical RSA limits in Griffith Park, but is not a naturally occurring population; individuals were planted according to the herbarium record.	Burbank to Los Angeles CNPS Lit search 09.30.2016 and 12.28.2018 Burbank to Los Angeles IPaC Lit search 09.29.2016 Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018
Chorizanthe parryi var. *fernandina* San Fernando Valley spineflower	US: FC CA: SE CRPR: 1B	April–July	Shallow depressions or shallow, compacted, low-nutrient (e.g., sandy), or disturbed soils (e.g., dirt roads or around rodent burrows) in grassland or coastal scrub where competition from shrubs and exotic grasses is limited, from 70 to 1,220 meters (500 to 3,330 feet) elevation.	Absent.	Not Expected. No suitable habitat/conditions for supporting this species exists in the Botanical RSA. The nearest occurrence record is in Burbank and is dated 1890; the species was presumably extirpated by development in the area since 1890.	Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018 Burbank to Los Angeles CNPS Lit search 09.30.2016 and 12.28.2018

Species	Regulatory Status[1]	Bloom Period	Habitat Requirements	Potentially Suitable Habitat in the Botanical RSA[2]	Potential to Occur	Source
Dodecahema leptoceras Slender-horned spineflower	US: FE CA: SE CRPR: 1B	April–June	Sandy habitat in chaparral, cismontane woodland, and coastal scrub at 200 to 760 meters (655 to 2,500 feet) elevation.	Absent.	Not Expected. No suitable habitat/conditions for supporting this species exist in the Botanical RSA. There are no occurrence records reasonably near the study area.	Burbank to Los Angeles CNPS Lit search 09.30.2016 and 12.28.2018 Burbank to Los Angeles IPaC Lit search 09.29.2016
Nasturtium gambelii Gambel's Water cress	US: FE CA: ST CRPR: 1B	April–October	Freshwater or brackish marshes and swamps at 5 to 330 meters (20 to 1,080 feet) elevation.	Absent.	Not Expected. No suitable habitat/conditions for supporting this species exist in the Botanical RSA. There are historic occurrence records (late 1800s and early 1900s) several miles from the Botanical RSA. This species is presumed extirpated from Los Angeles County due to urban development.	Burbank to Los Angeles CNPS Lit search 09.30.2016 and 12.28.2018 Burbank to Los Angeles IPaC Lit search 09.29.2016
Other Special-Status Species						
Atriplex parishii Parish's brittlescale	US: – CA: – CRPR: 1B	June–October	Alkali soils in meadows, vernal pools, chenopod scrub, and playas. Usually on drying alkali flats with fine soils at 25 to 1,900 meters (80 to 6,235 feet) elevation.	Absent.	Not Expected. No suitable habitat/conditions for supporting this species in the Botanical RSA. Presumed extirpated in Los Angeles County.	Burbank to Los Angeles CNPS Lit search 09.30.2016 and 12.28.2018 Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018
Atriplex serenana var. *davidsonii* Davidson's saltscale	US: – CA: – CRPR: 1B	April–October	Alkaline soils in scrub and herbaceous communities from 10 to 200 meters (30 to 655 feet) elevation.	Absent.	Not Expected. No suitable habitat/conditions for supporting this species in the Botanical RSA.	Burbank to Los Angeles CNPS Lit search 09.30.2016 and 12.28.2018 Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018

Species	Regulatory Status[1]	Bloom Period	Habitat Requirements	Potentially Suitable Habitat in the Botanical RSA[2]	Potential to Occur	Source
California macrophylla Round-leaved filaree	US: – CA: – CRPR: 1B	March–May	Usually clay or clay loam in woodland, scrub, and grassland communities from 15 to 1,200 meters (50 to 4,000 feet) elevation.	Absent.	Not Expected. No suitable habitat/conditions for supporting this species in the Botanical RSA.	Burbank to Los Angeles CNPS Lit search 09.30.2016 and 12.28.2018 Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018
Calochortus clavatus var. *gracilis* slender mariposa lily	US: – CA: – CRPR: 1B	March–November	Chaparral, coastal scrub, and grassland in the Transverse Ranges at 320 to 1,000 meters (1,050 to 3,300 feet) elevation.	Absent.	Not Expected. No suitable habitat/conditions for supporting this species in the Botanical RSA.	Burbank to Los Angeles CNPS Lit search 09.30.2016 and 12.28.2018 Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018
Calystegia felix lucky morning-glory	US: – CA: – CRPR: 3	March–September	Wetland and marshy areas, sometimes alkaline, sometimes artificially watered, from 30 to 215 meters (100 to 700 feet) elevation.	Absent.	Not Expected. No suitable habitat/conditions for supporting this species in the Botanical RSA. Presumed extirpated in Los Angeles County.	Burbank to Los Angeles CNPS Lit search 09.30.2016 and 12.28.2018 Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018
Calystegia sepium ssp. *binghamiae* Santa Barbara morning-glory	US: – CA: – CRPR: 1A	August	Coastal marshes and swamps below 220 meters (720 feet) elevation.	Absent.	Not Expected. No suitable habitat/conditions for supporting this species in the Botanical RSA. Presumed extirpated in Los Angeles County.	Burbank to Los Angeles CNPS Lit search 09.30.2016 and 12.28.2018
Camissoniopsis lewisii Lewis' evening-primrose	US: – CA: – CRPR: 3	March-June	Sandy or clay areas in coastal scrub, grassland, and woodland below 300 meters (1,000 feet) elevation.	Absent.	Not Expected. No suitable habitat/conditions for supporting this species in the Botanical RSA.	Burbank to Los Angeles CNPS Lit search 09.30.2016 and 12.28.2018

Species	Regulatory Status[1]	Bloom Period	Habitat Requirements	Potentially Suitable Habitat in the Botanical RSA[2]	Potential to Occur	Source
Centromadia parryi ssp. *australis* southern tarplant	US: – CA: – CRPR: 1B	May–November	This annual herb occurs in coastal salt marsh margins, vernal pools, seasonally mesic grasslands, and often in ruderal, disturbed areas (e.g., drainage ditches, dirt road edges, road ruts, shallow depressions) below 480 meters (1,575 feet) elevation.	Some suitable habitat may be present in the Botanical RSA along the margins of the Los Angeles River as well as on and along various dirt access roads having shallow depressions, road ruts, or roadside ditches.	Low to Moderate. Suitable conditions may exist within the Botanical RSA. This species has known occurrences throughout the Los Angeles Basin, and the closest occurrence record is in Eagle Rock approximately 2 miles northeast of the Botanical RSA.	Burbank to Los Angeles CNPS Lit search 09.30.2016 and 12.28.2018 Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018
Chorizanthe parryi var. *parryi* Parry's spineflower	US: – CA: – CRPR: 1B	April–June	Sandy or rocky soils in chaparral, coastal scrub, cismontane woodlands, and grassland at 275 to 1,220 meters (900 to 4,000 feet) elevation	Absent.	Not Expected. No suitable habitat/conditions for supporting this species in the Botanical RSA.	Burbank to Los Angeles CNPS Lit search 09.30.2016 and 12.28.2018
Dudleya multicaulis many-stemmed dudleya	US: – CA: – CRPR: 1B	April–July	Heavy, often clay soils or around granitic outcrops in chaparral, coastal sage scrub, and grassland at 15 to 790 meters (50 to 2,600 feet) elevation.	Absent.	Not Expected. No suitable habitat/conditions for supporting this species in the Botanical RSA.	Burbank to Los Angeles CNPS Lit search 09.30.2016 and 12.28.2018 Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018

Species	Regulatory Status[1]	Bloom Period	Habitat Requirements	Potentially Suitable Habitat in the Botanical RSA[2]	Potential to Occur	Source
Helianthus nuttallii ssp. *parishii* Los Angeles sunflower	US: – CA: – CRPR: 1A	August–October	Marshes and swamps (coastal salt and freshwater) at 10 to 1,675 meters (30 to 5,500 feet) elevation.	Absent.	Not Expected. No suitable habitat/conditions for supporting this species in the Botanical RSA. Presumed extirpated in Los Angeles County.	Burbank to Los Angeles CNPS Lit search 09.30.2016 and 12.28.2018
Hordeum intercedens vernal barley	US: – CA: – CRPR: 3	March–June	Vernal pools and saline flats and depressions at 5 to 1,000 meters (15 to 3,300 feet) elevation.	Absent.	Not Expected. No suitable habitat/conditions for supporting this species in the Botanical RSA.	Burbank to Los Angeles CNPS Lit search 09.30.2016 and 12.28.2018
Horkelia cuneata var. *puberula* mesa horkelia	US: – CA: – CRPR: 1B	February–September	Sandy or gravelly soils in chaparral, or rarely in cismontane woodland or coastal scrub at 70 to 810 meters (200 to 2,700 feet) elevation.	Absent.	Not Expected. No suitable habitat/conditions for supporting this species in the Botanical RSA.	Burbank to Los Angeles CNPS Lit search 09.30.2016 and 12.28.2018 Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018
Lasthenia glabrata ssp. *coulteri* Coulter's goldfields	US: – CA: – CRPR: 1B	February–June	Vernal pools and alkaline soils in marshes, playas, and similar habitats below 1,220 meters (4,000 feet) elevation.	Absent.	Not Expected. No suitable habitat/conditions for supporting this species in the Botanical RSA.	Burbank to Los Angeles CNPS Lit search 09.30.2016 and 12.28.2018
Linanthus concinnus San Gabriel linanthus	US: – CA: – CRPR: 1B	April–July	Dry rocky slopes in lower and upper montane coniferous forest at 1,520 to 2,800 meters (5,000 to 9,200 feet) elevation.	Absent.	Not Expected. No suitable habitat/conditions for supporting this species in the Botanical RSA. Presumed extirpated in Los Angeles County.	Burbank to Los Angeles CNPS Lit search 09.30.2016 and 12.28.2018

Species	Regulatory Status[1]	Bloom Period	Habitat Requirements	Potentially Suitable Habitat in the Botanical RSA[2]	Potential to Occur	Source
Malacothamnus davidsonii Davidson's bush-mallow	US: – CA: – CRPR: 1B	June–January	Sandy washes in coastal scrub, riparian woodland, and chaparral at 185 to 855 meters (600 to 2,800 feet) elevation.	Absent.	Not Expected. No suitable habitat/conditions for supporting this species in the Botanical RSA.	Burbank to Los Angeles CNPS Lit search 09.30.2016 and 12.28.2018 Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018
Navarretia prostrata prostrate vernal pool navarretia	US: – CA: – CRPR: 1B	April–July	Vernal pools, usually alkaline, from 3 to 1,210 meters (10 to 4,000 feet) elevation.	Absent.	Not Expected. No suitable habitat/conditions for supporting this species in the Botanical RSA.	Burbank to Los Angeles CNPS Lit search 09.30.2016 and 12.28.2018 Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018
Pseudognaphalium leucocephalum white rabbit-tobacco	US: – CA: – CRPR: 2B	July–December	Sand and gravel at the edges of washes or mouths of steep canyons at below 2,100 meters (7,000 feet) elevation.	Absent.	Not Expected. No suitable habitat/conditions for supporting this species in the Botanical RSA.	Burbank to Los Angeles CNPS Lit search 09.30.2016 and 12.28.2018 Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018
Ribes divaricatum var. *parishii* Parish's gooseberry	US: – CA: – CRPR: 1A	February–April	Deciduous shrub or willow swales in riparian habitats at 65 to 300 meters (200 to 1,000 feet) elevation.	Absent.	Not Expected. No suitable habitat/conditions for supporting this species in the Botanical RSA. Presumed extirpated in Los Angeles. County.	Burbank to Los Angeles CNPS Lit search 09.30.2016 and 12.28.2018 Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018

Species	Regulatory Status[1]	Bloom Period	Habitat Requirements	Potentially Suitable Habitat in the Botanical RSA[2]	Potential to Occur	Source
Symphyotrichum defoliatum San Bernardino aster	US: – CA: – CRPR: 1B	July–November	Vernally wet sites (such as ditches, streams, and springs) in many plant communities below 2,040 meters (6,700 feet) elevation.	Absent.	Not Expected. No suitable habitat/conditions for supporting this species in the Botanical RSA.	Burbank to Los Angeles CNPS Lit search 09.30.2016 and 12.28.2018
Symphyotrichum greatae Greata's aster	US: – CA: – CRPR: 1B	June–October	Mesic places in canyons in chaparral and woodland habitats at 300 to 2,010 meters (1,000 to 6,600 feet) elevation.	Absent.	Not Expected. No suitable habitat/conditions for supporting this species in the Botanical RSA.	Burbank to Los Angeles CNPS Lit search 09.30.2016 and 12.28.2018 Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018

[1] US: Federal Classifications
FE Listed as Endangered
FT Listed as Threatened
FPE Proposed for listing as Endangered
FPT Proposed for listing as Threatened
FPD Proposed for delisting

[2] The Botanical RSA is defined as the project footprint plus 100 feet.

CA: State Classifications
SE State-listed as Endangered
ST State-listed as Threatened
SR State-listed as Rare
California Rare Plant Ranks are assigned by a committee of government agency and nongovernmental botanical experts, including experts from the California Native Plant Society, and are not official state designations of rarity status.
1A California Rare Plant Rank 1A – Presumed extinct in California
1B California Rare Plant Rank 1B – Rare, Threatened, or Endangered in California and elsewhere
2B California Rare Plant Rank 2B – Rare, Threatened, or Endangered in California, but more common elsewhere
3 California Rare Plant Rank 3 – A review list of plants about which more information is needed

APPENDIX C: USFWS OFFICIAL SPECIES LIST

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
Phone: (760) 431-9440 Fax: (760) 431-5901
http://www.fws.gov/carlsbad/

In Reply Refer To: April 24, 2019
Consultation Code: 08ECAR00-2017-SLI-0882
Event Code: 08ECAR00-2019-E-02006
Project Name: California High-Speed Rail: Burbank to Los Angeles Project Section

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
(760) 431-9440

Project Summary

Consultation Code: 08ECAR00-2017-SLI-0882

Event Code: 08ECAR00-2019-E-02006

Project Name: California High-Speed Rail: Burbank to Los Angeles Project Section

Project Type: TRANSPORTATION

Project Description: The California High-Speed Rail Authority (Authority) and the Federal Railroad Administration (FRA) have prepared program-wide, Tier 1 environmental documents for the High-Speed Rail (HSR) System under CEQA and NEPA. The Burbank to Los Angeles Project Section would be a critical link in Phase 1 of the California HSR System, which is planned to connect San Francisco and the Bay Area to Los Angeles and Anaheim.

The Burbank to Los Angeles Project Section would run primarily within an existing railroad transportation corridor for approximately 14 miles, passing through the Cities of Burbank, Glendale, and Los Angeles. As such, the proposed alignment passes through mostly urban settings consisting of residential, industrialized warehouse, and commercial business uses. The current preferred alignment option would be below-grade for approximately 2 miles traveling south from the proposed underground Burbank Airport Station and would emerge at the surface near Sparks Street, traveling south to the existing Los Angeles Union Station. Further information regarding the project alignment options considered can be found in the Authority's Supplemental Alternatives Analysis for the Burbank to Los Angeles Project Section (April 2016). Where the alignment is at the surface, the project footprint would be primarily located within the existing railroad right-of-way, which is typically 70 to 100 feet wide, and would include both northbound and southbound electrified tracks for high-speed trains. The current preferred Build Alternative would include new and upgraded track, system facilities, grade separations, drainage, communication towers, security fencing, and other necessary facilities to introduce HSR service. The project location shapefiles included in this request for an official species list show the Wildlife Resource Study Area, which is defined as the project footprint plus a 1,000 foot buffer in all directions.

The Authority and the FRA have pledged to integrate programmatic impact avoidance and minimization features consistent with the 2005 Statewide Program EIR/EIS and 2012 Partially Revised Final Program EIR into the Burbank to Los Angeles Project Section. Impact avoidance and minimization features that will avoid or minimize impacts to biological and aquatic resources are incorporated into the project design and construction plans.

The conceptual HSR service plan for the full Phase 1 system, starting in 2033, begins with service between Los Angeles/Anaheim running through the Central Valley from Bakersfield to Merced, and traveling northwest into the Bay Area. Currently, the Metrolink Ventura and Antelope Valley Lines, Amtrak Pacific Surfliner and Coast Starlight, and Union Pacific Railroad freight trains operate within the Burbank to Los Angeles Project Section. As the proposed project alternative is within an active passenger and freight rail corridor, all existing operators would have to change their operation patterns and frequency. New and realigned tracks would change the tracks on which the various users operate, with passenger rail and freight trains shifted closer to the east side of the right-of-way.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/34.12746414496945N118.26191993198151W

Counties: Los Angeles, CA

Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
California Condor *Gymnogyps californianus* Population: U.S.A. only, except where listed as an experimental population There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8193	Endangered
Coastal California Gnatcatcher *Polioptila californica californica* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8178	Threatened

Flowering Plants

NAME	STATUS
Nevin's Barberry *Berberis nevinii* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8025	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

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APPENDIX D: AQUATIC RESOURCES DELINEATION REPORT

California High-Speed Rail Authority

Burbank to Los Angeles Project Section

Aquatic Resources Delineation Report

December 2019

CALIFORNIA
High-Speed Rail Authority

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being or have been carried out by the State of California pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated July 23, 2019, and executed by the Federal Railroad Administration and the State of California.

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TABLE OF CONTENTS

Tables

Figures

Appendices

ACRONYMS AND ABBREVIATIONS

°F	Fahrenheit
Authority	California High-Speed Rail Authority
CWA	Clean Water Act
EIR	environmental impact report
EIS	environmental impact statement
FRA	Federal Railroad Administration
HSR	high-speed rail
LAUS	Los Angeles Union Station
NWI	National Wetlands Inventory
PJD	Preliminary Jurisdictional Determination
RSA	resource study area
RWQCB	Regional Water Quality Control Board
SWRCB	State Water Resources Control Board
U.S.	United States
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency

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EXECUTIVE SUMMARY

This Aquatic Resources Delineation Report, prepared for the Burbank to Los Angeles Project Section of the California High-Speed Rail (HSR) System, provides a detailed description of the delineation of aquatic resources potentially affected by the project. This report has been prepared to support documentation for compliance with the California Environmental Quality Act, the National Environmental Policy Act, and Sections 404 and 401 of the Clean Water Act (CWA). Furthermore, this report contains information that was used to support a Preliminary Jurisdictional Determination made for the Burbank to Los Angeles Project Section by the United States Army Corps of Engineers (USACE) in July 2018.

The Burbank to Los Angeles Project Section is approximately 14 miles in length and passes through an urban landscape within an existing railroad transportation corridor. The starting and ending points of the project section include the proposed Burbank Airport Station in the north and existing Los Angeles Union Station (LAUS) in the south. The delineation of aquatic resources within the project section is limited to the Aquatic Resource Study Area (RSA), which includes the project footprint plus 250 feet.

Delineated aquatic resources within the RSA include all wetland and nonwetland waters (rivers and their tributaries, etc.) potentially subject to Section 404 (U.S. Code Title 33, § 1344) and Section 401 (U.S. Code Title 33, § 1341) of the CWA. The CWA Section 404 program is administered by the USACE and the CWA Section 401 program is administered by the State Water Resources Control Board (SWRCB). Waters of the state defined under the Porter-Cologne Water Quality Control Act (California Water Code § 13000 et seq.) are also regulated by the SWRCB. All identified aquatic resources within the RSA are federally jurisdictional, and there are no waters of the state within the RSA that are not also waters of the U.S. under currently effective definitions.

Within the RSA, the total acreage of potential wetland habitat is 12.08 acres and of other aquatic resources is 58.61 acres. The areas containing jurisdictional aquatic resources are located in the Los Angeles River and associated tributaries, including Lockheed Channel, Burbank Western Channel, Verdugo Wash, and Arroyo Seco. No Section 10 navigable waters of the U.S. are present in the RSA.

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1 INTRODUCTION

1.1 California High-Speed Rail System Background

The California High-Speed Rail Authority (Authority) is responsible for planning, designing, building, and operating the first high-speed passenger rail service in the nation. The California High-Speed Rail (HSR) System will connect the mega-regions of the state, contribute to economic development and a cleaner environment, create jobs, and preserve agricultural and protected lands. When it is completed, it will run from San Francisco to the Los Angeles basin in under three hours at speeds capable of exceeding 200 miles per hour. The system will eventually extend to Sacramento and San Diego, totaling 800 miles with up to 25 stations, as shown on Figure 1-1.[1] In addition, the Authority is working with regional partners to implement a statewide rail modernization plan that will invest billions of dollars in local and regional rail lines to meet the state's 21st century transportation needs.

The California HSR System is planned to be implemented in two phases. Phase 1 would connect San Francisco to Los Angeles and Anaheim via the Pacheco Pass and the Central Valley.[2] Phase 2 would connect from the Central Valley to Sacramento, and another extension is planned from Los Angeles to San Diego. The California HSR System would meet the requirements of Proposition 1A,[3] including the requirement for a maximum nonstop service travel time between San Francisco and Los Angeles of two hours and 40 minutes.

1.2 Burbank to Los Angeles Project Section Background

The Burbank to Los Angeles Project Section would be a critical link in Phase 1 of the California HSR System connecting the San Francisco Bay Area to the Los Angeles Basin. The Authority and the Federal Railroad Administration (FRA) selected the existing railroad right-of-way as the corridor for the preferred alternative between Sylmar and Los Angeles Union Station (LAUS) in the 2005 *Statewide Program Environmental Impact Report/Environmental Impact Statement* (EIR/EIS) (Authority and FRA 2005). The Sylmar to Los Angeles railroad corridor includes Burbank, which is southeast of Sylmar. Therefore, the Project EIR/EIS for the Burbank to Los Angeles Project Section focuses on alignment alternatives along the existing Sylmar to Los Angeles railroad corridor.

The Burbank to Los Angeles Project Section was initially considered as part of the Palmdale to Los Angeles Project Section. The Authority and FRA announced their intention to prepare a joint EIR/EIS for the Palmdale to Los Angeles Project Section in March 2007. On March 12, 2007, the Authority released a Notice of Preparation, and the FRA published a Notice of Intent on March 15, 2007. Over the next several years, the Authority and FRA conducted scoping and prepared alternatives analysis documents for that section. The 2010 Palmdale to Los Angeles Preliminary Alternatives Analysis recommended alignment alternatives and station options for the Palmdale to Los Angeles Project Section based on the program-level corridor selected in 2005. The 2011 Palmdale to Los Angeles Supplemental Alternatives Analysis (SAA) focused specifically on the subsections from the community of Sylmar to LAUS, and reevaluated the alternatives and station options. In June 2014, the Authority published a Palmdale to Los Angeles SAA Report, which introduced the concept of splitting the Palmdale to Los Angeles Project Section into two sections. On July 24, 2014, the Authority released a Notice of Preparation and the FRA published a Notice of Intent to prepare EIR/EIS documents for the Palmdale to Burbank and Burbank to Los Angeles project sections. Pursuant to 23 U.S.C. 327, under the National Environmental Policy Act Memorandum of Understanding between the FRA and the State of California, effective July 23, 2019, the Authority is the federal lead agency for review of the Burbank to Los Angeles Project Section under the National Environmental Policy Act.

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[1] The alignments on Figure 1-1 are based on Authority/FRA decisions made in the 2005Statewide Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS).

[2] Phase 1 may be constructed in smaller operational segments, depending on available funds.

[3] California Transportation Commission. 2014. *High Speed Passenger Train Bond Program (Proposition 1A)*, www.catc.ca.gov/programs/hsptbp.htm.

Source: California High-Speed Rail Authority, 2018

Figure 1-1 California High-Speed Rail System

One of the main reasons for the project section split was the Initial Operating Section[4] concept and its interim terminus in the San Fernando Valley, which was discussed in the Authority's 2012 and 2014 Business Plans. Additionally, the Authority and FRA determined that separate environmental documents would be more beneficial to address environmental impacts and conduct stakeholder outreach. The key environmental resources likely to be impacted were different between the two sections, and separate environmental documents better supported project phasing and sequencing.

In April 2016, the Authority released the Burbank to Los Angeles SAA, which refined the previously studied alignments. Additionally, the Authority released the 2016 Palmdale to Burbank SAA, which refined the concepts at the Burbank Airport Station and the alignments from south of the Burbank Airport Station to Alameda Avenue in the City of Burbank. The 2016 Burbank to Los Angeles SAA Report proposed to evaluate one build alternative south of Alameda Avenue to LAUS. The subsection between the Burbank Airport Station and Alameda Avenue was studied in the 2016 Palmdale to Burbank SAA, which proposed two station options and two alignment options. Table 1-1 summarizes the conclusions of the two SAA reports.

Table 1-1 2016 Supplemental Alternatives Analysis Recommendations for the Burbank to Los Angeles Project Section

Alternative	Alignment/ Station	Area/Station	Alignment/Station Type
No Project Alternative			
HSR Build Alternative	Alignments	Burbank Airport Station to Alameda Avenue	Alignment Option A (Surface) Alignment Option B (Below-Grade and Surface)
		Alameda Avenue to LAUS	Surface Alignment
	Stations	Burbank Airport Station	Station Option A (Surface) Station Option B (Below-Grade)
		LAUS	Surface Station Option

Sources: California High-Speed Rail Authority, 2016a, 2016b
HSR = High-Speed Rail
LAUS = Los Angeles Union Station

Since the release of the two SAA documents in 2016, the design has undergone further refinements. The surface options from Burbank Airport to Alameda Avenue (Alignment Option A and Station Option A) have been eliminated from consideration. The below-grade options (Alignment Option B and Station Option B) have been refined in order to minimize potential environmental effects and reduce cost. Therefore, this environmental document evaluates one build alternative for the project section.

FRA requires logical termini for project level analysis. The Authority has determined that logical termini are defined by stations, with Burbank Airport Station as the northern terminus and LAUS as the southern terminus for the Burbank to Los Angeles Project Section. These two stations are also termini for the Palmdale to Burbank and Los Angeles to Anaheim Project Sections. The analysis for the Burbank Airport Station is consistent with what is included in the Palmdale to Burbank EIR/EIS. Similarly, the analysis for LAUS is consistent with what is included in the Los Angeles to Anaheim EIR/EIS

This report documents the aquatic resources delineation conducted for the Burbank to Los Angeles Project Section of the California HSR System. This report includes the following:

[4] The Initial Operating Section was the first segment planned for construction and operations, as outlined in the 2014 Business Plan. The segment permitted operation of HSR service from Merced to the San Fernando Valley. The 2016 Business Plan revised the initial segment termini to the Central Valley and Silicon Valley.

- A description of the project setting for the alternative under study
- A discussion of the statutes and regulations pertinent to aquatic resources
- A description of the existing conditions, including aquatic resources in the study area
- A description of the analytical methodologies and assumptions used for this study

1.3 Purpose of the Assessment

This project-level study determines the location, nature, and extent of potential waters of the state and waters of the U.S., including wetlands, as defined by the CWA and pertinent USACE guidance within the RSA of the Burbank to Los Angeles Project Section.

This technical report fulfills the requirements of the project-level study for the Burbank to Los Angeles Project Section as it identifies and delineates the type and extent of surface water resources, including wetlands that are potentially subject to jurisdiction under CWA Sections 404 and 401, as well as the Porter-Cologne Water Quality Control Act. The information contained herein is intended to satisfy the USACE's *Minimum Standards for Acceptance of Aquatic Resources Delineation Reports* (USACE 2017a).

The determinations and conclusions made in this report have been reviewed by the USACE during a request for a Preliminary Jurisdictional Determination (PJD), consistent with requirements set forth in Regulatory Guidance Letter 16-01. USACE concurrence regarding the extent of all mapped features was received in July 2018. As set forth in Regulatory Guidance Letter 16-01, PJDs are nonbinding written indications that "may include the delineation limits of all aquatic resources on a parcel without determining the jurisdictional status of such aquatic resources." A permit decision made on the basis of a PJD will treat all aquatic resources that would be affected in any way by the permitted activity on the parcel as jurisdictional. By assuming jurisdiction over waters, PJDs obviate the need to perform "significant nexus" and "relatively permanent water" analysis for water features. PJDs also provide for quick and efficient USACE review and concurrence at the District level, eliminating the need for higher-level inter-agency concurrence by the U.S. Environmental Protection Agency (USEPA). A PJD is appropriate in the area because the USACE has administratively affirmed/determined the jurisdictional status of the Los Angeles River and other features within the respective watershed. Furthermore, under the 2015 Clean Water Rule,[5] each of the features presented herein are jurisdictional waters of the U.S. by rule. Because all identified aquatic resources within the Aquatic RSA are jurisdictional under Sections 404/401 of the CWA, there are no waters of the state within the Aquatic RSA that are not also waters of the U.S. under the currently effective definitions. As such, the term "waters of the U.S.," as used herein, includes aquatic resources regulated under currently effective SWRCB permitting requirements.

This Aquatic Resources Delineation Report is for the Burbank to Los Angeles Project Section. The appendices to this technical report provide additional supporting information and maps. Information from this technical report will be summarized in the Burbank to Los Angeles Project Section EIR/EIS and will be part of the administrative record supporting the environmental review of the proposed project.

1.4 Resource Study Area

The delineation of aquatic resources within the project section is limited to the RSA, which includes the project footprint plus 250 feet. The RSA was developed to encompass all components of the project footprint and design options, including tracks, power and station facilities, utility connections, and access routes for use during operations and maintenance, plus a

[5] On August 16, 2018, the U.S. District Court for the District of South Carolina enjoined the delay of the 2015 Clean Water Rule implementation for failure to comply with the Administrative Procedure Act. This decision means that the formerly stayed 2015 definition of waters of the U.S. is currently in effect in 26 states where federal district court judges have not stayed it, including California. On October 22, 2019, the USEPA and USACE issued a final rule to repeal the 2015 Clean Water Rule, effective December 23, 2019.

250-foot buffer around these features. The RSA is sized appropriately to allow for analysis of potential project impacts to waters of the U.S.

1.5 Summary of Regulations

The following federal laws, regulations, and orders, as applicable to the RSA, regulate wetlands and waters of the U.S.

1.5.1 Protection of Wetlands (Executive Order 11990)

U.S. Presidential Executive Order 11990 aims to avoid direct or indirect impacts on wetlands from federal or federally approved projects when a practicable alternative is available. If wetland impacts cannot be avoided, all practicable measures to minimize harm must be included.

1.5.2 Section 401 of the Clean Water Act

Pursuant to Section 401 of the CWA (U.S. Code Title 33, § 1341), the SWRCB or Regional Water Quality Control Board (RWQCB) must certify that any proposed discharge of pollutants into waters of the U.S. that requires a federal permit or license will comply with federal and state water quality standards. In circumstances where a proposed project crosses multiple RWQCB jurisdictional boundaries, the SWRCB will generally assume regulatory responsibilities pursuant to CWA Section 401 and the Porter-Cologne Water Quality Control Act (California Water Code § 13000 et seq.), which issues National Pollutant Discharge Elimination System permits for point-source discharges and waste discharge requirements for nonpoint-source discharges. In general, SWRCB and RWQCB Section 401 jurisdiction is consistent with the jurisdictional boundaries identified under CWA Section 404, which USACE administers. The SWRCB or RWQCB(s), as delegated by the USEPA, have principal authority to issue a CWA Section 401 water quality certification or waiver.

The SWRCB is processing Section 401 permits for each of the HSR project sections in consultation with the appropriate RWQCB to ensure compliance with requirements set forth in the regional basin plan.

1.5.3 Section 404 of the Clean Water Act

Pursuant to Section 404 of the CWA, USACE is authorized to regulate any activity that would result in the discharge of dredged or fill material into waters of the U.S. (including wetlands and nonwetland waters), which include those waters listed in Code of Federal Regulations Title 33, § 328.3(a) (Definitions of Waters of the U.S.). USACE, with oversight by the USEPA, has principal authority to issue CWA Section 404 permits.

1.5.4 Rivers and Harbors Act of 1899

Section 10 of the Rivers and Harbors Act of 1899 (U.S. Code Title 33, § 403) requires authorization from USACE for the construction of any structure in, over, or under any navigable waters of the U.S. Section 14 of the Rivers and Harbors Act (U.S. Code Title 33, § 408) (hereinafter referred to as “Section 408”) authorizes the Secretary of the Army to approve modifications to existing USACE-constructed public works projects. Such public works projects include dams, basins, levees, channels, navigational channels, and any other local flood protection works constructed by the USACE.

1.5.5 Wild and Scenic Rivers Act of 1968

The National Wild and Scenic Rivers Act of 1968 (Public Law 90-542) was created by Congress to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. A listing of designated streams and stream segments can be found on the National Park Service’s Wild and Scenic Rivers website.

1.6 Relationship of Waters of the United States to Waters of the State

The Los Angeles RWQCB, which has jurisdiction over the drainage basins that the project could affect, has not yet adopted a wetland definition within the basin plans. Therefore, this jurisdictional delineation uses the definitions for wetlands and nonwetland waters of the U.S. set forth under Section 404 of the CWA, Code of Federal Regulations Title 33, § 328. Section 404 of the CWA, Code of Federal Regulations Title 33, § 328.3, defines waters of the U.S. as follows:

(a) For purposes of the Clean Water Act, 33 U.S.C. 1251 et seq. and its implementing regulations, subject to the exclusions in paragraph (b) of this section, the term “waters of the United States” means:

(1) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(2) All interstate waters, including interstate wetlands;

(3) The territorial seas;

(4) All impoundments of waters otherwise identified as waters of the United States under this section;

(5) All tributaries, as defined in paragraph (c)(3) of this section, of waters identified in paragraphs (a)(1) through (3) of this section;

(6) All waters adjacent to a water identified in paragraphs (a)(1) through (5) of this section, including wetlands, ponds, lakes, oxbows, impoundments, and similar waters;

(7) All waters in paragraphs (a)(7)(i) through (v) of this section where they are determined, on a case-specific basis, to have a significant nexus to a water identified in paragraphs (a)(1) through (3) of this section. The waters identified in each of paragraphs (a)(7)(i) through (v) of this section are similarly situated and shall be combined, for purposes of a significant nexus analysis, in the watershed that drains to the nearest water identified in paragraphs (a)(1) through (3) of this section. Waters identified in this paragraph shall not be combined with waters identified in paragraph (a)(6) of this section when performing a significant nexus analysis. If waters identified in this paragraph are also an adjacent water under paragraph (a)(6), they are an adjacent water and no case-specific significant nexus analysis is required.

(i) Prairie potholes. Prairie potholes are a complex of glacially formed wetlands, usually occurring in depressions that lack permanent natural outlets, located in the upper Midwest.

(ii) Carolina bays and Delmarva bays. Carolina bays and Delmarva bays are ponded, depressional wetlands that occur along the Atlantic coastal plain.

(iii) Pocosins. Pocosins are evergreen shrub and tree dominated wetlands found predominantly along the Central Atlantic coastal plain.

(iv) Western vernal pools. Western vernal pools are seasonal wetlands located in parts of California and associated with topographic depression, soils with poor drainage, mild, wet winters and hot, dry summers.

(v) Texas coastal prairie wetlands. Texas coastal prairie wetlands are freshwater wetlands that occur as a mosaic of depressions, ridges, intermound flats, and mima mound wetlands located along the Texas Gulf Coast.

(8) All waters located within the 100-year floodplain of a water identified in paragraphs (a)(1) through (3) of this section and all waters located within 4,000 feet of the high tide line or ordinary high water mark of a water identified in paragraphs (a)(1) through (5) of this section where they are determined on a case-specific basis to have a significant nexus to a water identified in paragraphs (a)(1) through (3) of this section. For waters determined to have a significant nexus, the entire water is a water of the United States if a portion is located within the 100-year floodplain of a water identified in paragraphs (a)(1) through (3) of this section or within 4,000 feet of the high tide line or ordinary high water mark. Waters identified in this paragraph shall not be combined with waters identified in paragraph (a)(6) of this section when performing a significant nexus analysis. If waters identified in this paragraph are also an adjacent water under paragraph (a)(6), they are an adjacent water and no case-specific significant nexus analysis is required.

(b) The following are not “waters of the United States” even where they otherwise meet the terms of paragraphs (a)(4) through (8) of this section.

(1) Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act.

(2) Prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

(3) The following ditches:

(i) Ditches with ephemeral flow that are not a relocated tributary or excavated in a tributary.
(ii) Ditches with intermittent flow that are not a relocated tributary, excavated in a tributary, or drain wetlands.
(iii) Ditches that do not flow, either directly or through another water, into a water identified in paragraphs (a)(1) through (3) of this section.

(4) The following features:

(i) Artificially irrigated areas that would revert to dry land should application of water to that area cease;

(ii) Artificial, constructed lakes and ponds created in dry land such as farm and stock watering ponds, irrigation ponds, settling basins, fields flooded for rice growing, log cleaning ponds, or cooling ponds;

(iii) Artificial reflecting pools or swimming pools created in dry land;

(iv) Small ornamental waters created in dry land;

(v) Water-filled depressions created in dry land incidental to mining or construction activity, including pits excavated for obtaining fill, sand, or gravel that fill with water;

(vi) Erosional features, including gullies, rills, and other ephemeral features that do not meet the definition of tributary, non-wetland swales, and lawfully constructed grassed waterways; and

(vii) Puddles.

(5) Groundwater, including groundwater drained through subsurface drainage systems.

(6) Stormwater control features constructed to convey, treat, or store stormwater that are created in dry land.

(7) Wastewater recycling structures constructed in dry land; detention and retention basins built for wastewater recycling; groundwater recharge basins; percolation ponds built for wastewater recycling; and water distributary structures built for wastewater recycling.

The aquatic features shown in Appendix A and Appendix B were mapped based on whether they appeared to meet the regulatory definition of waters of the U.S., as well as the technical criteria for wetlands (3-parameter) or nonwetland waters of the U.S. (ordinary high-water mark). Reference Section 3.2.2, Field Delineation Methods, for a description of the technical criteria used during the preparation of this report.

On April 2, 2019, the SWRCB adopted its proposed State Wetland Definition and Procedures for Discharges of Dredge or Fill Material to Waters of the State (“Procedures”), which become effective May 28, 2020. Among other provisions, the Procedures define certain “wetlands” as “waters of the State” under the Porter-Cologne Water Quality Control Act. The Procedures also provide a jurisdictional framework for the determination of aquatic features as “wetlands.” Compliance with the SWRCB Procedures for the Burbank to Los Angeles Project Section will be achieved through adherence to the provisions set forth in a Memorandum of Understanding between the SWRCB and the Authority (dated January 19, 2017; amended March 11, 2019). Because all identified aquatic resources within the RSA are jurisdictional under Sections 404/401 of the CWA, there are no waters of the state within the RSA that are not also waters of the U.S. under currently effective SWRCB definitions.

2 PROJECT SETTING

The RSA is approximately 14 linear miles and is located on the U.S. Geological Survey *Burbank, Hollywood,* and *Los Angeles, California* 7.5-minute series topographical quadrangles (Figure 2-1). The RSA passes through mostly urban settings consisting of residential, industrialized warehouse, and commercial business uses that run along the existing transportation facilities.

Elevations within the RSA range from approximately 300 feet (above sea level) near LAUS and the low-lying areas along the Los Angeles River to approximately 500 feet in the northern part of the RSA in the City of Burbank. The topography is relatively flat throughout the length of the RSA.

The Los Angeles River, which flows into the Pacific Ocean, runs parallel to the RSA. Three drainages within the RSA, Burbank Western Channel, Verdugo Wash, and Arroyo Seco, are tributaries to the Los Angeles River and are mainly concrete-lined channels. Within the RSA, the Los Angeles River channel includes one section in the Glendale Narrows where an earthen bottom supports potential wetland waters of the U.S., and Verdugo Wash includes an area where sediment has accumulated on the concrete lining and supports potential wetland waters of the U.S.

2.1 Vegetation Communities

The RSA is located in an urban setting. Water flowing in the Los Angeles River and its tributaries consists of freshwater, with a significant portion of the water sourced from urban runoff and treated effluent. Fragments of riparian scrub and freshwater emergent marsh habitats have been identified in the RSA within a section of the Los Angeles River and a small area at the river's confluence with Verdugo Wash. Within the RSA, Verdugo Wash is a concrete trapezoidal channel until it passes beneath San Fernando Road, where it transitions into an area containing vegetation characteristic of wetlands before joining the Los Angeles River. Vegetation communities associated with the delineated aquatic resources within the RSA are illustrated in Appendix B, Vegetation Communities Associated with Aquatic Resources within Resource Study Area.

2.1.1 Developed Lands

The developed lands category consists of developed areas such as existing buildings, paved roads, ornamental vegetation, and commercial and residential properties. Some of the areas mapped under this vegetation community category consist predominantly of nonnative ornamental vegetation and ruderal (i.e., weedy) species. These upland disturbed areas are not associated with wetland communities or other waters and have low habitat value for native plant and wildlife species. Any aquatic resources that occur within developed areas of the RSA are discussed under Section 2.1.3.

2.1.2 Natural and Naturalized Habitats

Natural and naturalized habitats consist of native or mostly native upland (i.e., not associated with aquatic resources) vegetation, which may offer medium to high habitat value for wildlife species. There are few natural or semi-natural habitat areas within the RSA. Such upland areas were not surveyed as part of the aquatic resources delineation. Rather, they have been surveyed under the investigation of biological resources and are discussed in the corresponding *Burbank to Los Angeles Project Section: Biological and Aquatic Resources Technical Report* (Authority 2019). Any aquatic resources that occur within natural or naturalized habitats of the RSA are discussed under Section 2.1.3.

2.1.3 Aquatic Resources, Including Wetlands

The RSA contains the following aquatic resource communities: Riverine, Freshwater-Forested and Shrub Wetland, and Freshwater Emergent Wetland, as identified by the U.S. Fish and Wildlife Service National Wetlands Inventory (NWI).

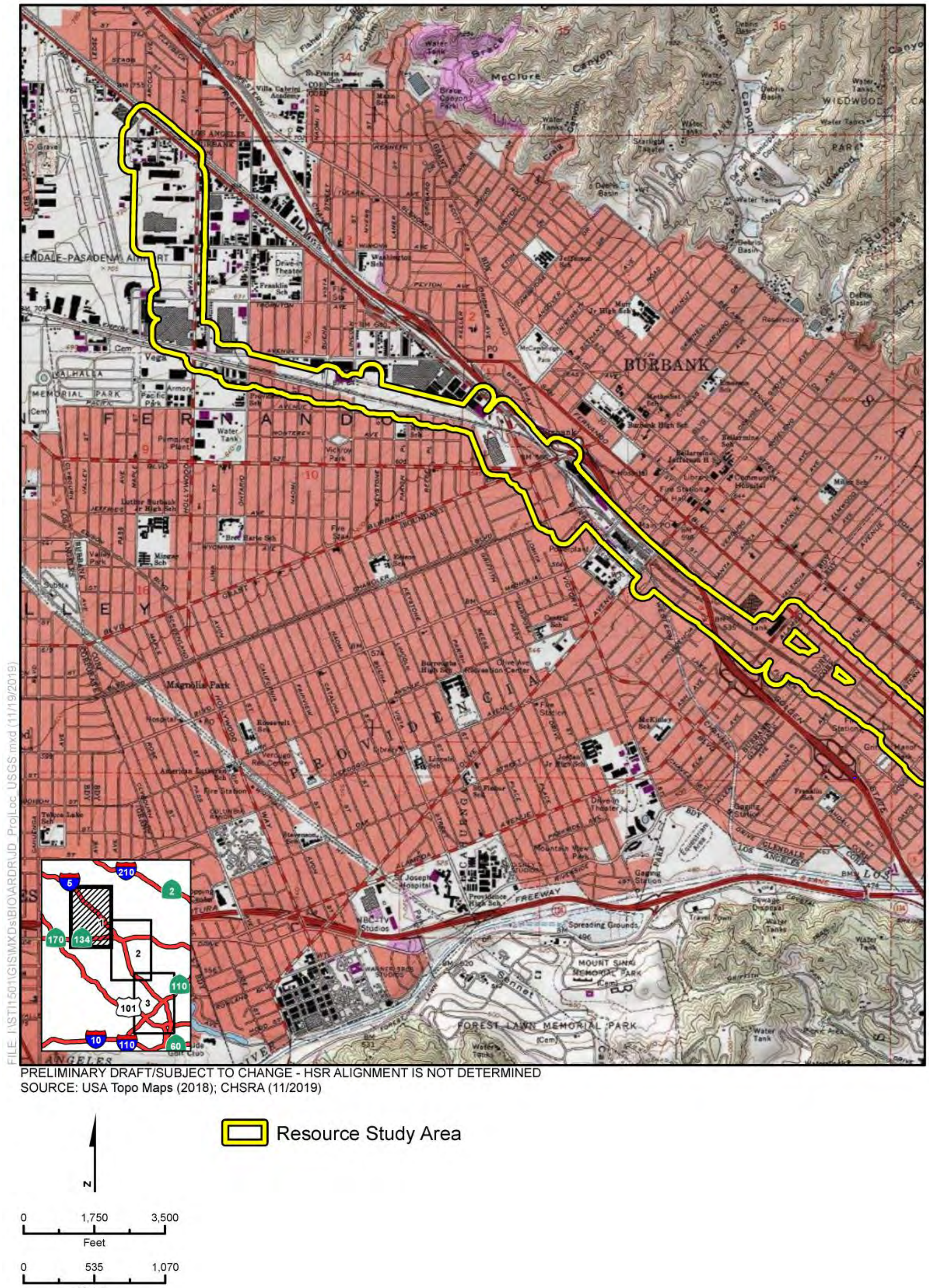

Figure 2-1 Project Location

(Page 1 of 3)

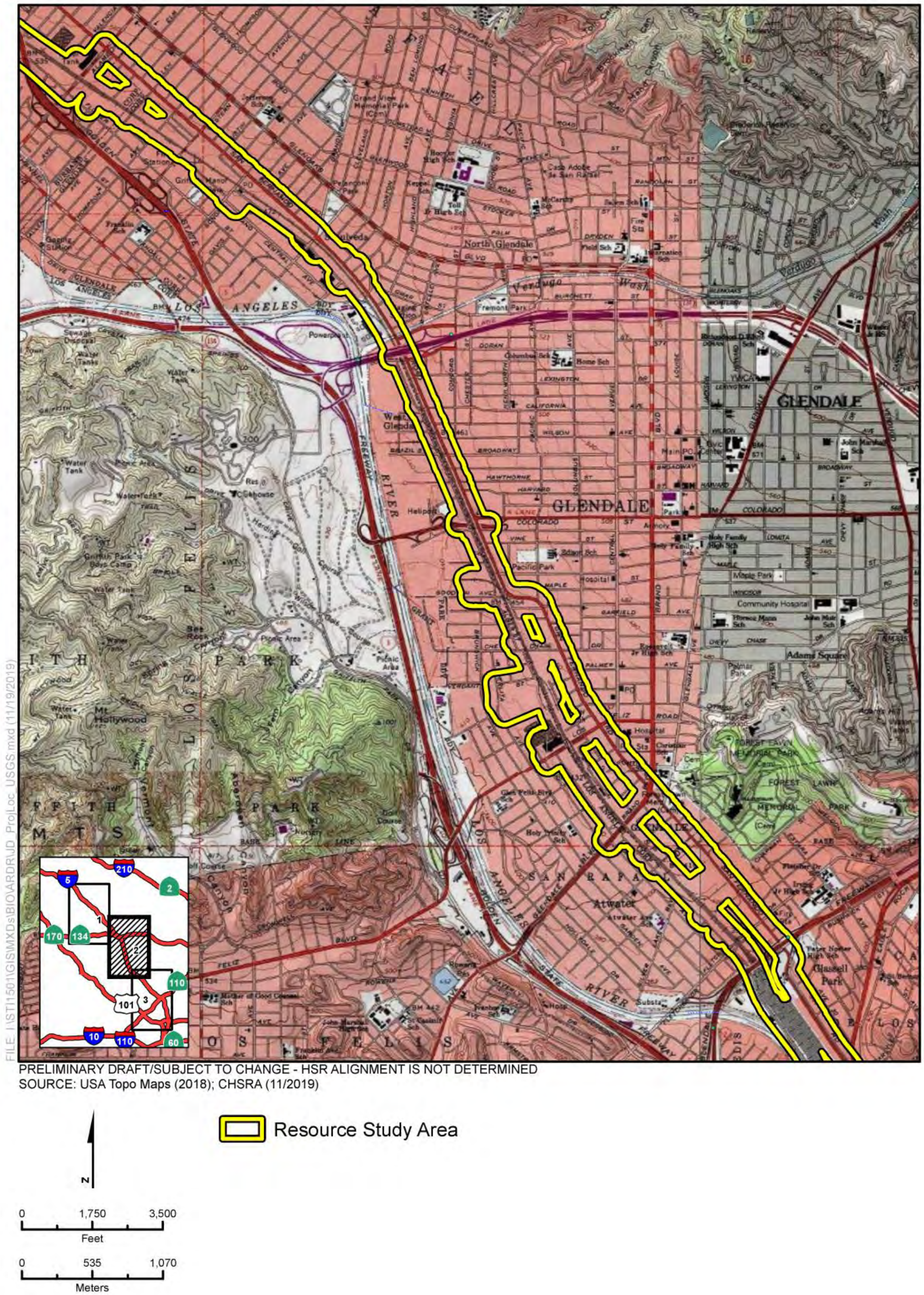

Figure 2-1 Project Location

(Page 2 of 3)

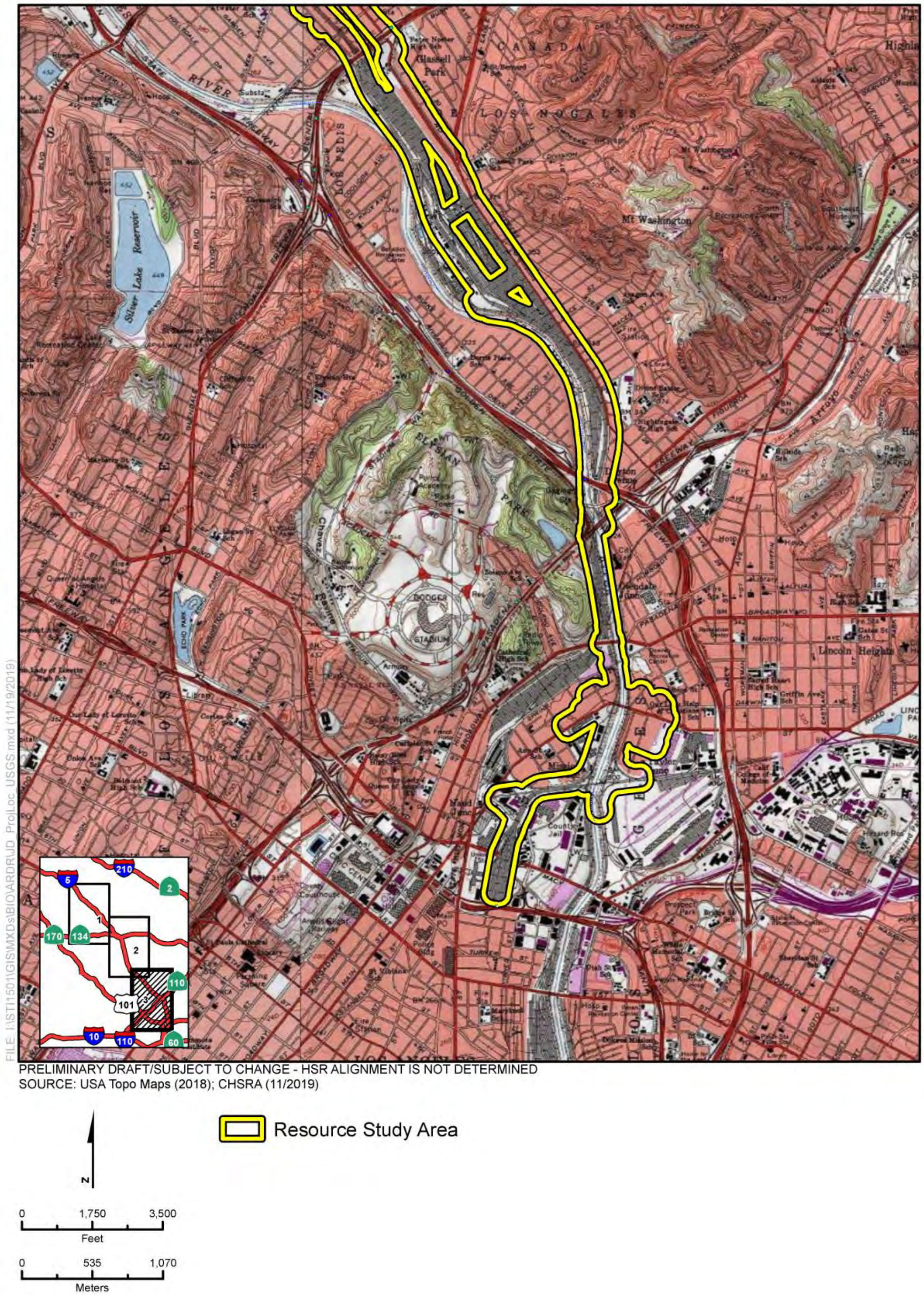

Figure 2-1 Project Location

(Page 3 of 3)

2.1.3.1 Riverine

The areas categorized by the NWI as Riverine within the RSA consist of concrete-lined freshwater drainages. These human-altered areas were identified within the Lockheed Channel, Burbank Western Channel, Los Angeles River, Verdugo Wash, and Arroyo Seco, and typically lack vegetation due to the concrete lining and maintenance activities conducted by the USACE and local flood control jurisdictions.[6] Although the areas have been altered, the Los Angeles District of the USACE has previously asserted jurisdiction over the aquatic resources therein. Islands of sand, rock, or silt are occasionally found within the concrete channels and can be colonized by riparian plants that are covered during flood periods; however, the colonization is typically short-lived. These islands either shift position or are washed away during high-flow events.

2.1.3.2 Freshwater-Forested and Shrub Wetland

Freshwater-Forested and Shrub Wetland consists generally of riparian scrub habitat and occurs within distinct sections of the Los Angeles River, where the river has an earthen bottom, and within Verdugo Wash at its confluence with the Los Angeles River, where enough sediment has accumulated atop a concrete lining to support vegetation (USACE 2013). Dominant species in riparian scrub include mulefat (*Baccharis salicifolia*), willow (*Salix* spp.) trees, and Fremont's cottonwood (*Populus fremontii*). Occasionally, small stands of marsh species such as California bulrush (*Schoenoplectus californicus*) and cattails (*Typha* sp.) are interspersed with riparian scrub. Nonnative weedy species commonly observed included giant reed (*Arundo donax*), poison hemlock (*Conium maculatum*), and broad-leaved peppergrass (*Lepidium latifolium*). Much of the Freshwater-Forested and Shrub Wetland within the RSA is impacted by trash and other disturbances stemming from unauthorized access and pollution (homeless encampments, and urban runoff, etc.). Nonnative species components constitute approximately 25 percent of the vegetative cover within these areas.

2.1.3.3 Freshwater Emergent Wetland

Freshwater Emergent Wetland occurs in the Glendale Narrows area within the earthen-bottom sections of the Los Angeles River and at the confluence of Verdugo Wash with the Los Angeles River. This area of Verdugo Wash contains accumulated sediment on a concrete lining, which supports Freshwater Emergent Wetland. Species typically found in freshwater marsh habitat include California bulrush, cattails, nonnative smartweed (*Persicaria* sp.), and water speedwell (*Veronica anagallis-aquatica*). Much of the Freshwater Emergent Wetland within the RSA is impacted by trash and other disturbances stemming from unauthorized access and pollution (homeless encampments, and urban runoff, etc.), and is subject to shift or being washed away during high-flow events. Nonnative species components constitute up to 50 percent of the vegetative cover within these areas.

[6] Channel maintenance activities conducted by the USACE and local flood control jurisdictions (e.g., the Los Angeles County Department of Public Works) include removing deposits of sediment, vegetation, and other materials that can inhibit the ability of constructed flood control channels to convey floodwaters. Such maintenance activities are authorized under USACE Los Angeles District Regional General Permit 41 and other pertinent regional permits (USACE 2017b), as well as the 2017 Nationwide Permits, General Conditions, District Engineer's Decision, Further Information, and Definitions (USACE 2017c). Additional information can be found on the USACE Los Angeles District website: www.spl.usace.army.mil/Media/Fact-Sheets/Article/920482/los-angeles-river-frequently-asked-questions/.

2.2 Hydrology and Climate

2.2.1 Hydrology, Regional Conditions

The RSA is located within the Los Angeles River Hydrologic Unit, which drains a watershed of approximately 530,000 acres (824 square miles), as shown on Figure 2-2. Flows within the Los Angeles River Hydrologic Unit travel south to the Pacific Ocean in the City of Long Beach.
The Los Angeles River begins where Arroyo Calabasas and Bell Creek converge in Canoga Park. The river travels about 51 miles, making its way east to Griffith Park and then heading south through the Glendale Narrows and past downtown Los Angeles, before emptying into Long Beach Harbor. There is a diverse pattern of land use in the Los Angeles River watershed. The upper portion (approximately 360 square miles) is covered by wildland (including National Forest) or open space, while the remaining watershed is highly developed with commercial, industrial, and residential uses. The river and most of its tributaries in the urbanized portions of the Los Angeles Basin have been channelized. The river is considered a flood damage reduction channel rather than a meandering natural river system; nearly all of its bed and banks are lined with concrete for approximately 37 of its 51 miles.

The Los Angeles River has been modified substantially for flood control purposes. With the exception of portions of a 7-mile area in the Glendale Narrows,[7] the entire river within the RSA has been lined with concrete. The upper reaches of the river carry urban runoff and flood flows from the San Fernando Valley. Below the Sepulveda Basin, flows are dominated by tertiary treated effluent from several municipal wastewater treatment plants. Because the watershed is highly urbanized, urban runoff and illegal dumping are major contributors to impaired water in the Los Angeles River and its tributaries (Verdugo Wash, etc.).

2.2.2 Climate and Precipitation Data

Los Angeles County is typically dry during the late spring, summer, and early fall and receives most of its rain during the winter months (November through April). The average precipitation in Los Angeles between 1877 and the first half of 2018 was 14.70 inches per year; however, several seasons of very high rainfall levels skews this average upwards (Los Angeles Almanac 2019).

The Los Angeles River has flooded approximately 30 times since 1811. However, there are fluctuations in annual precipitation within the Los Angeles Basin and the region experiences periods of drought followed by periods of above-average rainfall, which led to the river's channelization in the 1930s. The river flooded every year between 1889 and 1891 and flooded five times from 1941 to 1944. Conversely, from 1896 to 1914, and again from 1945 to 1969, the river did not have serious floods (County of Los Angeles 2014). Large floods occur approximately every 5 to 6 years in the City of Los Angeles (City of Los Angeles 2018). Figure 2-3 shows the Federal Emergency Management Agency flood and hazard zones in the RSA.

[7] Due to high groundwater levels in this portion of the Los Angeles River, the USACE did not pave this area.

Figure 2-2 Watersheds and Surface Waters

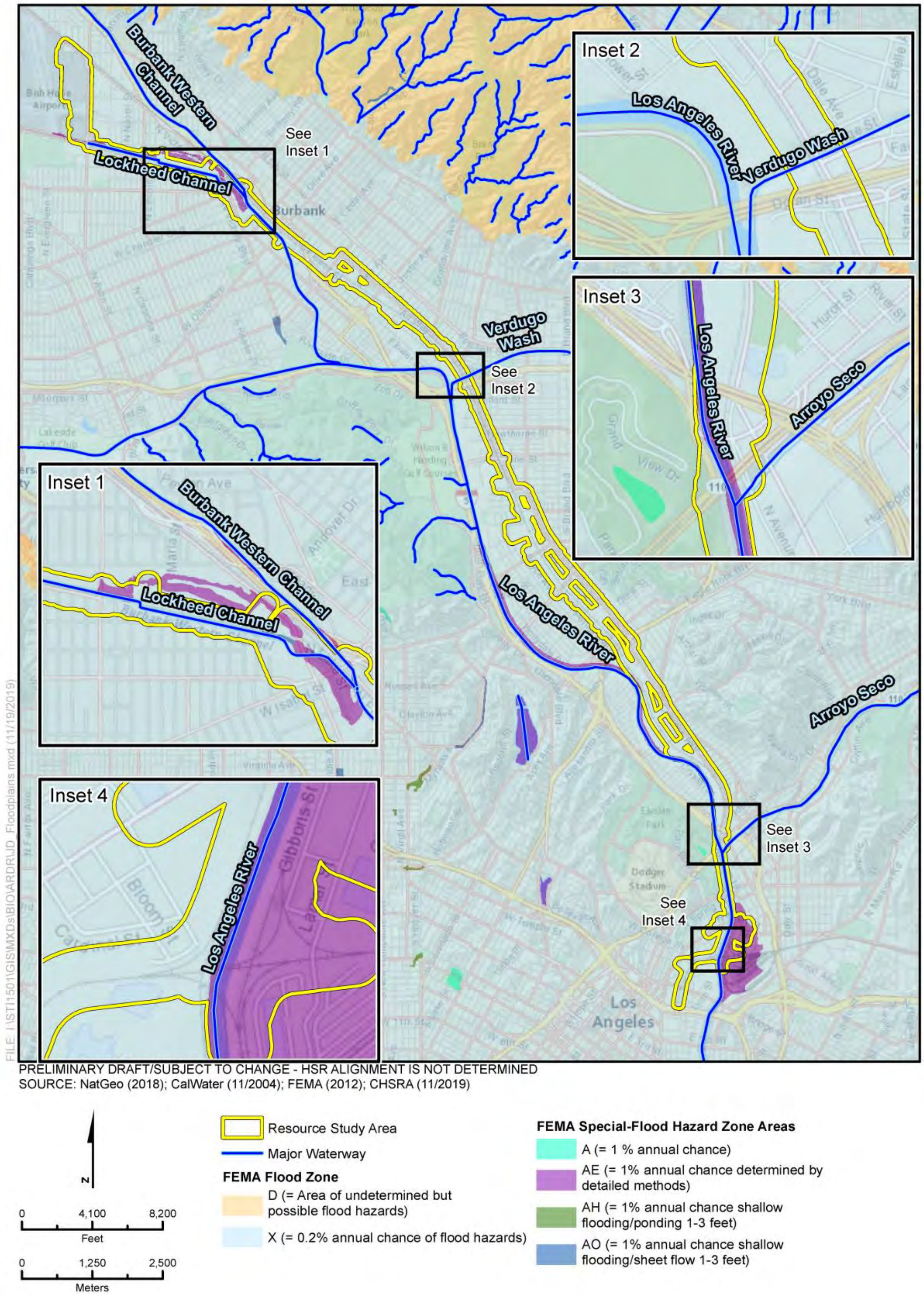

Figure 2-3 Floodplains

2.3 Soils

Descriptions of each soil series and subtype identified within the RSA are contained in the subsections below and summarized in Table 2-1, using the Official Soil Series Descriptions from the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service.[8] Soils identified within the RSA are shown on Figure 2-4.

Table 2-1 Overview of Soils Identified Within the Resource Study Area

General Soil Map Unit (map symbol)	Geomorphic Surface	Primary Soil Classifications	Hydric Rating
Altamont	Sloping to steep uplands	Aridic Haploxerolls	No
Chino	Floodplains, basins	Aquic Haploxerolls	No
Hanford	Stream bottoms, floodplains, and alluvial fans	Typic Xerorthents	No
Ramona	Alluvial fans and terraces	Typic Haploxeralfs	No
Tujunga	Alluvial fans and floodplains	Typic Xeropsamments	No
Yolo	Nearly level to moderately sloping alluvial fans	Mollic Xerofluvents	No

2.3.1 Altamont Series

The Altamont series consists of deep, well-drained soils that formed in material weathered from fine-grained sandstone and shale. These soils are on gently sloping to very steep uplands. These soils are typically found in areas with average annual precipitation of about 17 inches, and the mean annual temperature of about 59 degrees Fahrenheit (°F). Typical vegetation is annual grasses, forbs, and scattered oak trees.

The RSA contains Altamont clay loam soils.

2.3.2 Chino Series

The Chino series consists of poorly to somewhat poorly drained soils typically occurring in basins and floodplains at elevations near sea level to 3,100 feet. They formed in alluvium derived from granitic rocks. The climate is dry subhumid mesothermal with hot, dry summers and cool, moist winters. These soils are typically found in areas with mean annual rainfall of 8 to 20 inches and mean annual temperature of 60 to 65°F. Drained areas are used for growing irrigated truck and row crops. Typical vegetation is annual grasses, weeds, and shrubs.

The RSA contains Chino silt loam soils.

2.3.3 Hanford Series

The Hanford series consists of very deep, well-drained soils that formed in moderately coarse textured alluvium predominantly from granite. Hanford soils are on stream bottoms, floodplains, and alluvial fans at elevations of 150 to 3,500 feet. Slopes range from 0 to 15 percent. These soils are typically found in areas with mean annual precipitation of about 12 inches and mean annual air temperature of about 63°F. Hanford soils are used for growing a wide range of fruits, vegetables, and general farm crops. They are also used for urban development and dairies. Vegetation in uncultivated areas is mainly annual grasses and associated herbaceous plants.

The RSA contains Hanford fine sandy loam and Hanford gravelly sandy loam soils.

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[8] USDA NRCS Soil Survey Staff, Official Soil Series Descriptions. https://soilseries.sc.egov.usda.gov/ (last accessed December 2018).

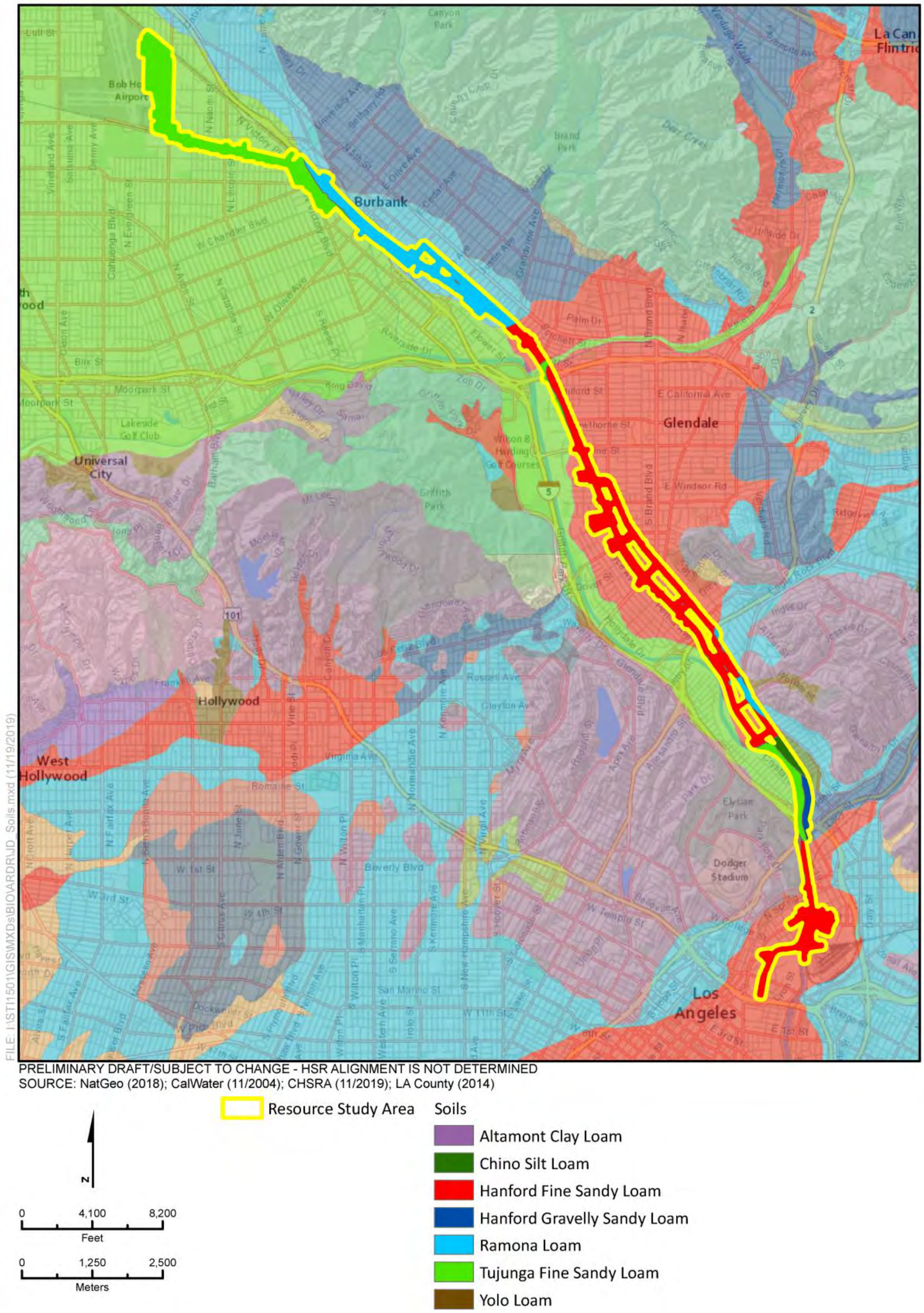

Figure 2-4 Soils

2.3.4 Ramona Series

The Ramona series consists of well-drained soils found on nearly level to moderately sloping terraces and fans at elevations of 250 to 3,500 feet. They formed in alluvium derived mostly from granitic and related rock sources. These soils are typically found where the climate is dry subhumid, mesothermal with warm, dry summers and cool, moist winters, mean annual precipitation of 10 to 20 inches, and average annual temperatures of 60 to 66°F. Uncultivated areas typically have a cover of annual grasses, forbs, chamise, or chaparral.

The RSA contains Ramona loam soils.

2.3.5 Tujunga Series

The Tujunga series consists of very deep, somewhat excessively drained soils that formed in alluvium from granitic sources. Tujunga soils are on alluvial fans and floodplains, including urban areas. Slopes range from 0 to 9 percent. These soils are typically found where the mean annual precipitation is about 14 inches and the mean annual temperature is about 63°F. Uncultivated areas have a cover of shrubs, annual grasses, and forbs. In urban areas, ornamentals and turf-grass are common.

The RSA contains Tujunga fine sandy loam soils.

2.3.6 Yolo Series

The Yolo series consists of well-drained soils found on nearly level to moderately sloping alluvial fans. The soils formed in fine-loamy alluvium derived from sedimentary formations. They are at elevations of near sea level to 2,400 feet in a dry subhumid, mesothermal climate having a mean annual rainfall of 12 to 40 inches and a mean annual temperature of about 58 to 63°F. The soil is used for intensive row, field, and orchard crops.

The RSA contains Yolo loam soils.

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3 METHODS

3.1 Pre-Survey Investigations

3.1.1 Aerial Imagery Mapping Methods

Prior to conducting the field work for this assessment, aerial imagery of the RSA (including aerial photographs from the years 1994, 2003, 2007, 2009, 2012, and 2016), resources mapped by the NWI, soils survey data mapped by the USDA, climate and precipitation data, and prior HSR delineation reports were reviewed to identify specific areas of potential jurisdiction for further investigation during the field survey.

3.2 Field Survey Methods

Areas of potential jurisdiction in the RSA were evaluated according to USACE criteria. The boundaries of the potential jurisdictional areas were observed in the field and mapped on a series of aerial photographs (each with a scale of 1 inch = approximately 300 feet), which together show the entire RSA. Permission to enter restricted parcels was not granted prior to the initial field surveys, but was obtained for subsequent field work. Areas that were inaccessible by foot or due to lack of permission to enter were visually assessed from the nearest accessible public right-of-way. Aerial photographs of inaccessible areas were also used to verify the presence or absence of potential jurisdictional areas. Measurements of federal jurisdictional areas mapped during the course of the field investigation were determined by a combination of direct measurements taken in the field and measurements taken from the aerial photographs.

3.2.1 Reconnaissance-Level Field Surveys

Reconnaissance-level field surveys were conducted by biologists Blake Selna and Erin Martinelli on February 25, March 24, and August 22, 2016. These field surveys confirmed the presence of potential wetlands identified by the NWI and during the aerial imagery search. Mr. Selna and Ms. Martinelli drove and walked the RSA within public right-of-way areas and investigated potentially jurisdictional areas with permission to enter from the USACE. Representative photographs of water features are in Appendix C, Aquatic Resource Delineation Photographs.

3.2.2 Field Delineation Methods

Areas mapped by the NWI as wetland were confirmed by further investigation in the field. Two representative sample areas were selected and examined in the field in order to confirm their status as mapped by the NWI. The locations of the sample areas and the potential jurisdictional areas are shown on figures in Appendix B. The sample areas were evaluated according to routine wetland delineation procedures described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008) and other guidance published by USACE for the Arid West Region, as well as the Federal Interagency Committee for Wetland Delineation (1989). At each sample area, the dominant and subdominant plant species were identified and their wetland indicator status was noted according the National Wetland Plant List (Lichvar et al. 2016). When possible and when justified, a small sample pit (approximately 24 inches deep) was dug to examine soil characteristics and composition. Soil matrix colors were classified according to the Munsell Soil Color Charts (Munsell Color 2000). Hydrological conditions, including any surface inundation, saturated soils, and/or other wetland hydrology indicators, were noted. General site characteristics were also noted. Wetland Determination Data Forms for each of the two sample areas are included in Appendix D.

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4 RESULTS

4.1 Wetlands in the Resource Study Area

The following two wetland types identified by the NWI were observed within the RSA: Freshwater-Forested and Shrub Wetland and Freshwater Emergent Wetland (Table 4-1). The Los Angeles River channel and Verdugo Wash at its confluence with the Los Angeles River contain sections in the RSA where there is an earthen bottom or where sufficient sediment has accumulated to support wetland waters of the U.S.

Table 4-1 Summary of Aquatic Resources Within the Resource Study Area

Waters Type	Acreage
Freshwater Emergent Wetland	
Los Angeles River	0.77
Verdugo Wash	0.58
Freshwater Forested/Shrub Wetland	
Los Angeles River	10.28
Verdugo Wash	0.45
Riverine	
Los Angeles River	50.11
Verdugo Wash	0.42
Arroyo Seco	0.41
Lockheed Channel	3.42
Burbank Western Channel	4.25
Total Acreage	70.69

The total acreage of wetland habitats within the RSA is 12.08 acres. These areas are classified by the NWI as Freshwater-Forested and Shrub Wetland and Freshwater Emergent Wetland (refer to Appendix A and Appendix B).

4.2 Nonwetland Waters in the Resource Study Area

The NWI categorizes areas within the Lockheed Channel, Burbank Western Channel, Los Angeles River, Verdugo Wash, and Arroyo Seco that lack vegetation and are concrete-lined as Riverine. The Los Angeles River generally runs parallel to the HSR project alignment throughout the RSA. Based on the findings presented in the July 6, 2010, letter from the USEPA Region IX Administrator to Colonel Mark Toy, P.E., the Los Angeles River has been designated a traditional navigable water from its origins at the confluence of Arroyo Calabasas and Bell Creek to San Pedro Bay at the Pacific Ocean, a distance of approximately 51 miles. The USEPA letter documents the CWA jurisdictional determination for the Los Angeles River based on a “special case” made by USEPA Region IX pursuant to the USEPA-USACE 1989 memorandum of agreement regarding coordination on matters of geographic jurisdiction. Therefore, the Los Angeles River is a jurisdictional water of the U.S. by rule. The Lockheed Channel, Burbank Western Channel, Verdugo Wash, and Arroyo Seco appear to have relatively permanent waters that flow directly into the Los Angeles River and are therefore jurisdictional waters of the U.S. by rule as tributaries. The Los Angeles River flows into the Pacific Ocean.

There are no waters subject to Section 10 of the Rivers and Harbors Act within the RSA, and no rivers in the RSA are designated as wild and scenic. The total acreage of nonwetland waters within the RSA is 58.61 acres. These areas are classified by the NWI as Riverine and are shown in Appendix A and Appendix B.

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5 SUMMARY

5.1 Jurisdictional Aquatic Resources

The total area of jurisdictional aquatic resources within the RSA is 70.69 acres, consisting of the following three classifications: Riverine (58.61 acres), Freshwater-Forested and Shrub Wetland (10.73 acres), and Freshwater Emergent Wetland (1.35 acres).

There are no Section 10 waters within the RSA. The proposed project will require Section 404 authorization from the USACE. Based on conversations with the USACE that took place in November 2016, the Verdugo Wash, Los Angeles River, Burbank Western Channel, and Lockheed Channel are USACE facilities, and any proposed alterations thereto are subject to Section 408 compliance. The total area of potential SWRCB jurisdiction is coincident with the USACE jurisdictional areas under currently effective definitions, and the proposed project is expected to also require a Section 401 Water Quality Certification from the SWRCB. For a complete listing of aquatic resource regulations and other jurisdictional areas within the RSA, including resources protected under the California Fish and Game Code, see the *Burbank to Los Angeles Project Section: Biological and Aquatic Resources Technical Report* (Authority 2019).

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7 PREPARER QUALIFICATIONS

Blake Selna has a B.S. in Environmental and Resource Sciences and 18 years of experience in Southern California biological assessment and analysis. As a Principal Biologist at LSA, he manages LSA's Irvine and Riverside Natural Resources Group. Mr. Selna participated in the field reconnaissance and research, and oversaw and assisted with the preparation of this report.

Erin Martinelli has an M.S. and B.A. in Environmental Studies and 10 years of experience in Southern California biology. As a Senior Biologist at LSA, Ms. Martinelli assisted with the field reconnaissance and research and was the lead preparer of this report.

Bo Gould has a B.A. in Environmental Studies and Science and five years of experience in Southern California biology. As a Biologist at LSA, Mr. Gould assisted with the field reconnaissance and preparation of this report.

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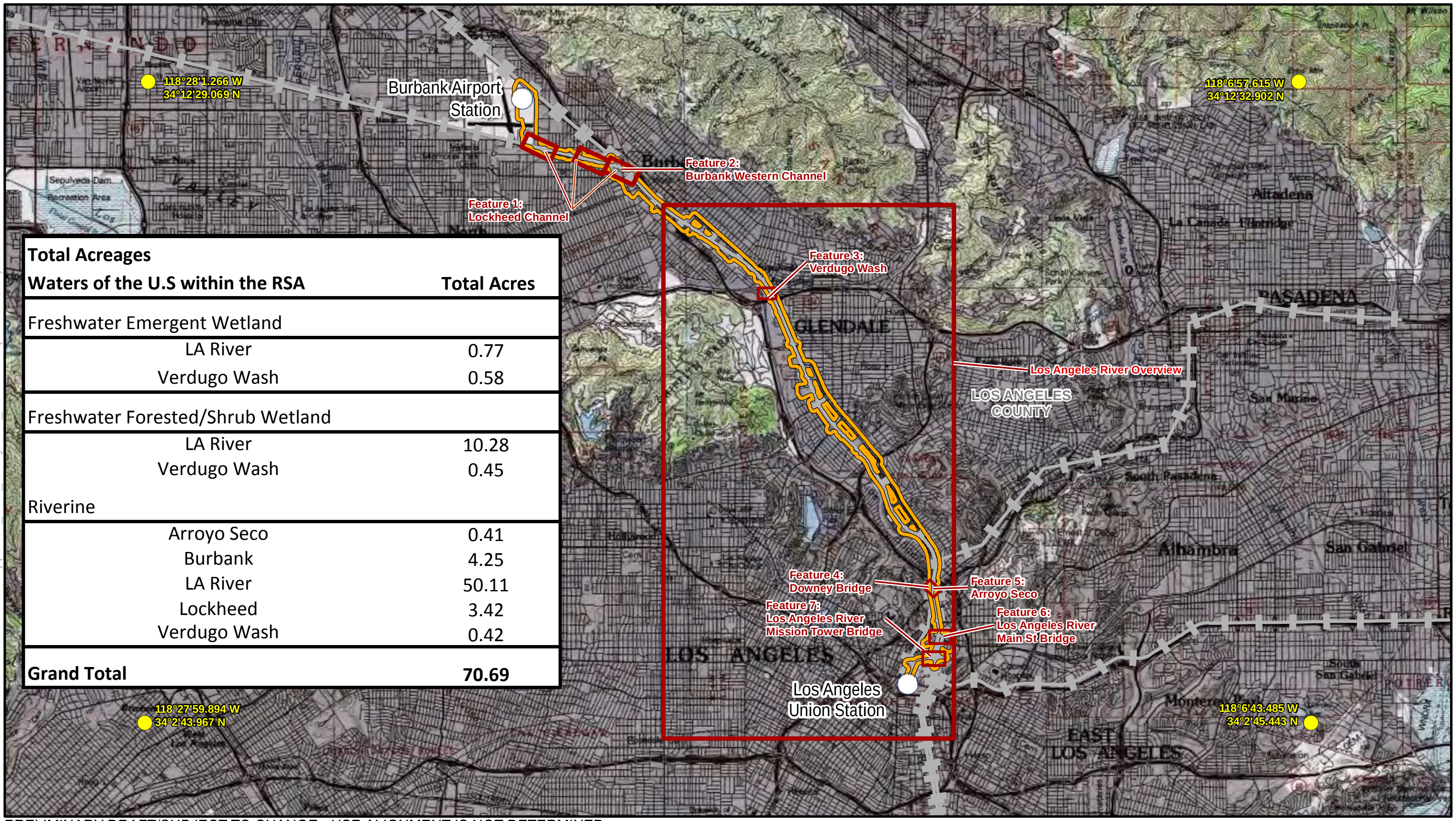
APPENDIX A: DELINEATED AQUATIC RESOURCES IN THE RESOURCE STUDY AREA AT EACH PROPOSED PROJECT FEATURE LOCATION



Total Acreages	
Waters of the U.S within the RSA	**Total Acres**
Freshwater Emergent Wetland	
LA River	0.77
Verdugo Wash	0.58
Freshwater Forested/Shrub Wetland	
LA River	10.28
Verdugo Wash	0.45
Riverine	
Arroyo Seco	0.41
Burbank	4.25
LA River	50.11
Lockheed	3.42
Verdugo Wash	0.42
Grand Total	**70.69**

FILE: I:\STI1501\GIS\MXDs\BIO\ARDR\AppAUD_NWI_StudyArea_Index.mxd (11/19/2019)

PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: USGS/Esri (2018); NWI (2017); CHSRA(11/2019)

N

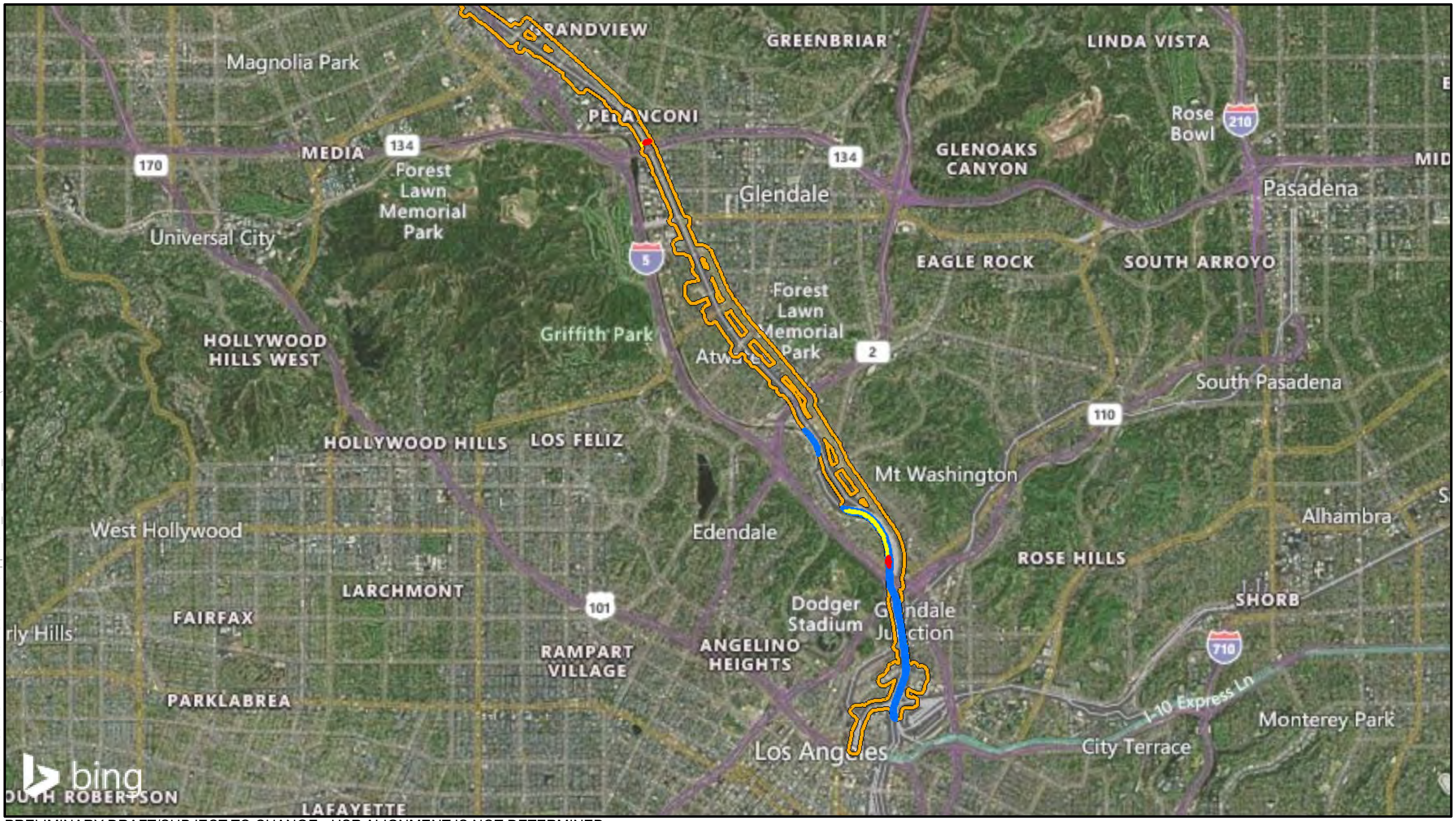
0 7,500 15,000
Feet

0 2,286 4,572
Meters

Resource Study Area
Metrolink Tracks
HSR Stations
Control Points

Appendix A
Sheet 1 of 9

Delineated Aquatic Resources
in the Resource Study Area



FILE: I:\STI1501\GIS\MXDs\BIO\ARDR\AppAUD_NWI_LA_River.mxd (11/19/2019)

PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: Bing (2018); CHSRA (11/2019); NWI (2017)

N

0 4,875 9,750
Feet

0 1,486 2,972
Meters

Resource Study Area

Los Angeles River

Waters of the U.S.

Riverine (50.11 ac)*

Freshwater Emergent Wetland (0.77 ac)*

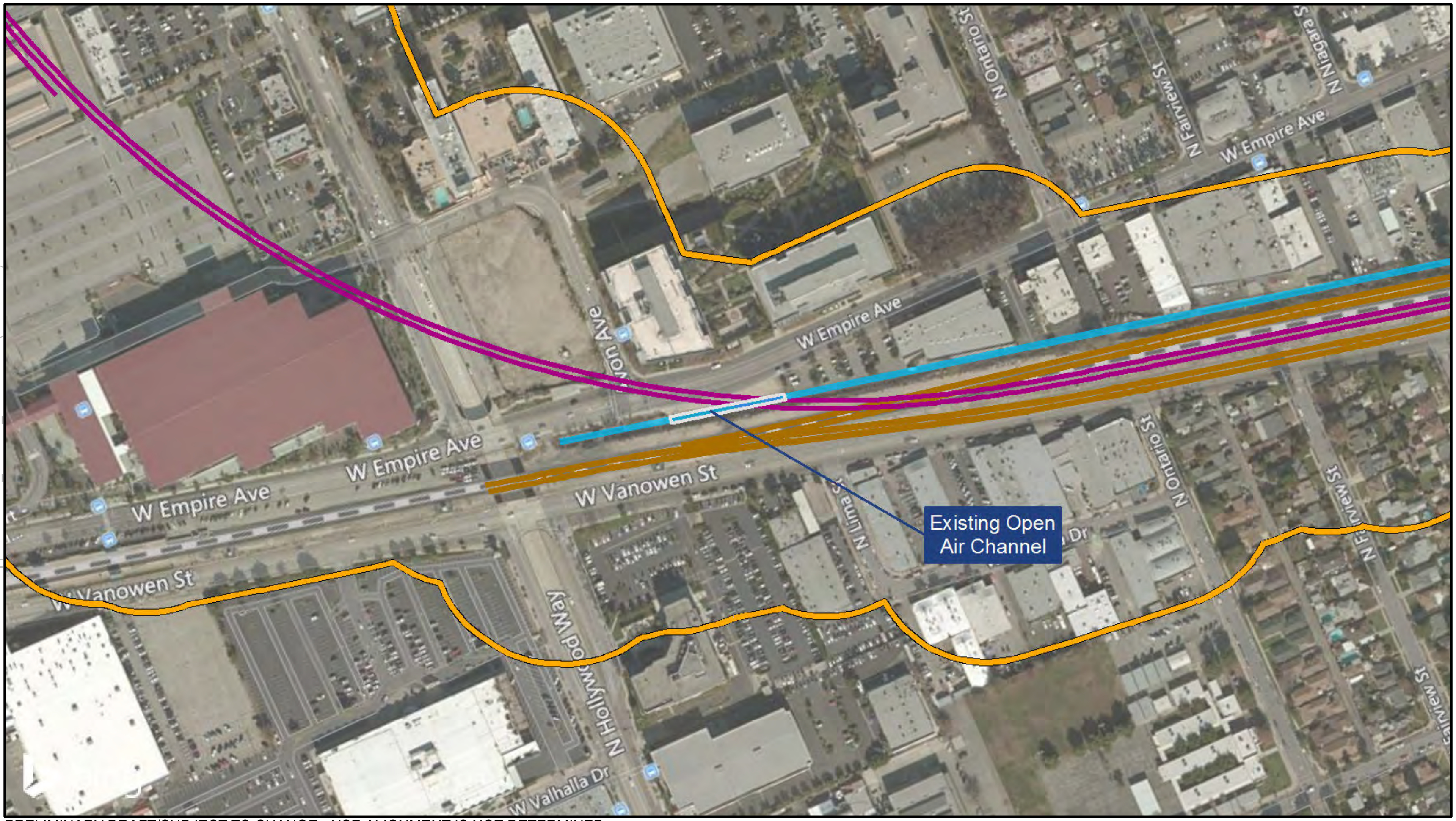
Freshwater Forested/Shrub Wetland (10.28 ac)*

* Verdugo Wash acreages shown on sheet 5

Appendix A
Los Angeles River Overview
Sheet 2 of 9

Delineated Aquatic Resources
in the Resource Study Area

California High-Speed Rail Authority



FILE: I:\STI1501\GIS\MXDs\BIO\ARDR\AppALockheed_Channel_Review.mxd (11/19/2019)

PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: Bing (2018); CHSRA (11/2019); NWI (2017)

0 175 350 Feet
0 55 110 Meters

Resource Study Area
Existing Structures
Existing Open Air Channel
Existing Below Ground Channel
HSR Build Alternative
Surface
Below-Grade
Realigned, Non-electrified Tracks

Non-Wetland Waters of the U.S.
Riverine*

* Riverine acreages shown on sheet 1

Appendix A
Feature 1- Lockheed Channel
Feature 2 - Burbank Western Channel
Sheet 3 of 9
Delineated Aquatic Resources in the Resource Study Area

FILE: I:\STI1501\GIS\MXDs\BIO\ARDR\AppA\Lockheed_Channel_Review.mxd (11/19/2019)

PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: Bing (2018); CHSRA (11/2019); NWI (2017)

N

0 175 350
Feet

0 55 110
Meters

Resource Study Area

Existing Structures
- Existing Open Air Channel
- Existing Below Ground Channel

HSR Build Alternative
- Surface
- Below-Grade
- Realigned, Non-electrified Tracks

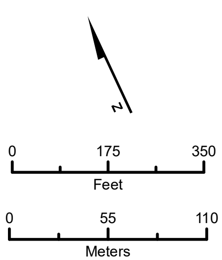
Non-Wetland Waters of the U.S.
- Riverine*

* Riverine acreages shown on sheet 1

Appendix A
Feature 1- Lockheed Channel
Feature 2 - Burbank Western Channel
Sheet 4 of 9
Delineated Aquatic Resources in the Resource Study Area

FILE: I:\STI1501\GIS\MXDs\BIO\ARDR\AppALockheed_Channel_Review.mxd (11/19/2019)

PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: Bing (2018); CHSRA (11/2019); NWI (2017)



Resource Study Area

Existing Structures

Existing Open Air Channel

Existing Below Ground Channel

HSR Build Alternative

Surface

Below-Grade

Realigned, Non-electrified Tracks

Non-Wetland Waters of the U.S.

Riverine*

* Riverine acreages shown on sheet 1

Appendix A

Feature 1- Lockheed Channel
Feature 2 - Burbank Western Channel
Sheet 5 of 9

Delineated Aquatic Resources in the Resource Study Area

PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: Bing (2018); CHSRA (11/2019); NWI (2017)

N

0 125 250
Feet

0 40 80
Meters

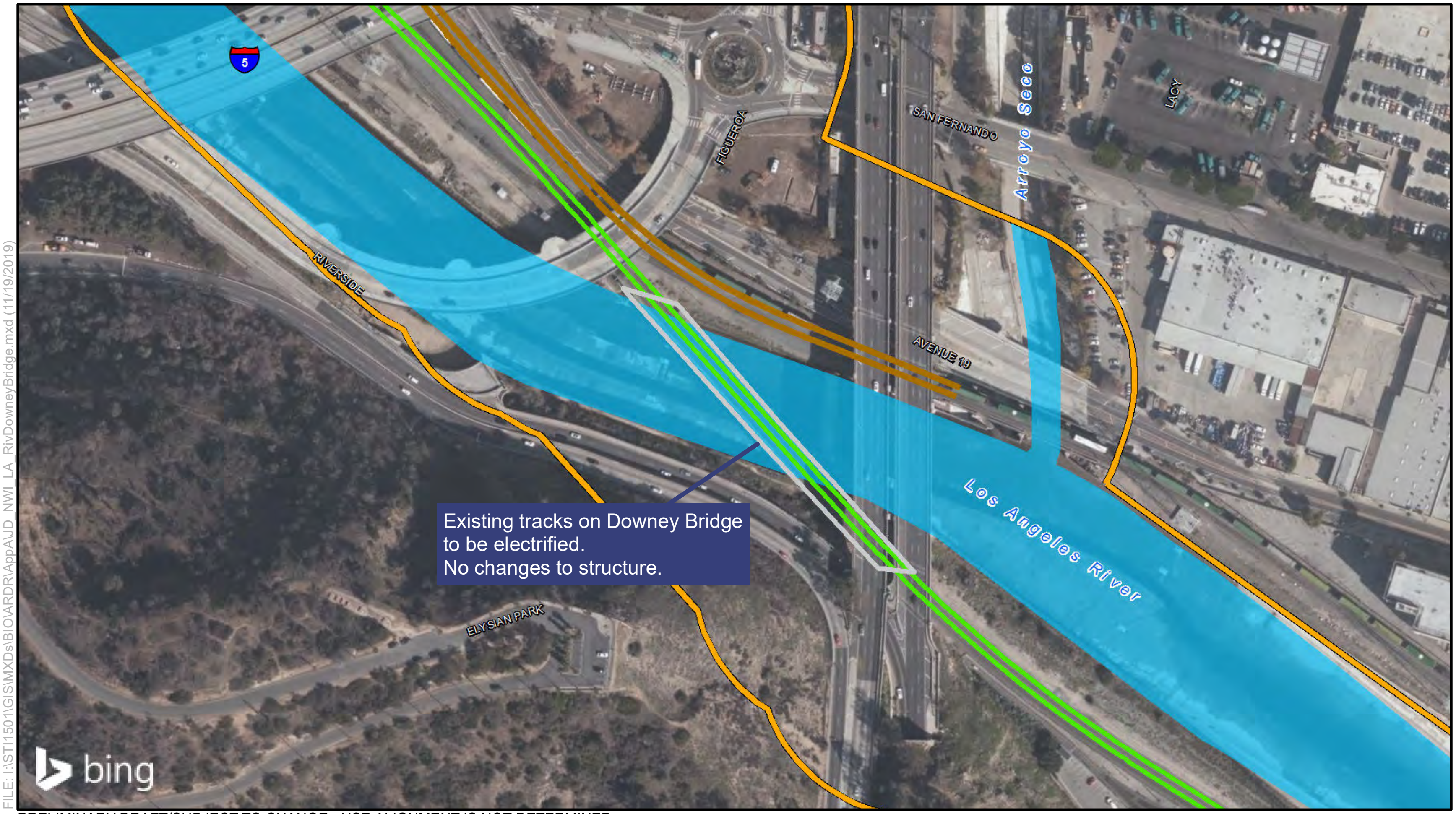
Resource Study Area
Existing Structure

Verdugo Wash
Potential Wetland Waters of the U.S.
Freshwater Forested/Shrub Wetland (0.45 ac)
Freshwater Emergent Wetland (0.58 ac)
Non-Wetland Waters of the U.S.
Riverine (0.42 ac)

Appendix A

Feature 3 - Verdugo Wash
Sheet 6 of 9

Delineated Aquatic Resources
in the Resource Study Area



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: Bing (2018); CHSRA (11/2019); NWI (2017)

N

0 125 250
Feet

0 40 80
Meters

Resource Study Area
Existing Structure
HSR Build Alternative
Surface
Realigned, Non-electrified Tracks

Non-Wetland Waters of the U.S.
Riverine

Appendix A
Feature 4 - Downey Bridge
Feature 5 - Arroyo Seco
Sheet 7 of 9

Delineated Aquatic Resources
in the Resource Study Area

FILE: I:\STI1501\GIS\MXDs\BIO\ARDR\AppA\JD_NWI_MainStBridge.mxd (11/19/2019)

PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: Bing (2018); CHSRA (11/2019); NWI (2017)

N

0 125 250
Feet

0 40 80
Meters

Resource Study Area
Existing Structure
HSR Build Alternative
Surface

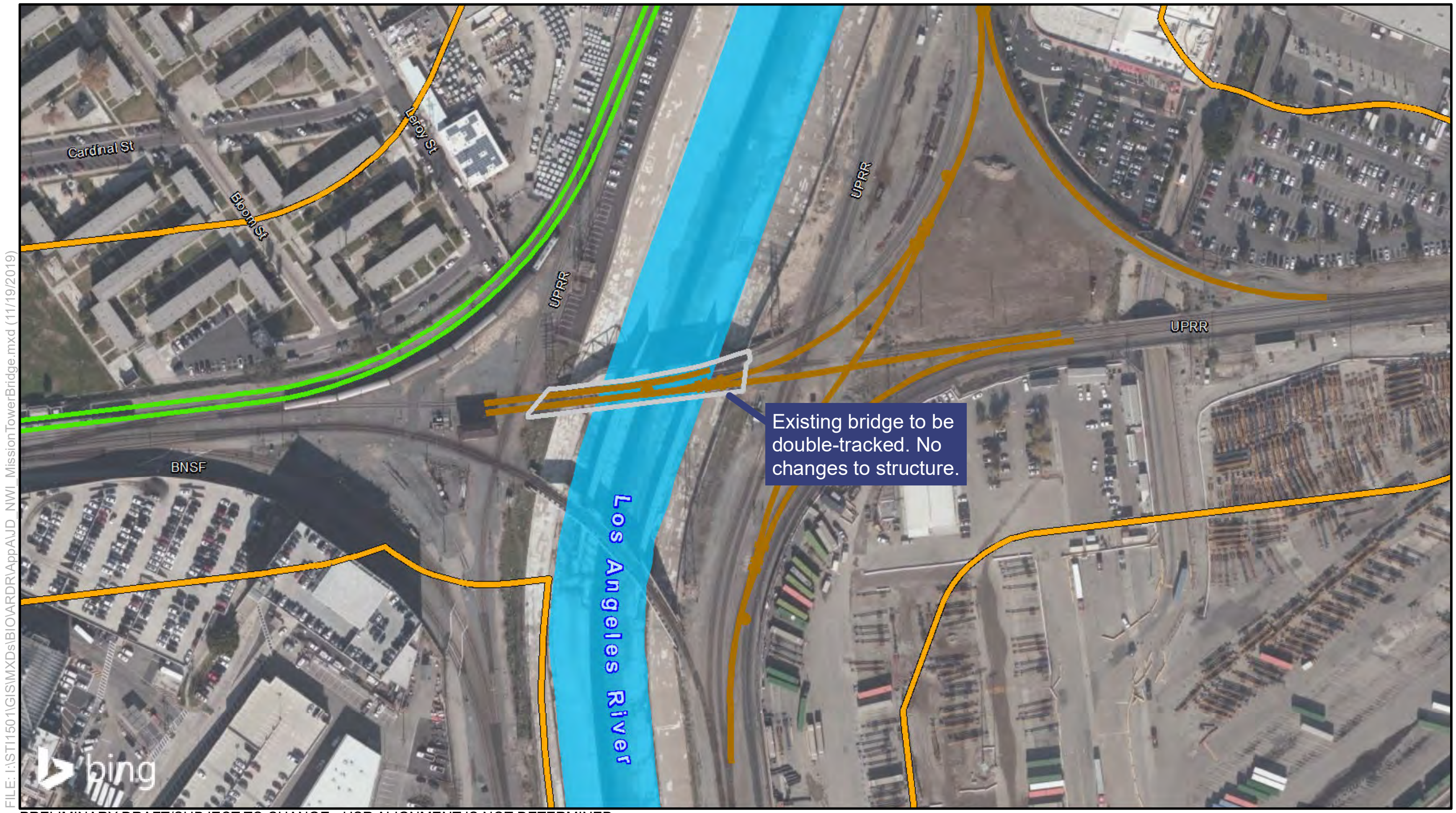
Non-Wetland Waters of the U.S.
Riverine*

* Riverine Acreage is Shown on Sheet 1

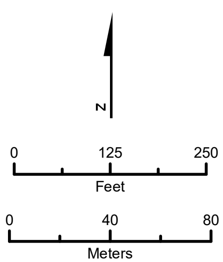
Appendix A

Feature 6 - Main St Bridge
Sheet 8 of 9

Delineated Aquatic Resources
in the Resource Study Area



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: Bing (2018); CHSRA (11/2019); NWI (2017)



Resource Study Area
Existing Structure
HSR Build Alternative
Surface
Realigned, Non-electrified Tracks

Non-Wetland Waters of the U.S.
Riverine*

* Riverine Acreage is Shown on Sheet 1

Appendix A
Feature 7 - Mission Tower Bridge
Sheet 9 of 9

Delineated Aquatic Resources in the Resource Study Area

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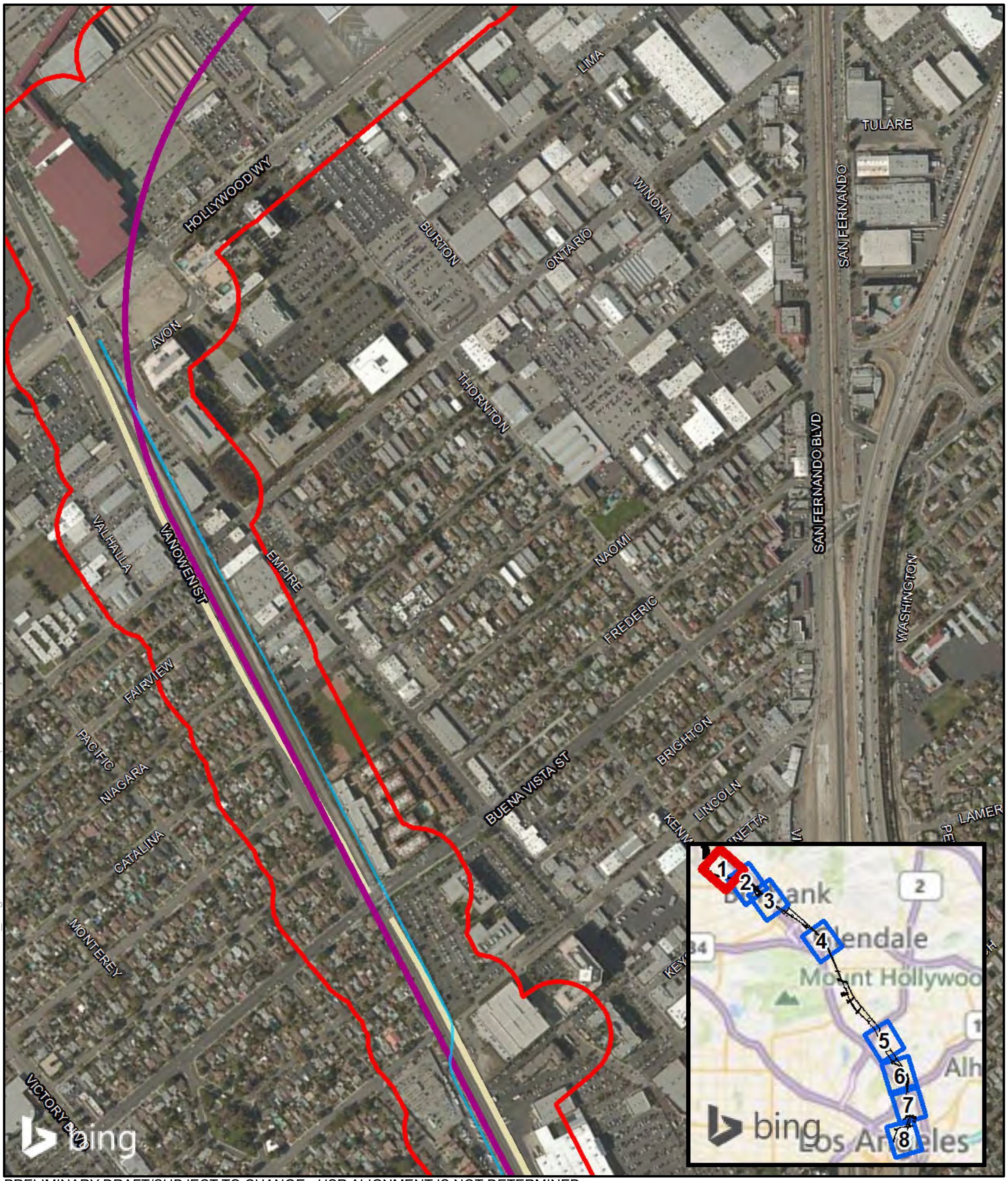
APPENDIX B: VEGETATION COMMUNITIES ASSOCIATED WITH AQUATIC RESOURCES WITHIN RESOURCE STUDY AREA



FILE: I:\STI1501\GIS\MXDs\BIO\ARDR\JD_VegetationCommunities.mxd (11/19/2019)

PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: Bing Maps (2018); CHSRA (11/2019); NWI (2017)

Resource Study Area

HSR Build Alternative

Below-grade

Realigned, Non-Electrified Tracks

Wetland Communities and Other Waters

Riverine

N

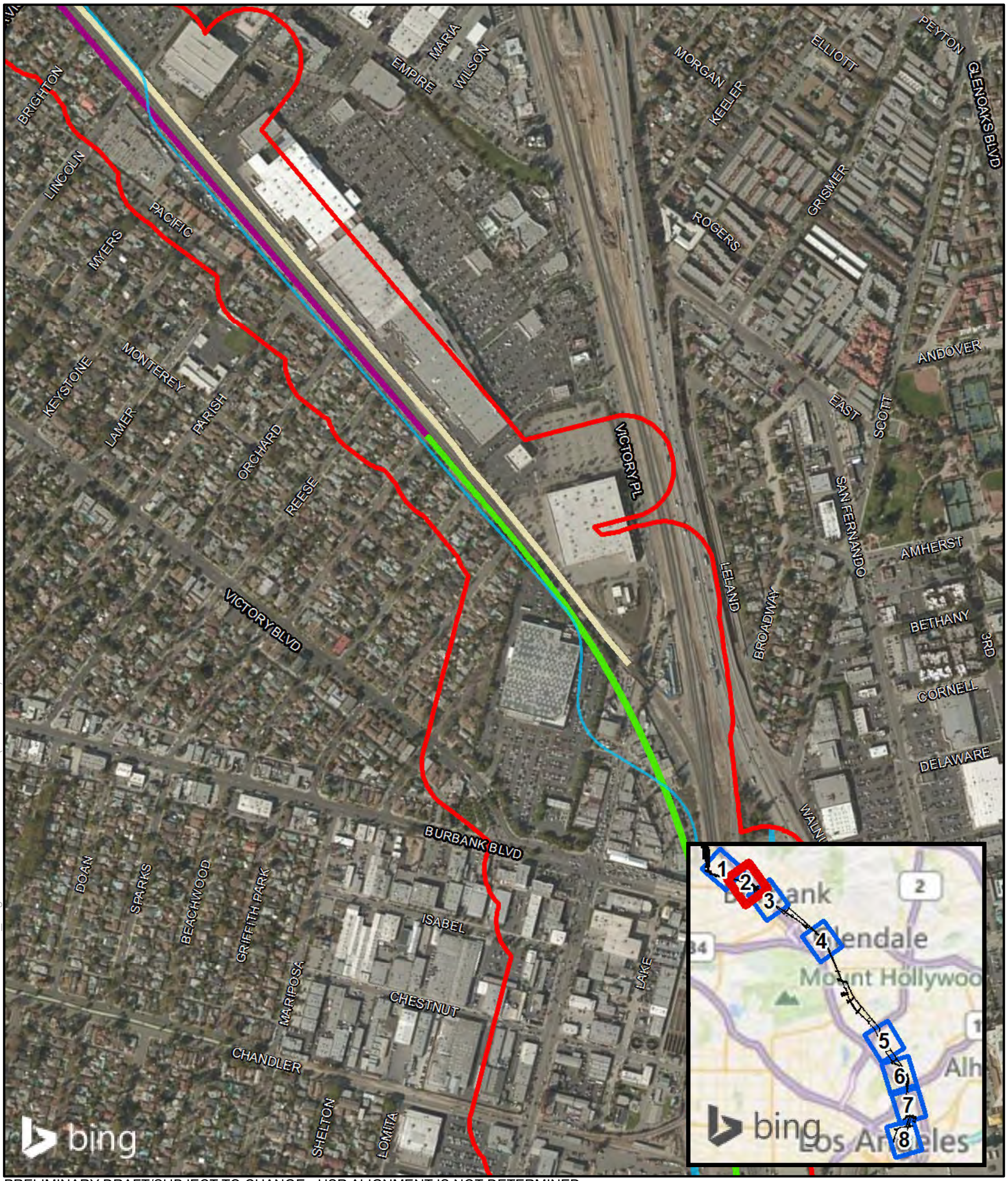
0 400 800 Feet

0 120 240 Meters

APPENDIX B

Sheet 1 of 8

Vegetation Communities Associated with Aquatic Resources within Resource Study Area



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: Bing Maps (2018); CHSRA (11/2019); NWI (2017)

Resource Study Area

HSR Build Alternative
- Surface
- Below-grade
- Realigned, Non-Electrified Tracks

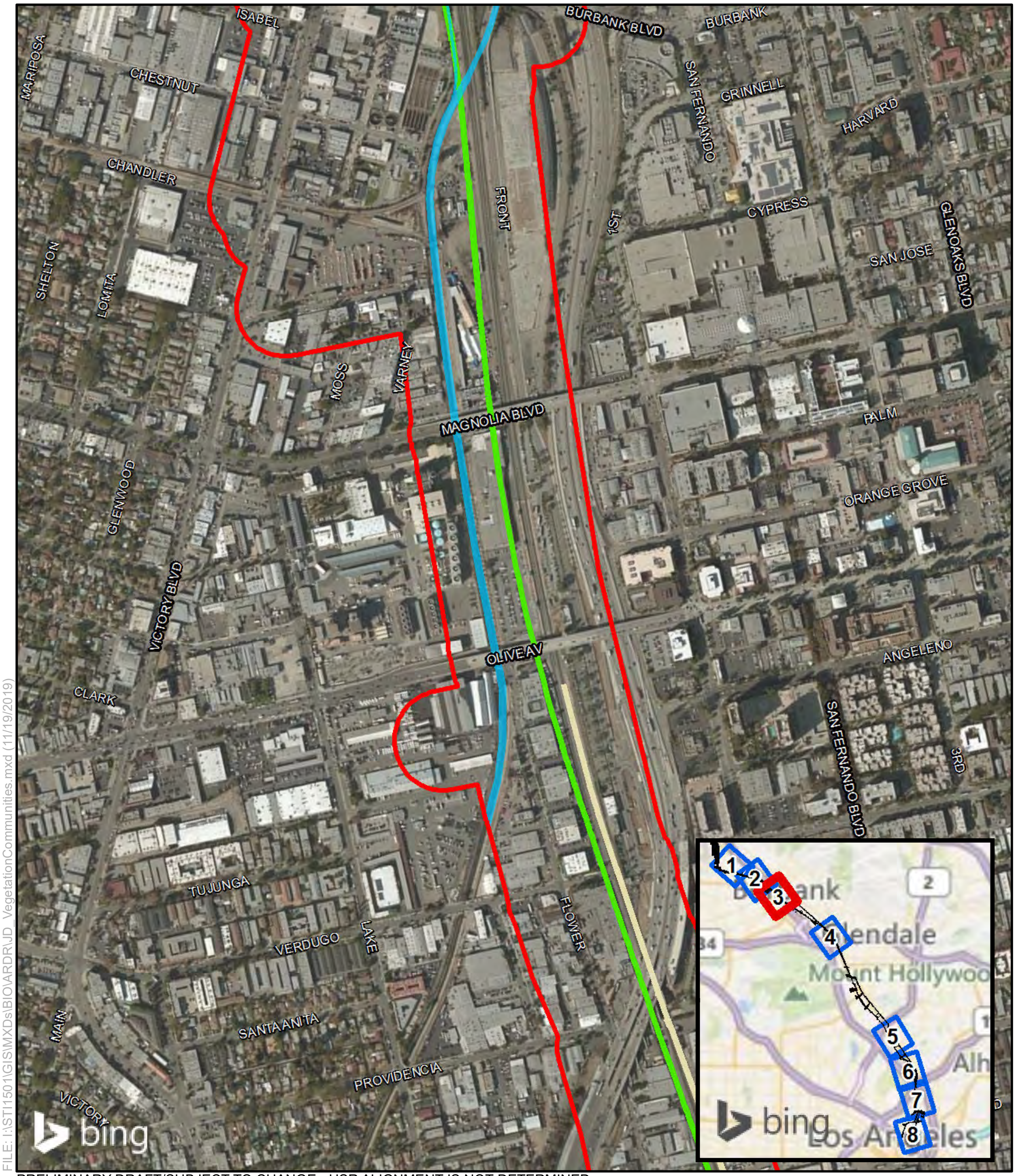
Wetland Communities and Other Waters
- Riverine

N

0 400 800
Feet

0 120 240
Meters

APPENDIX B
Sheet 2 of 8
Vegetation Communities Associated with Aquatic Resources within Resource Study Area



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: Bing Maps (2018); CHSRA (11/2019); NWI (2017)

Resource Study Area
HSR Build Alternative
Surface
Realigned, Non-Electrified Tracks
Wetland Communities and Other Waters
Riverine

N

0 400 800
Feet

0 120 240
Meters

APPENDIX B
Sheet 3 of 8
Vegetation Communities Associated with Aquatic Resources within Resource Study Area

FILE: I:\STI1501\GIS\MXDs\BIO\ARDR\JD_VegetationCommunities.mxd (11/19/2019)

PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: Bing Maps (2018); CHSRA (11/2019); NWI (2017)

N

0 400 800
Feet

0 120 240
Meters

Resource Study Area

HSR Build Alternative

Surface

Realigned, Non-Electrified Tracks

Wetland Communities and Other Waters

Riverine

Freshwater Forested/Shrub Wetland

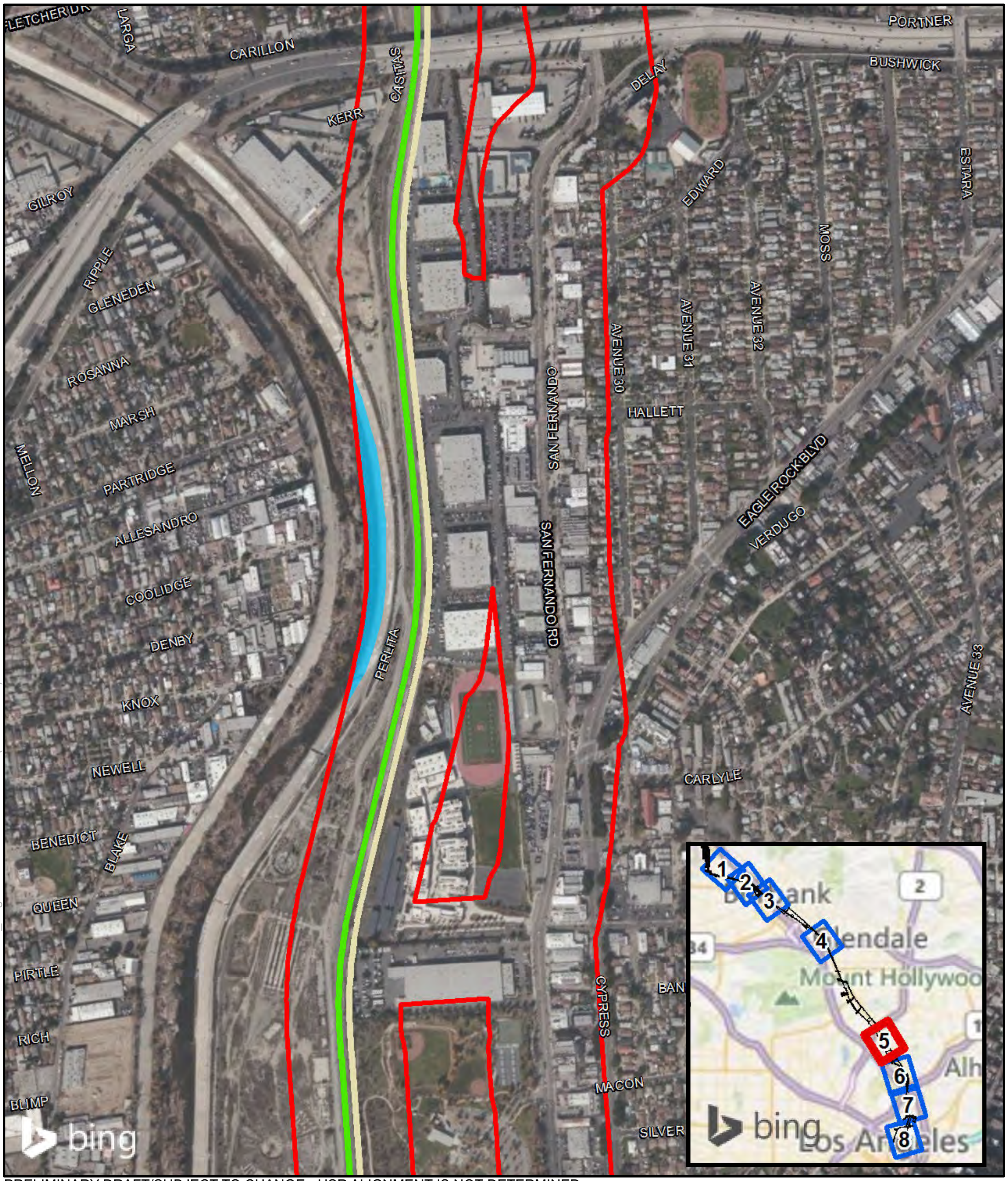
Freshwater Emergent Wetland

Wetland Sample Area

APPENDIX B

Sheet 4 of 8

Vegetation Communities Associated with Aquatic Resources within Resource Study Area



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: Bing Maps (2018); CHSRA (11/2019); NWI (2017)

Resource Study Area
HSR Build Alternative
Surface
Realigned, Non-Electrified Tracks
Wetland Communities and Other Waters
Riverine

N
0 400 800
Feet
0 120 240
Meters

APPENDIX B
Sheet 5 of 8
Vegetation Communities Associated with Aquatic Resources within Resource Study Area

FILE: I:\STI1501\GIS\MXDs\BIO\ARDR\JD_VegetationCommunities.mxd (11/19/2019)

PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: Bing Maps (2018); CHSRA (11/2019); NWI (2017)

N

0 400 800 Feet

0 120 240 Meters

Resource Study Area

HSR Build Alternative

Surface

Realigned, Non-Electrified Tracks

Wetland Communities and Other Waters

Riverine

Freshwater Forested/Shrub Wetland

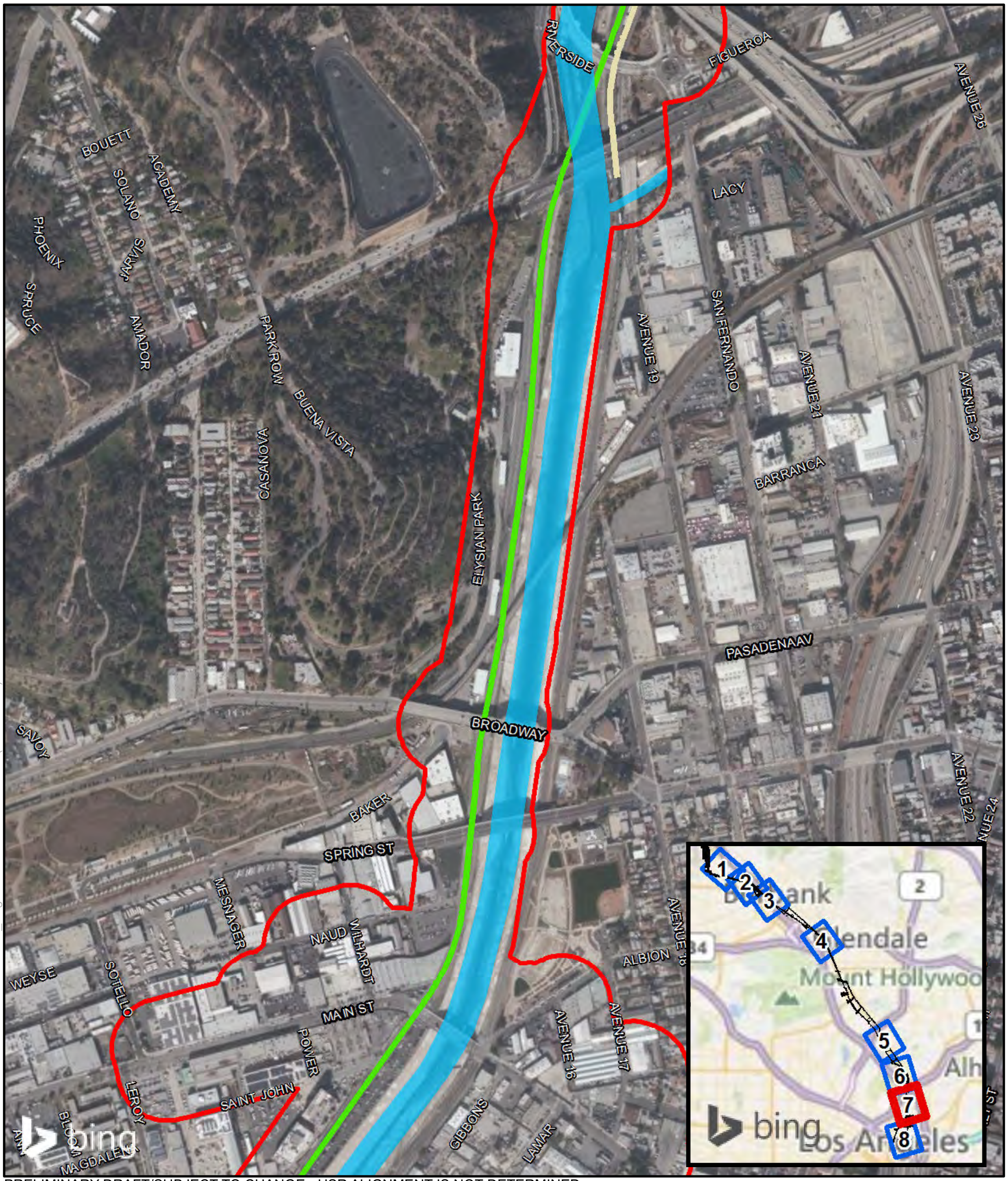
Freshwater Emergent Wetland

Wetland Sample Area

APPENDIX B

Sheet 6 of 8

Vegetation Communities Associated with Aquatic Resources within Resource Study Area



FILE: I:\STI1501\GIS\MXDs\BIO\ARDR\JD_VegetationCommunities.mxd (11/19/2019)

PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: Bing Maps (2018); CHSRA (11/2019); NWI (2017)

Resource Study Area

HSR Build Alternative

Surface

Realigned, Non-Electrified Tracks

Wetland Communities and Other Waters

Riverine

N

0 400 800 Feet

0 120 240 Meters

APPENDIX B

Sheet 7 of 8

Vegetation Communities Associated with Aquatic Resources within Resource Study Area

FILE: I:\ST\1501\GIS\MXDs\BIO\ARDR\JD_VegetationCommunities.mxd (11/19/2019)

PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: Bing Maps (2018); CHSRA (11/2019); NWI (2017)

Resource Study Area
HSR Build Alternative
Surface
Realigned, Non-Electrified Tracks
Wetland Communities and Other Waters
Riverine

N

0 400 800
Feet

0 120 240
Meters

APPENDIX B
Sheet 8 of 8
Vegetation Communities Associated with Aquatic Resources within Resource Study Area

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APPENDIX C: AQUATIC RESOURCE DELINEATION PHOTOGRAPHS

View looking west from within an open portion of the Lockheed Channel near N Griffith Park Drive.

View looking north at the Lockheed Channel's confluence with the Burbank Western Channel. Photo taken south of the confluence from within an open portion of the Burbank Western Channel.

I:\STI1501\G\AppC_JD_Photos.cdr (2/14/2017)

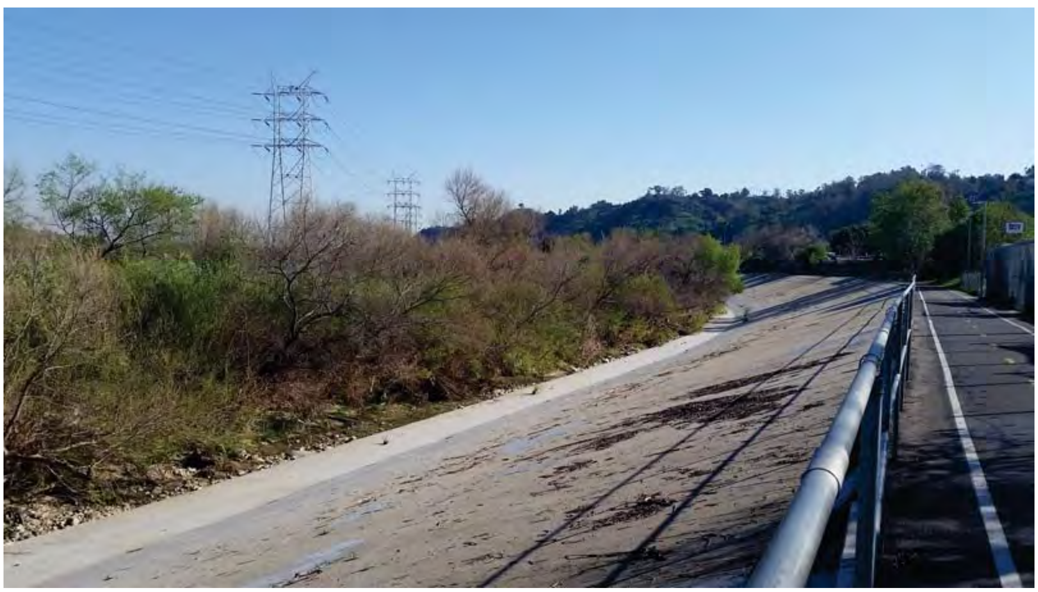
February 14, 2017

View upstream of the Verdugo Wash from San Fernando Road, showing unvegetated concrete channel.

View upstream of the Verdugo Wash from Flower Street, showing areas of Freshwater Emergent Wetland and Freshwater-Forested and Shrub Wetland.

February 14, 2017

View of Freshwater-Forested/Shrub Wetland in Verdugo Wash.



View downstream of the Los Angeles River in the Elysian Valley area, showing Freshwater-Forested and Shrub Wetland vegetation.

February 14, 2017

View south from Riverside Drive showing the existing Downey Bridge.

View east of Arroyo Seco Wash.

February 14, 2017

View north from Main Street Bridge showing the area of the proposed Main Street Bridge.

View north from Cesar Chavez Avenue of Mission Tower Bridge and the proposed Metrolink Bridge location.

February 14, 2017

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APPENDIX D: WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Verdugo Wash at LA River City/County: Los Angeles/Los Angeles Sampling Date: 8/22/2016

Applicant/Owner: High Speed Rail Authority State: CA Sampling Point: 1

Investigator(s): Blake Selna and Erin Martinelli Section, Township, Range: Land Grant: San Rafael

Landform (hillslope, terrace, etc.): River bottom Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR): California Lat: 34° 09' 16.2690"N Long: 118°16' 37.5360" W Datum: NAD83

Soil Map Unit Name: CA696 NWI classification: Freshwater Forested-Shrub Wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	Is the Sampled Area within a Wetland? Yes ✓ No ____
Hydric Soil Present?	Yes Presumed No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:
Apparent wetland occurs in an area of accumulated sediment on concrete-lined drainage at the confluence of Verdugo Wash with the Los Angeles River.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1. Salix gooddingii	40	Yes	FACW
2.			
3.			
4.			
= Total Cover	40		
Sapling/Shrub Stratum (Plot size: ____)			
1. Ricinus communus	5	No	FACU
2.			
3.			
4.			
5.			
= Total Cover	5		
Herb Stratum (Plot size: ____)			
1. Arundo donax	20	Yes	FACW
2. Typha sp.	25	Yes	OBL
3. Sorghum halepense	5	No	FACU
4. Cynodon dactylon	5	No	FACU
5.			
6.			
7.			
8.			
= Total Cover	55		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	25	x 1 = 25
FACW species	60	x 2 = 120
FAC species	0	x 3 = 0
FACU species	15	x 4 = 60
UPL species	0	x 5 = 0
Column Totals:	100 (A)	205 (B)

Prevalence Index = B/A = 2.05

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes Presumed No ___

Remarks:

Could not access site to dig soil sample pit. However, wetland soils are presumed to be present based on evident vegetation and hydrology indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✓ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ✓ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): ___

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Inundation is visible from vantage point a few hundred feet away. Observation during dry weather.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LA River sand bar near Elmgrove St. City/County: Los Angeles / Los Angeles Sampling Date: 8/22/2016
Applicant/Owner: High Speed Rail Authority State: CA Sampling Point: 2
Investigator(s): Blake Selna and Erin Martinelli Section, Township, Range: Land Grant; City Lands of Los Angeles
Landform (hillslope, terrace, etc.): River bottom Local relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR): California Lat: 34° 05' 18.8630"N Long: 118° 13' 42.6230"W Datum: ______
Soil Map Unit Name: CA 696 NWI classification: Freshwater Forested-Shrub Wetland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	Is the Sampled Area within a Wetland? Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:
Sand bar area in Los Angeles River

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10 ft. radius)			
1. Salix gooddingii	15	Yes	FACW
2.			
3.			
4.			
= Total Cover	15		
Sapling/Shrub Stratum (Plot size: 10 ft. radius)			
1. Ricinus communis	5	No	FACU
2.			
3.			
4.			
5.			
= Total Cover	5		
Herb Stratum (Plot size: 10 ft. radius)			
1. Arundo donax	5	Yes	FACW
2. Xanthium strumarium	25	Yes	FAC
3. Melilotus albus	10	No	UPL
4. Schoenoplectus americanus	14	Yes	OBL
5. Erigeron canadensis	1	No	FACU
6. Sorghum halepense	15	Yes	FACU
7. Verbena hastata	5	No	FAC
8.			
= Total Cover	75		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	14	x 1 = 14
FACW species	20	x 2 = 40
FAC species	30	x 3 = 90
FACU species	21	x 4 = 84
UPL species	10	x 5 = 50
Column Totals:	95 (A)	278 (B)

Prevalence Index = B/A = 2.93

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%
✓ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:
The sample point was taken in an area of the Los Angeles River that has an earthen bottom and is mapped by the NWI as Freshwater Forested-Shrub Wetland. The River is completely concrete-lined approximately 5 miles upstream and approximately 1,500 feet downstream of the sample point.

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/3	50					Sand	
0-12	10YR 3/2	50					Sandy clay Loam	
≥ 12	2.5Y 2.5/1	100					Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- √ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes √ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- √ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- √ Sediment Deposits (B2) **(Riverine)**
- √ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No √ Depth (inches): ______

Water Table Present? Yes ___ No √ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ___ No √ Depth (inches): ______

Wetland Hydrology Present? Yes √ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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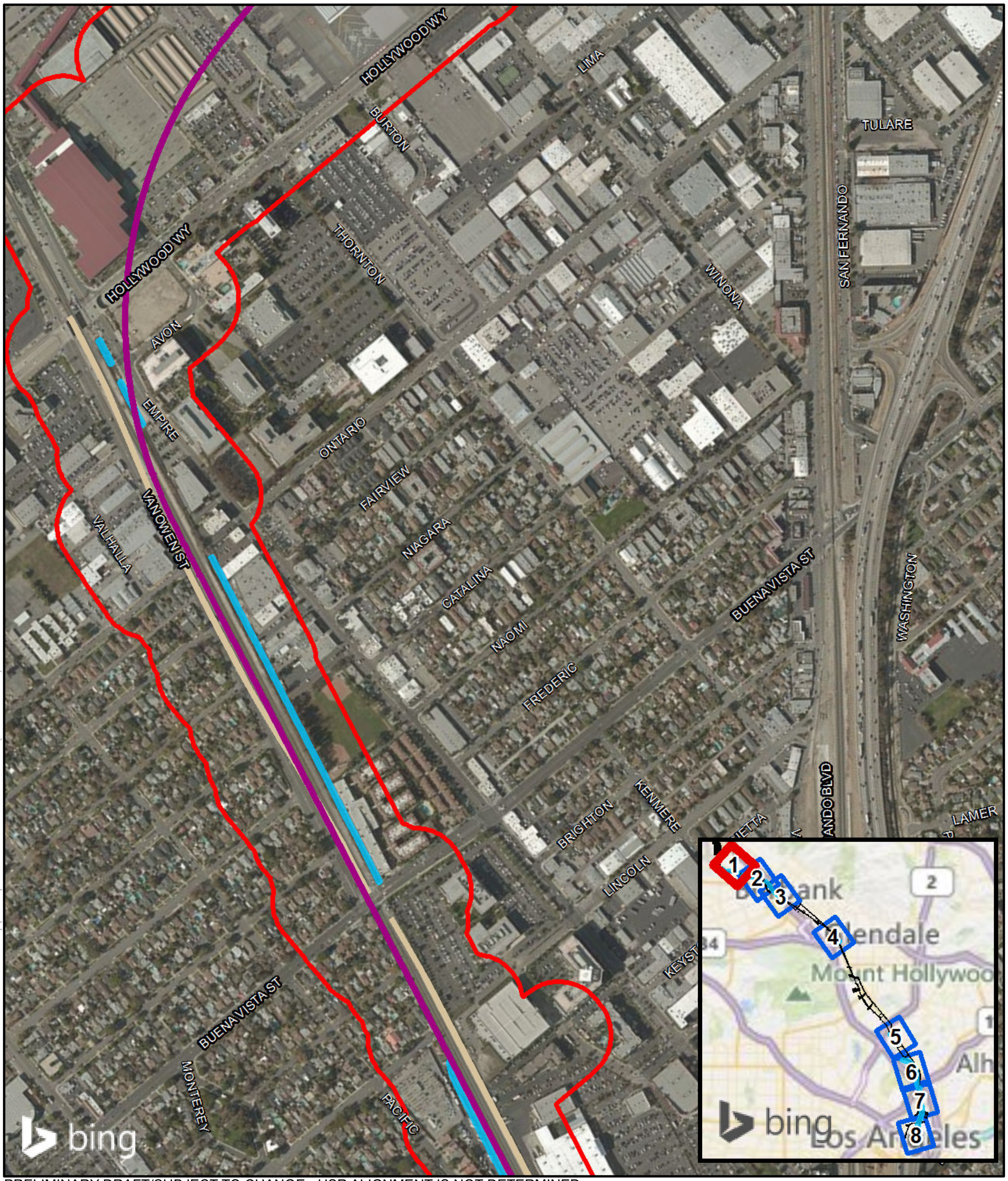
APPENDIX E: CALIFORNIA FISH AND GAME CODE SECTION 1600 AQUATIC RESOURCES



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: Bing Maps (2018); CHSRA (11/2019); NWI (2017)

Aquatic Resource Study Area (project footprint plus 250')

California Fish and Game Code 1600 Aquatic Resources and Riparian Areas

HSR Build Alternative

Below-grade

Realigned, Non-Electrified Tracks

N

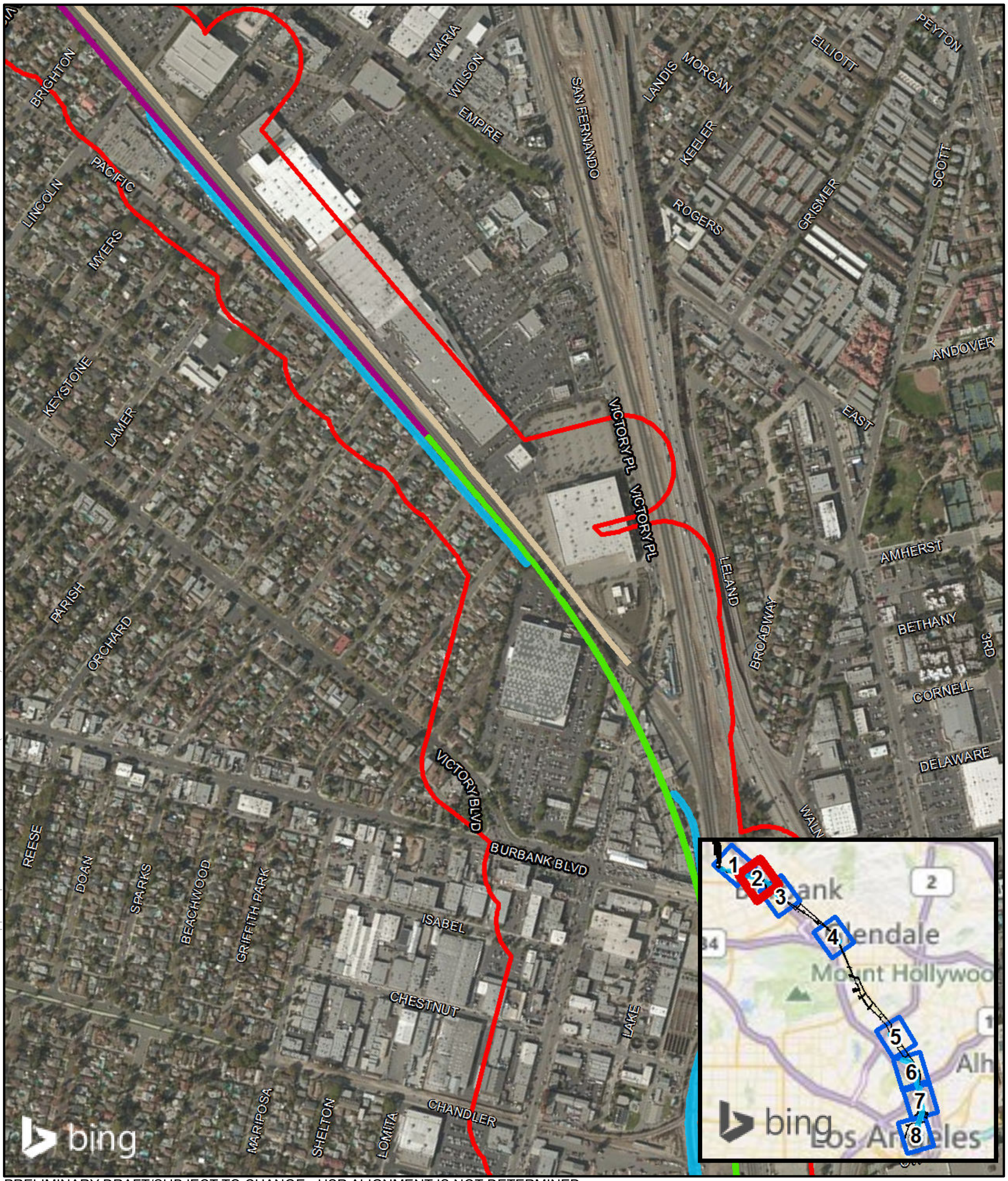
0 400 800
Feet

0 120 240
Meters

APPENDIX E

Sheet 1 of 8

California Fish and Game Code 1600
Aquatic Resources within the RSA



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SOURCE: Bing Maps (2018); CHSRA (11/2019); NWI (2017)

N

0 400 800
Feet

0 120 240
Meters

Aquatic Resource Study Area (project footprint plus 250')

California Fish and Game Code 1600 Aquatic Resources and Riparian Areas

HSR Build Alternative

Surface

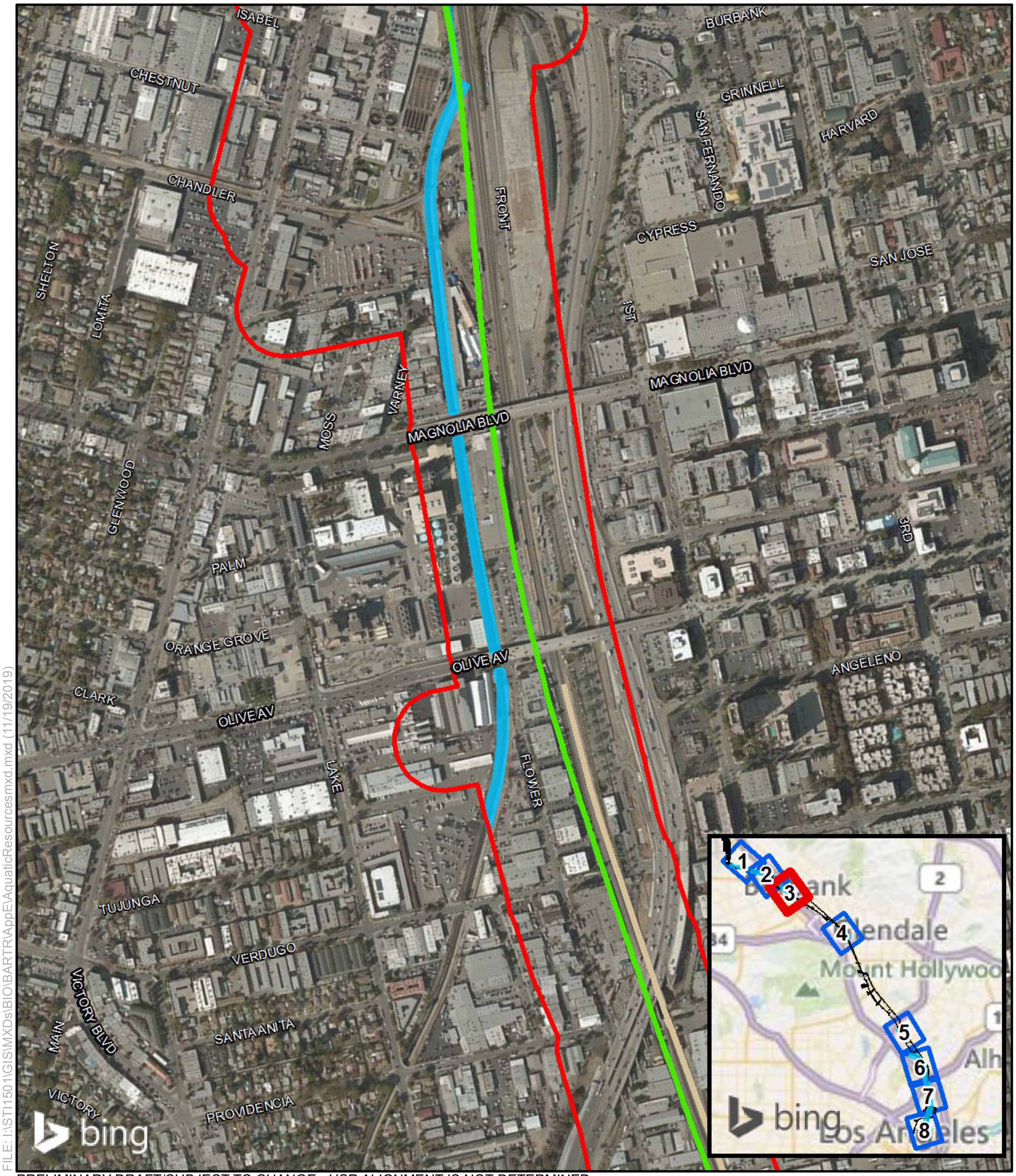
Below-grade

Realigned, Non-Electrified Tracks

APPENDIX E

Sheet 2 of 8

California Fish and Game Code 1600
Aquatic Resources within the RSA



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N

0 400 800
Feet

0 120 240
Meters

Aquatic Resource Study Area (project footprint plus 250')

California Fish and Game Code 1600 Aquatic Resources and Riparian Areas

HSR Build Alternative

Surface

Realigned, Non-Electrified Tracks

APPENDIX E

Sheet 3 of 8

California Fish and Game Code 1600
Aquatic Resources within the RSA

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Aquatic Resource Study Area (project footprint plus 250')

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HSR Build Alternative

Surface

Realigned, Non-Electrified Tracks

N

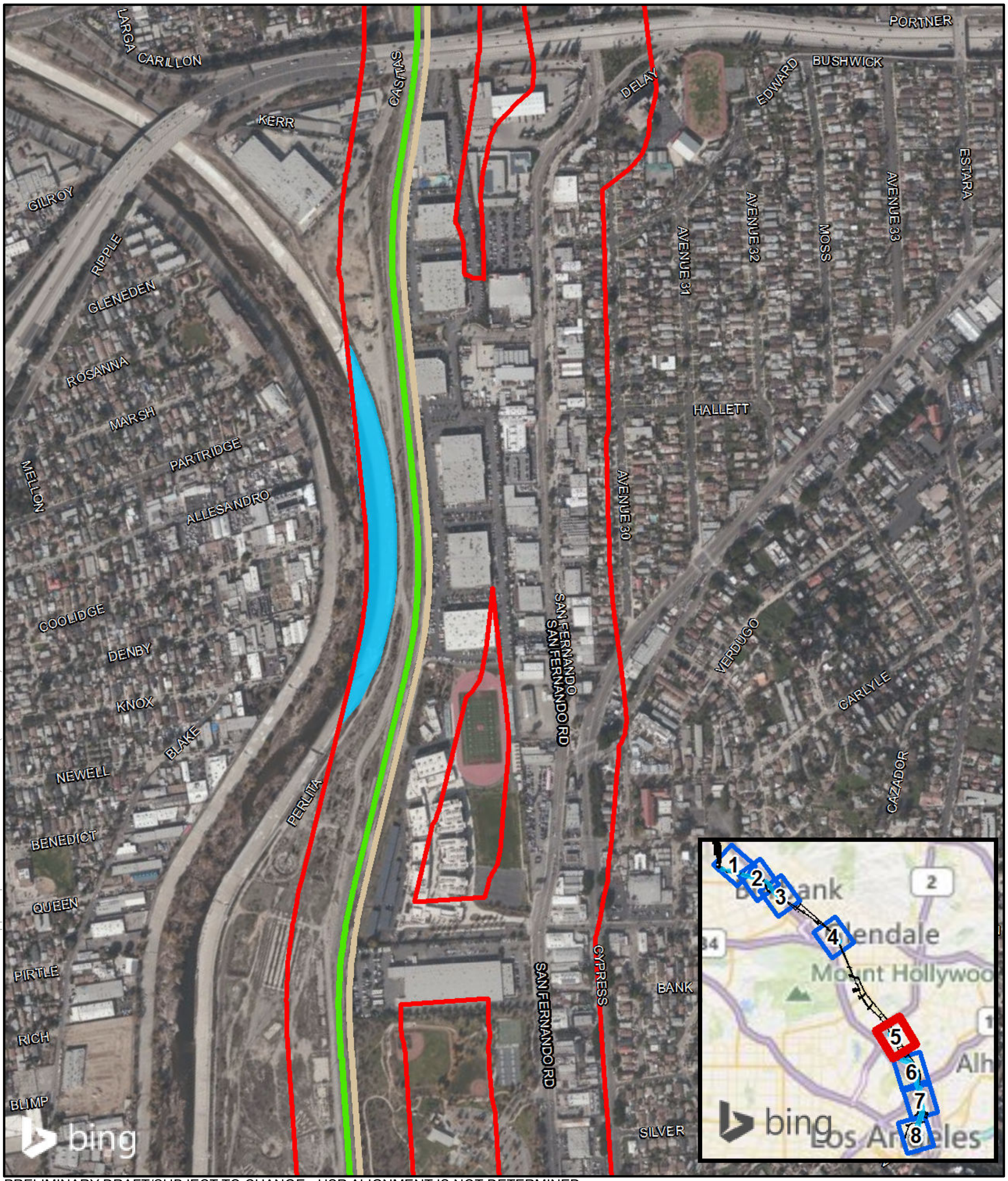
0 400 800
Feet

0 120 240
Meters

APPENDIX E

Sheet 4 of 8

California Fish and Game Code 1600
Aquatic Resources within the RSA



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SOURCE: Bing Maps (2018); CHSRA (11/2019); NWI (2017)

Aquatic Resource Study Area (project footprint plus 250')

California Fish and Game Code 1600 Aquatic Resources and Riparian Areas

HSR Build Alternative

Surface

Realigned, Non-Electrified Tracks

N

0 400 800 Feet

0 120 240 Meters

APPENDIX E

Sheet 5 of 8

California Fish and Game Code 1600 Aquatic Resources within the RSA

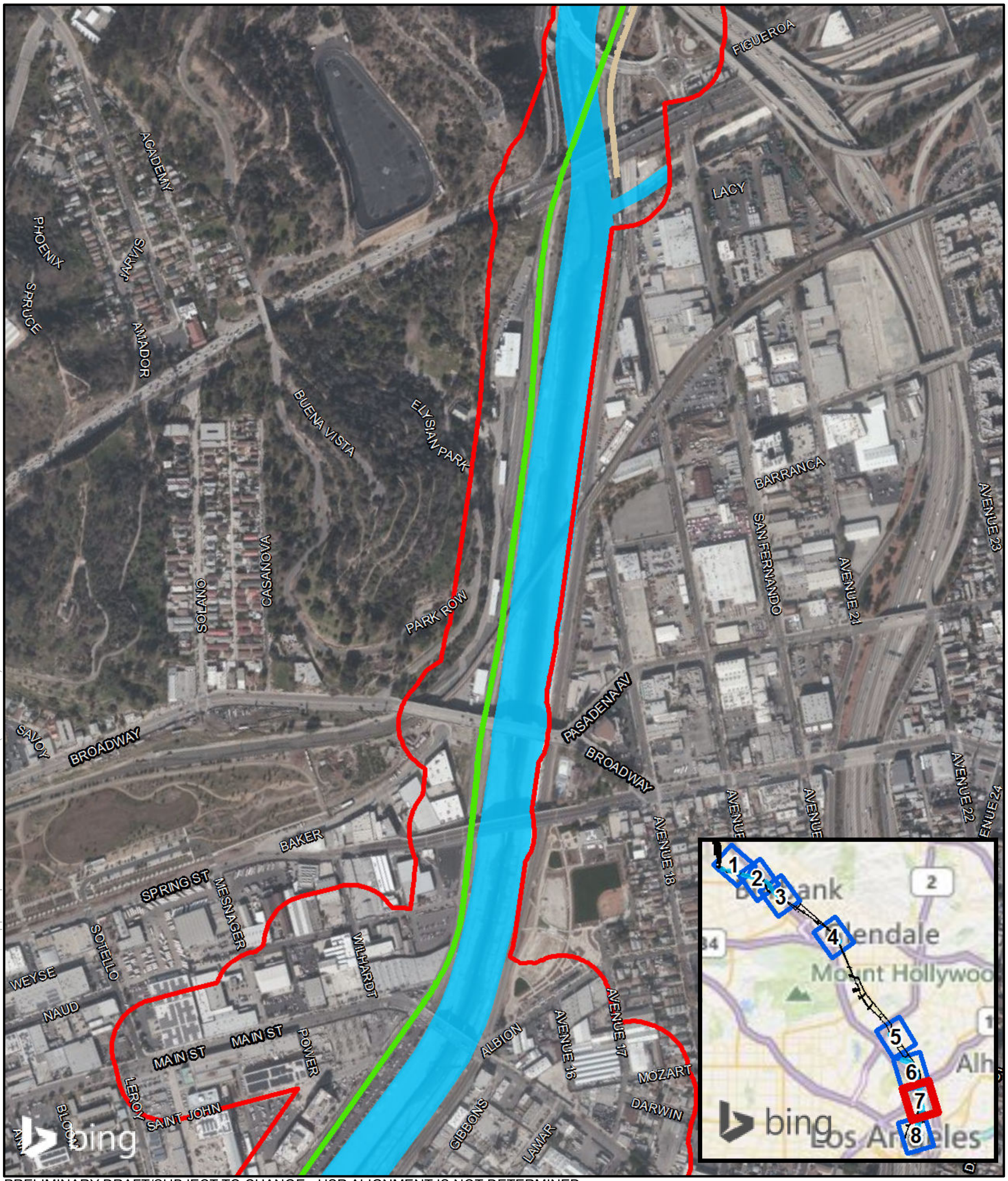
PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: Bing Maps (2018); CHSRA (11/2019); NWI (2017)

Aquatic Resource Study Area (project footprint plus 250')
California Fish and Game Code 1600 Aquatic Resources and Riparian Areas
HSR Build Alternative
Surface
Realigned, Non-Electrified Tracks

N

0 400 800
Feet
0 120 240
Meters

APPENDIX E
Sheet 6 of 8
California Fish and Game Code 1600
Aquatic Resources within the RSA



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SOURCE: Bing Maps (2018); CHSRA (11/2019); NWI (2017)

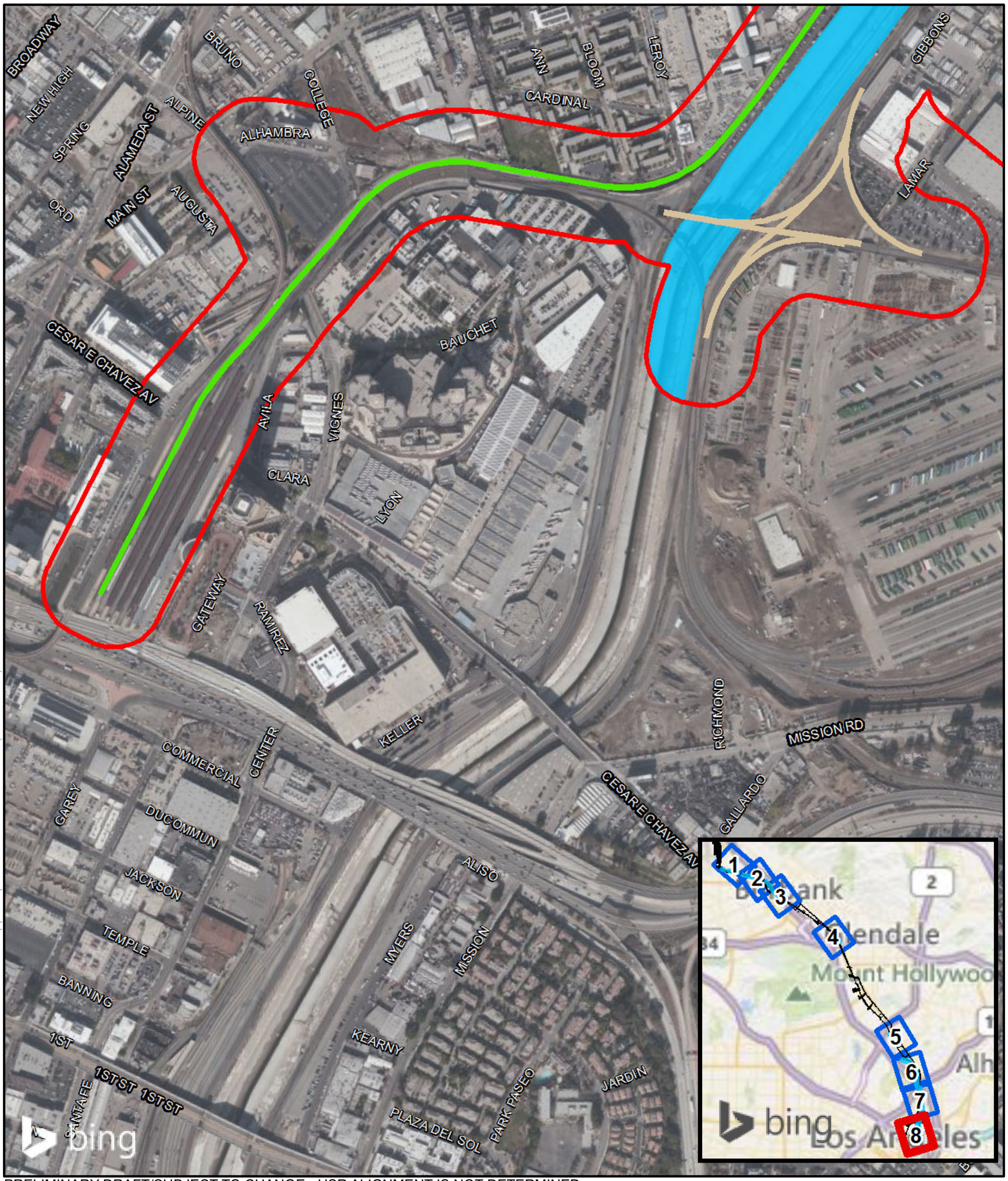
Aquatic Resource Study Area (project footprint plus 250')
California Fish and Game Code 1600 Aquatic Resources and Riparian Areas
HSR Build Alternative
Surface
Realigned, Non-Electrified Tracks

N

0 400 800
Feet

0 120 240
Meters

APPENDIX E
Sheet 7 of 8
California Fish and Game Code 1600 Aquatic Resources within the RSA



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SOURCE: Bing Maps (2018); CHSRA (11/2019); NWI (2017)

Aquatic Resource Study Area (project footprint plus 250')

California Fish and Game Code 1600 Aquatic Resources and Riparian Areas

HSR Build Alternative

Surface

Realigned, Non-Electrified Tracks

N

0 400 800 Feet

0 120 240 Meters

APPENDIX E

Sheet 8 of 8

California Fish and Game Code 1600 Aquatic Resources within the RSA

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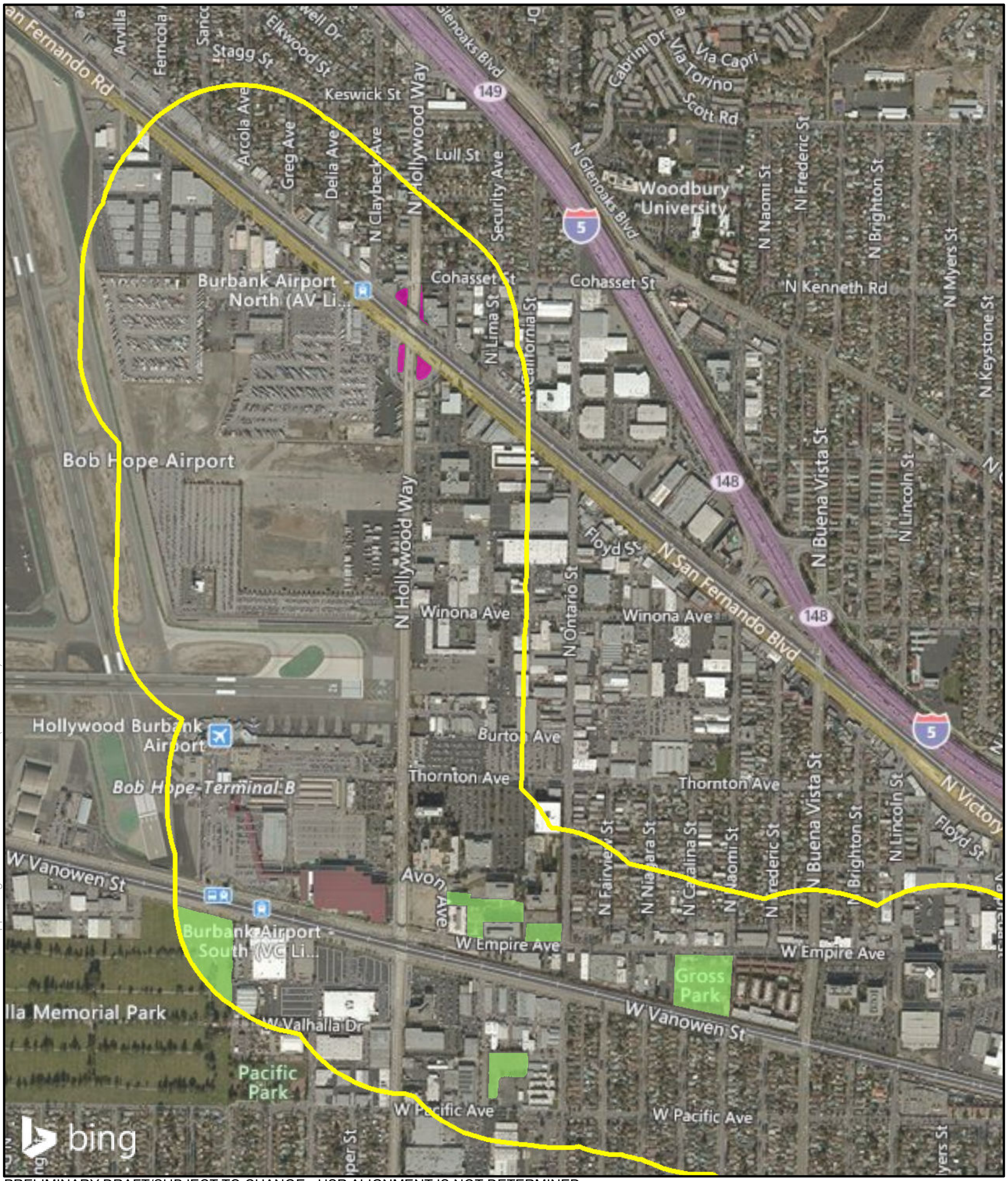
APPENDIX F: VEGETATION COMMUNITIES



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SOURCE: Bing Maps (2018); CHSRA (11/2019); USFWS (2017)

N

0 500 1,000
Feet

0 150 300
Meters

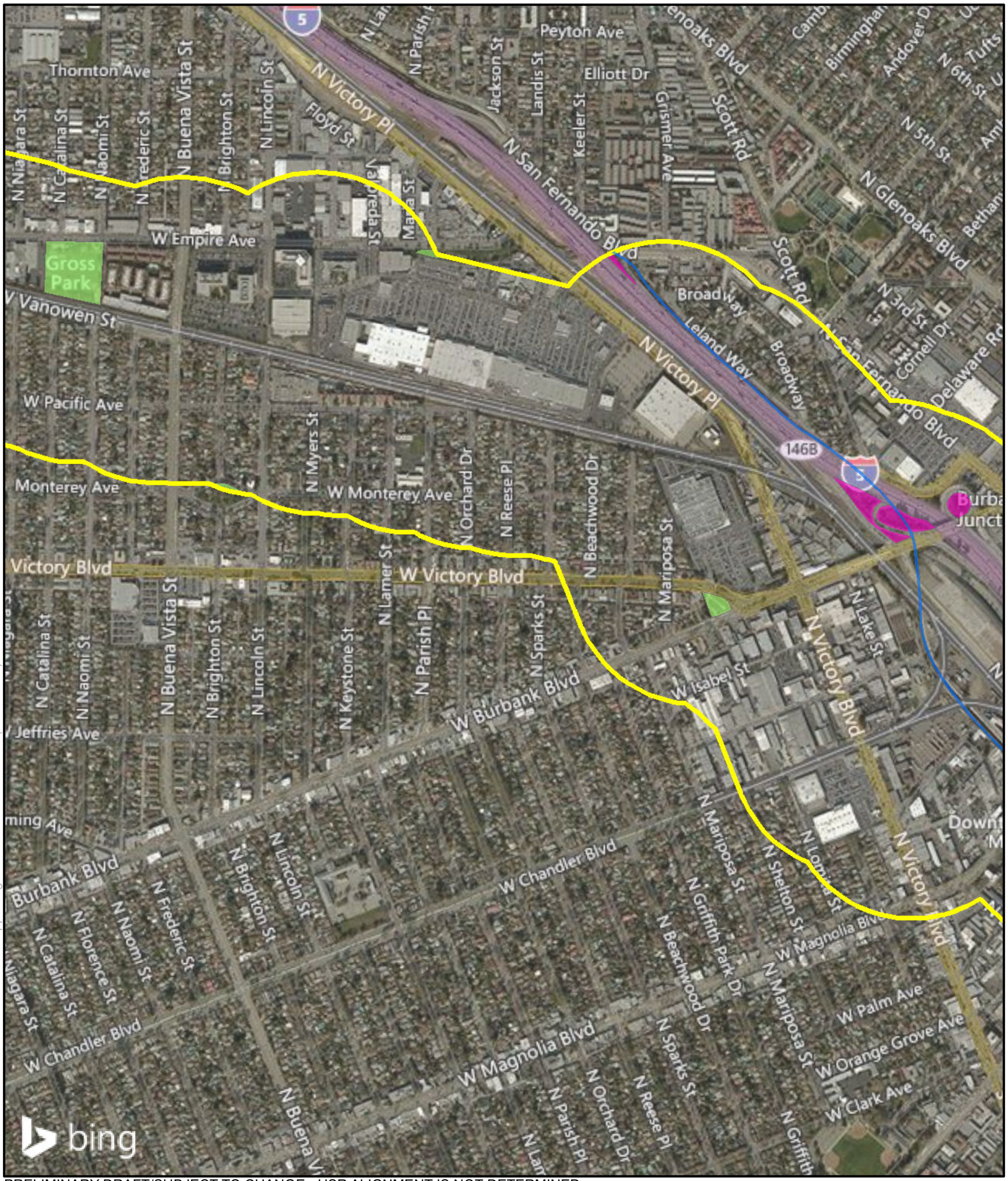
Resource Study Area

NWI Vegetation Communities
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

Mapped Vegetation Communities
- Non-Native Grassland/Ruderal
- Parks and Greenways
- Mixed Ornamental Plantings
- Riparian Plantings
- Developed

Appendix F
Sheet 1 of 9

Vegetation Communities



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SOURCE: Bing Maps (2018); CHSRA (11/2019); USFWS (2017)

N

0 500 1,000 Feet

0 150 300 Meters

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NWI Vegetation Communities
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- Riparian Plantings
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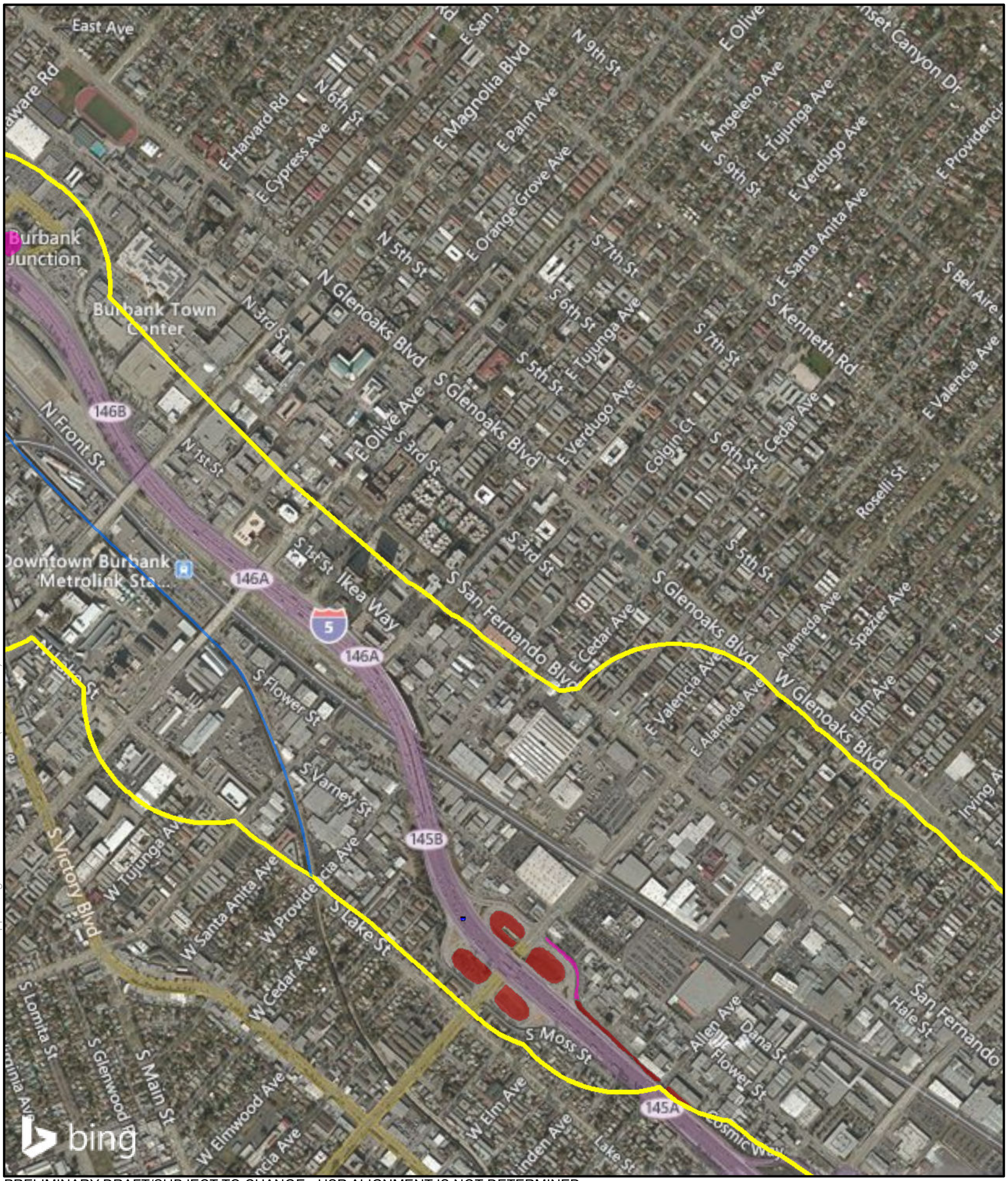
Appendix F
Sheet 2 of 9

Vegetation Communities



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SOURCE: Bing Maps (2018); CHSRA (11/2019); USFWS (2017)

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Feet
0 150 300
Meters

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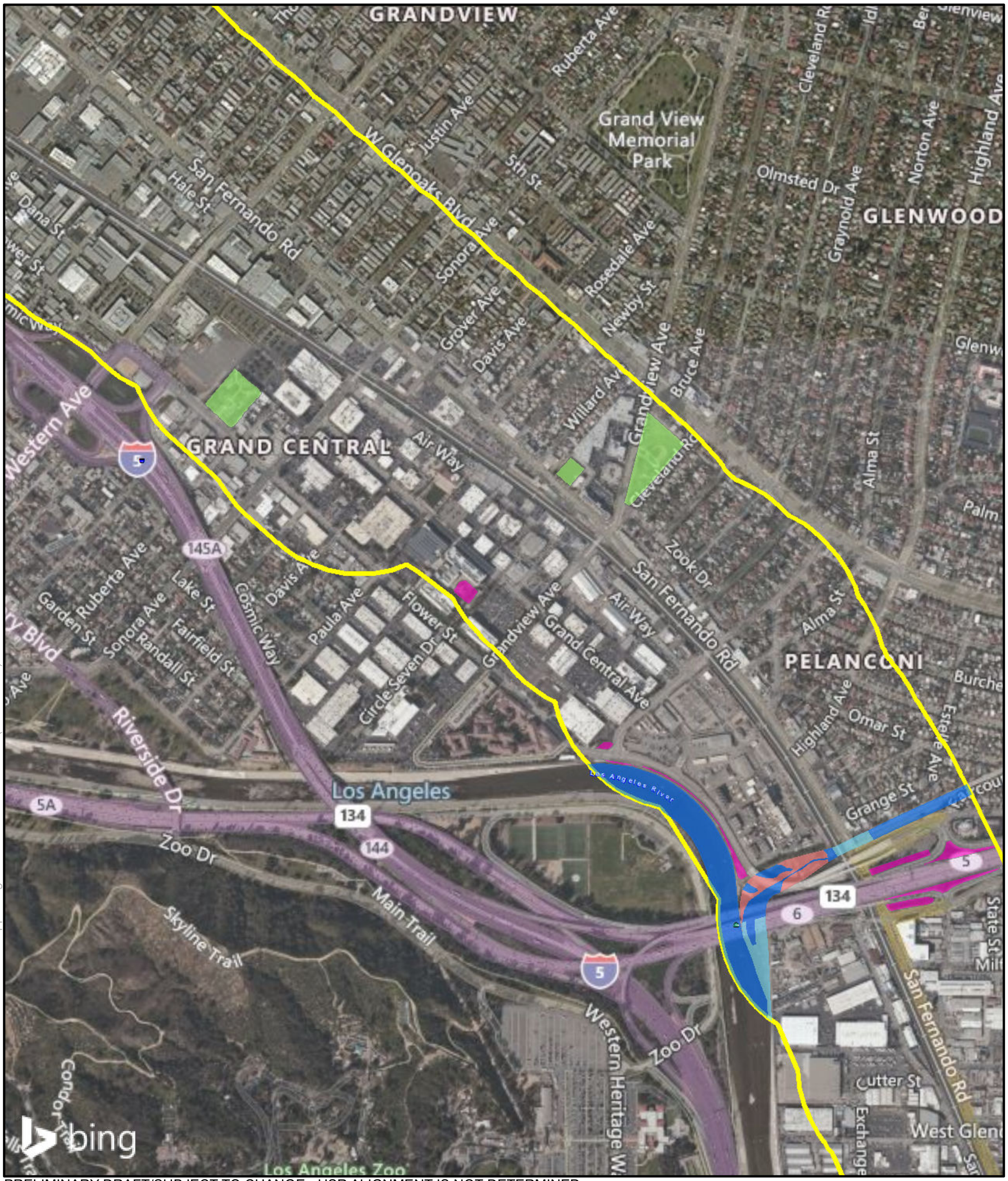
Appendix F
Sheet 3 of 9

Vegetation Communities



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N

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Feet

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Meters

- Resource Study Area

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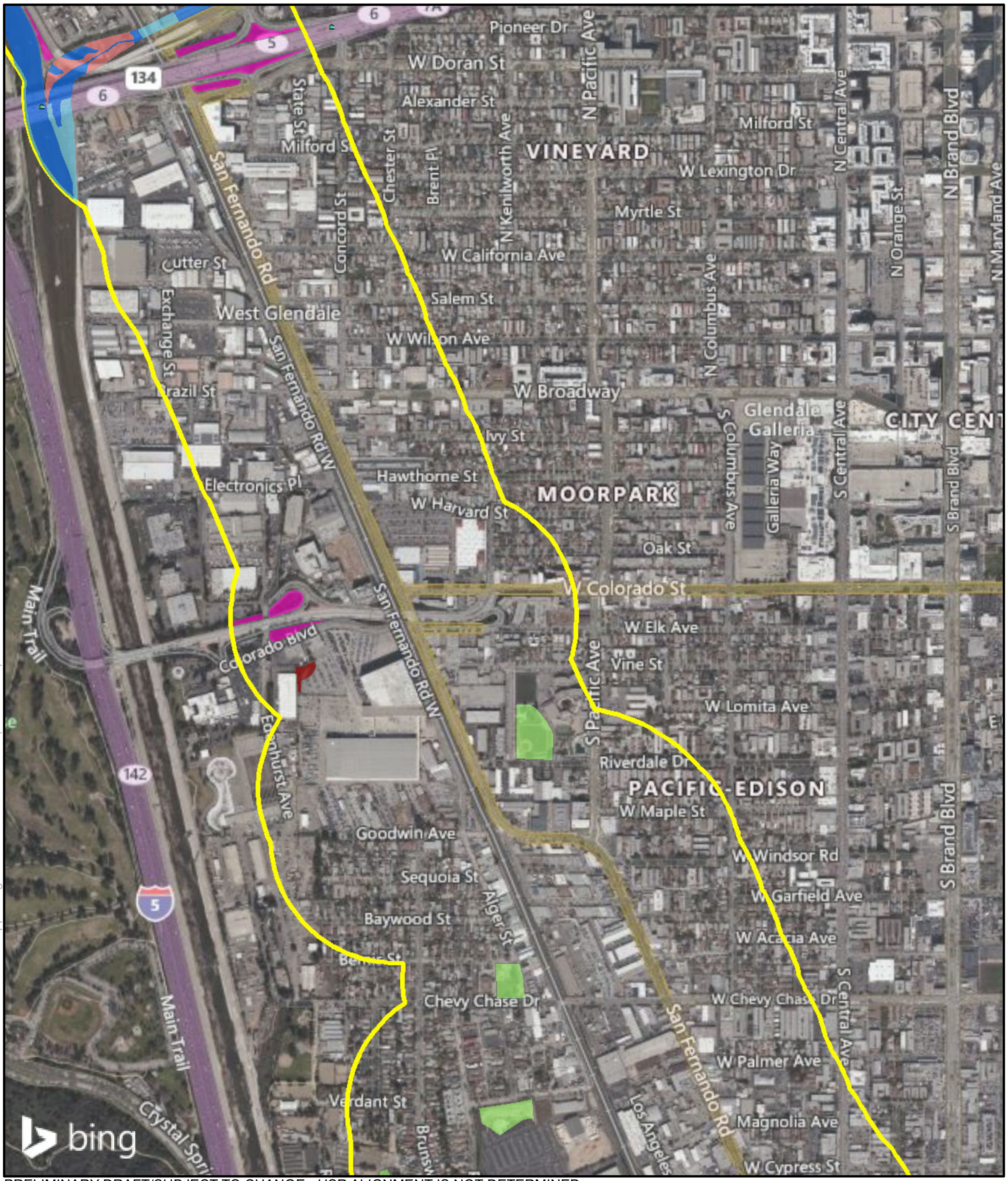
Appendix F
Sheet 4 of 9

Vegetation Communities



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N

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0 150 300 Meters

Resource Study Area

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Appendix F
Sheet 5 of 9

Vegetation Communities

PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
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N

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Feet

0 150 300
Meters

Resource Study Area

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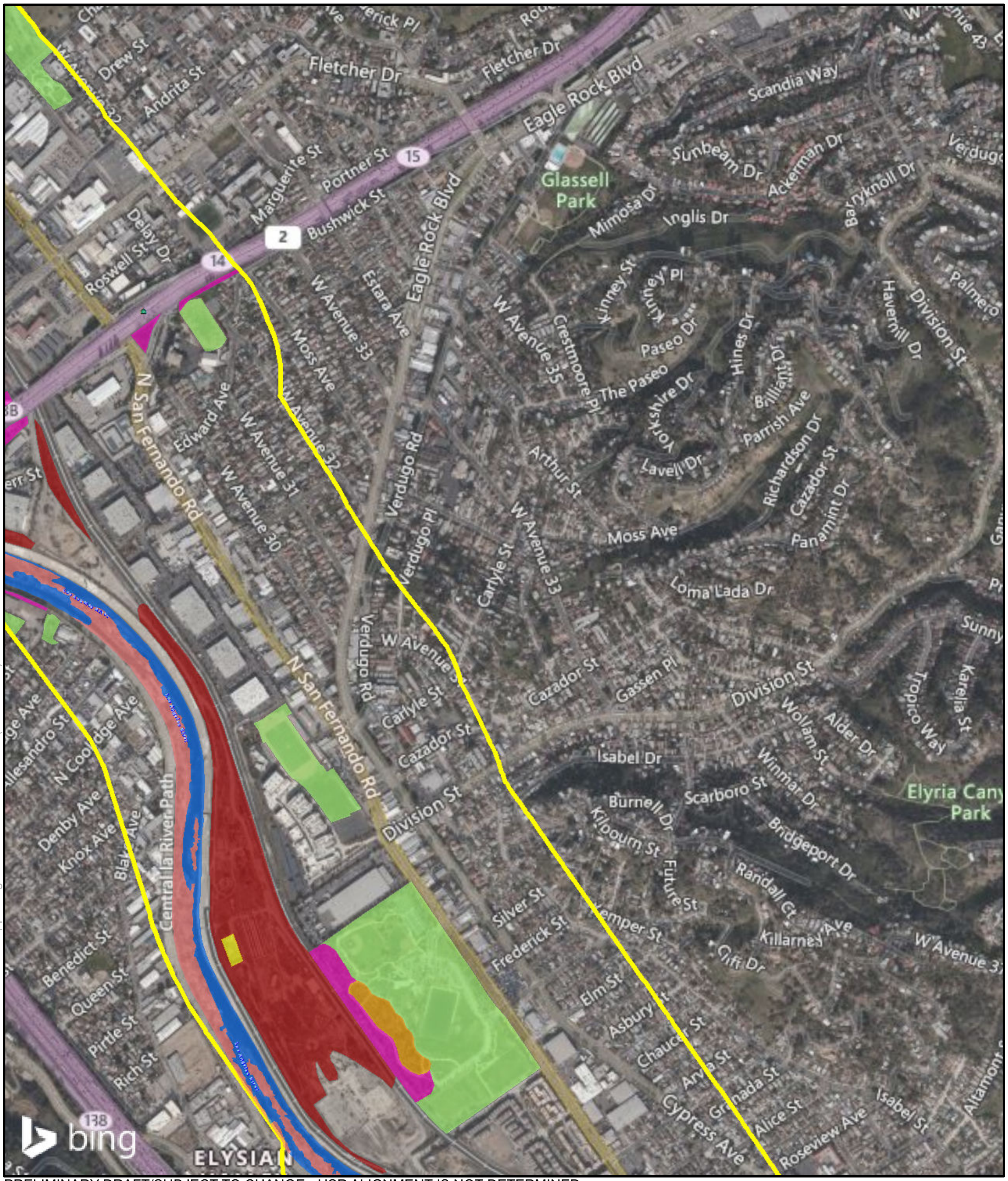
Appendix F
Sheet 6 of 9

Vegetation Communities



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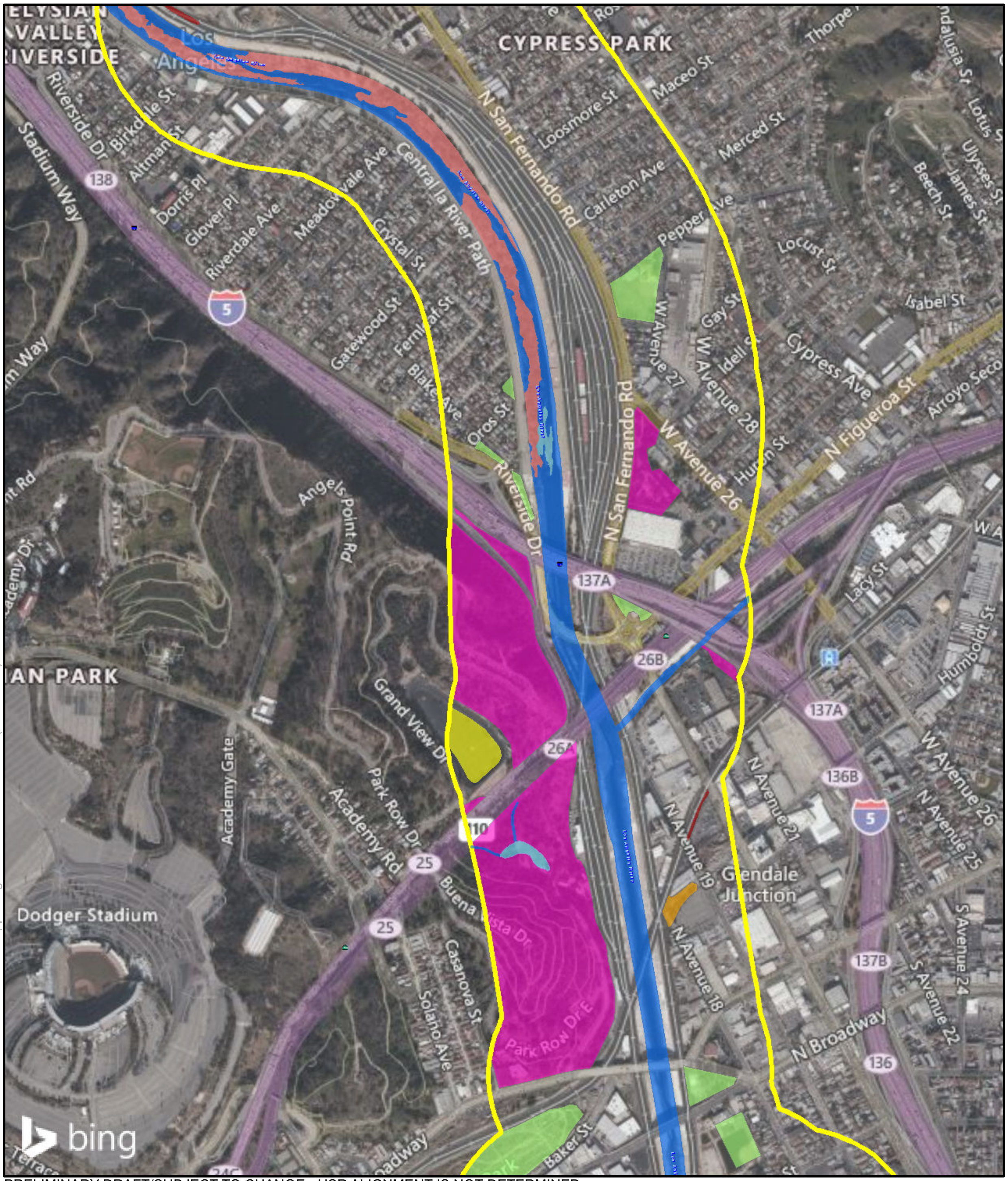
Appendix F
Sheet 7 of 9

Vegetation Communities



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SOURCE: Bing Maps (2018); CHSRA (11/2019); USFWS (2017)

N

0 500 1,000 Feet

0 150 300 Meters

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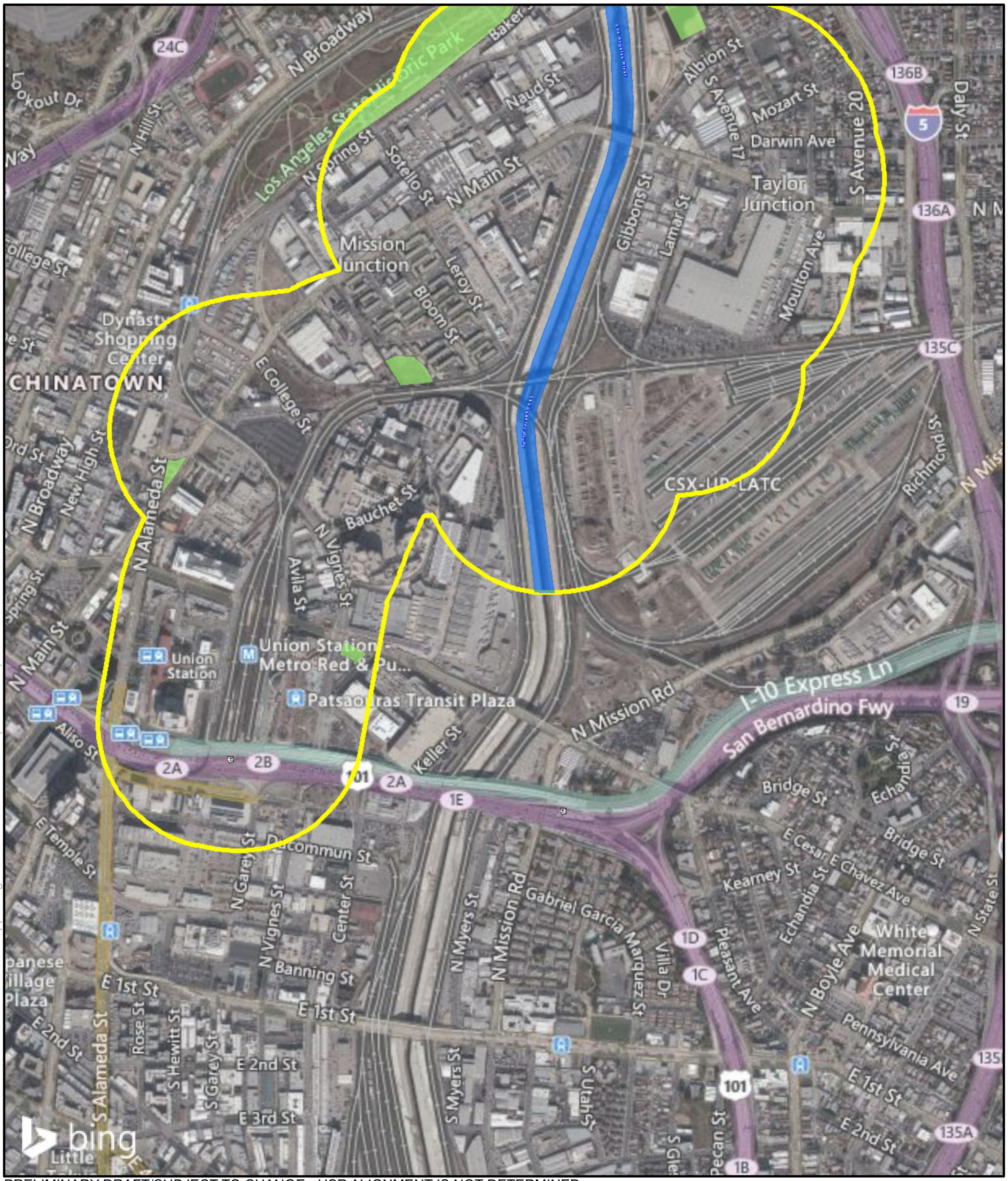
Appendix F
Sheet 8 of 9

Vegetation Communities



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N

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Appendix F
Sheet 9 of 9

Vegetation Communities

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APPENDIX G: SPECIAL-STATUS ANIMALS POTENTIALLY OCCURRING IN THE STUDY AREA

Table G-1 Special-Status Animals Potentially Occurring in the Wildlife Resource Study Area

Species	Regulatory Status[1]	Activity Period	Habitat Requirements	Potentially Suitable Habitat in the Wildlife RSA[2]	Potential to Occur and Survey Results	Source
Haliaeetus leucocephalus Bald eagle	US: FD– CA: SE/FP	Primarily November–March	Primarily rivers, large lakes, and wetlands.	Riparian habitats along the Los Angeles River and associated tributaries; margins of open water and flood control channels	Low. Habitat suitability is generally low within the Wildlife RSA. [seen at Silver Lake Reservoir in 1990 and 1991 (eBird)]	Burbank to Los Angeles IPaC Lit search 09.29.2016 eBird 10.03.2016 and 12.28.2018
Elanus leucurus White-tailed kite	US: – CA: FP	Year-round, but primarily outside the nesting season	Typically nests in riparian trees such as oaks, willows, and cottonwoods at low elevations. Forages in open country.	Riparian plant communities along the Los Angeles River and associated tributaries; More open areas (parks and open spaces)	Present. The species has been recorded within the Wildlife RSA, but nesting is unlikely.	eBird 10.03.2016 and 12.28.2018
Aquila chrysaetos Golden eagle	US: – CA: FP	Year-round, but primarily outside the nesting season	Open country: prairies, desert, and barren areas, especially in hilly or mountainous regions.	More open areas (parks and open spaces)	Low. Habitat suitability is generally low within the Wildlife RSA. Four eBird reports may be unreliable.	eBird 10.03.2016 and 12.28.2018 Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018
Coccyzus americanus occidentalis Western yellow-billed cuckoo	US: FT CA: SE (nesting)	June–August	Extensive willow (*Salix* sp.) and cottonwood (*Populus* sp.) forests adjacent to slow-moving watercourses, backwaters, and seeps.	Riparian habitats along the Los Angeles River and associated tributaries	Low. While small pockets of marginally suitable habitat were identified within the Wildlife RSA, nesting is not expected within the Wildlife RSA.	eBird 10.03.2016 and 12.28.2018 Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018
Falco peregrinus anatum American peregrine falcon	US: FD CA: SD/FP	Year-round	Open situations, usually near water. Generally requires cliffs or similar situations for nesting.	All areas, especially along riparian habitats and open areas near the Los Angeles River.	Present. The species has been recorded within the Wildlife RSA on occasion. However, nesting habitat suitability is generally low within the Wildlife RSA.	Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018 eBird 10.03.2016 and 12.28.2018

Species	Regulatory Status[1]	Activity Period	Habitat Requirements	Potentially Suitable Habitat in the Wildlife RSA[2]	Potential to Occur and Survey Results	Source
Empidonax trallii extimus Southwestern willow flycatcher	US: FE CA: SE (nesting)	May–August	Restricted to riparian habitat along rivers, streams, or other wetlands where an adequate prey base is present. Suitable habitat typically consists of dense tree or shrub cover (≥ 3 m) with dense twig structure and foliage, and may include interspersed patches of open habitat. Vegetative composition can range from all native species to a mix of native and nonnative species, but almost always includes willow (*Salix* spp.) and/or tamarisk (*Tamarix* sp.).	Riparian habitats along the Los Angeles River and associated tributaries	Low. Potential suitable habitat was identified within the Wildlife RSA. The species probably occurred formerly, but is now essentially unknown in the Los Angeles Basin. Passage migrant willow flycatchers occur annually, but are believed to represent the little willow flycatcher (*E. t. brewsteri*; state-listed as Endangered).	Burbank to Los Angeles Lit search 09.29.2016 and 12.28.2018 Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018 eBird 10.03.2016 and 12.28.2018
Vireo bellii pusillus Least Bell's vireo	US: FE CA: SE	March–August	Largely associated with early successional riparian scrub and woodland with a developed canopy layer and dense shrubs at 3 to 6 feet. Habitat typically dominated by species such as mulefat, willow, cottonwood, and Mexican elderberry.	Riparian habitats along the Los Angeles River and associated tributaries	Present. The species has been recorded within the Wildlife RSA along the Los Angeles River and at Rio de Los Angeles State Park.	Burbank to Los Angeles Lit search 09.29.2016 and 12.28.2018 Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018 eBird 10.03.2016 and 12.28.2018

Species	Regulatory Status[1]	Activity Period	Habitat Requirements	Potentially Suitable Habitat in the Wildlife RSA[2]	Potential to Occur and Survey Results	Source
Polioptila californica californica coastal California gnatcatcher	US: FT CA: SSC	Year-round	Inhabits coastal sage scrub in low-lying foothills and valleys up to about 500 meters (1,640 feet) elevation in cismontane southwestern California and Baja California.	Installed coastal sage scrub/riparian scrub and ruderal vegetation within Rio de Los Angeles State Park	Low. While there is a historical occurrence record near Roscoe Elementary School (north of Hollywood Burbank Airport) dated 1901, and small pockets of potentially suitable habitat were identified within the Wildlife RSA near Rio de Los Angeles State Park, habitat suitability is generally very low within the Wildlife RSA and there are no recent occurrence records within the Wildlife RSA.	Burbank to Los Angeles Lit search 09.29.2016 and 12.28.2018 Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018 eBird 10.03.2016 and 12.28.2018
Corynorhinus townsendii Townsend's big-eared bat	US: – CA: SSC	Year-round, but largely inactive during the winter	Requires caves, mines, tunnels, bridges, buildings, or similar structures for roosting; also documented using rock crevices and hollow trees. Forages in a variety of habitats ranging from open agricultural fields to mixed desert scrub to dense forest. Most strongly associated with riparian corridors and edge habitats for foraging.	Along riparian habitat within the Los Angeles River and associated tributaries; bridges and culverts	Low. Known to occasionally roost in the hollow spaces of bridges. Foraging habitat is present along portions of the Los Angeles River. However, this species' sensitivity to disturbance renders most sites in urban environments unsuitable. Likely extirpated from the South Coast Ecoregion, including the Wildlife RSA.	Miner, K.L., and D.C. Stokes. 2005. *Bats in the South Coast Ecoregion: Status, Conservation Issues, and Research Needs*. USDA Forest Service Gen. Tech. Rep. PSW-GTR-195. Pierson, E.D., and W.E. Rainey. 1998. *The Distribution, Status and Management of Townsend's Big-eared Bat (Corynorhinus townsendii) in California.* California Department of Fish and Game, Bird and Mammal Conservation Program Tech. Rep. #96-7. May 1998. Sacramento. 34 pp.

Species	Regulatory Status[1]	Activity Period	Habitat Requirements	Potentially Suitable Habitat in the Wildlife RSA[2]	Potential to Occur and Survey Results	Source
Gila orcuttii Arroyo chub	US: – CA: SSC	Year-round	Perennial streams or intermittent streams with permanent pools; slow water sections of streams with mud or sand substrates; spawning occurs in pools. Native to Los Angeles, San Gabriel, San Luis Rey, Santa Ana, and Santa Margarita River systems; introduced in Santa Ynez, Santa Maria, Cuyama, and Mojave River systems and smaller coastal streams.	Los Angeles River	Low. Still occurs in upper reaches of the Los Angeles River but is likely extirpated downstream.	K. L. Garrett, editor, 1993 (*The Biota of the Los Angeles River,* unpublished report prepared by the Natural History Museum of Los Angeles County, prepared for CDFW)
Rhinichthys osculus ssp. 3 Santa Ana speckled dace	US: – CA: SSC	Year-round	Primarily clear, well-oxygenated moving water (especially shallow, rocky riffles and runs) in the headwaters of the Los Angeles, San Gabriel, and Santa Ana Rivers.	Los Angeles River	Low. Apparently extirpated from the Los Angeles River.	K. L. Garrett, editor, 1993 (*The Biota of the Los Angeles River,* unpublished report prepared by the Natural History Museum of Los Angeles County, prepared for CDFW)

Species	Regulatory Status[1]	Activity Period	Habitat Requirements	Potentially Suitable Habitat in the Wildlife RSA[2]	Potential to Occur and Survey Results	Source
Phrynosoma blainvilli Coast horned lizard	US: – CA: SSC	Primarily February–November	Prefers sandy loam areas and alkali flats; can also inhabit exposed gravelly sandy substrates vegetated with scattered shrubs or annual grassland, or clearings in riparian woodlands Dietary specialist dependent on ants, as well as beetles and other seasonally abundant insects.	More open areas (annual grassland/ruderal habitats, urban vegetation)	Low. Occurred formerly, but now likely extirpated from the Los Angeles River.	Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018 K. L. Garrett, editor, 1993 (*The Biota of the Los Angeles River,* unpublished report prepared by the Natural History Museum of Los Angeles County, prepared for CDFW)
Aspidoscelis tigris stejnegeri Coastal whiptail	US: – CA: SSC	Primarily March–October	Wide variety of habitats including CSS, sparse grassland, and riparian woodland; coastal and inland valleys and foothills; Ventura County to Baja California.	More open areas (annual grassland/ruderal habitats, urban vegetation)	Low. May persist along the Los Angeles River.	K. L. Garrett, editor, 1993 (*The Biota of the Los Angeles River,* unpublished report prepared by the Natural History Museum of Los Angeles County, prepared for CDFW)
Anniella spp. California legless lizard (includes *Anniella pulchra* and *Anniella stebbinsi*)	US: – CA: SSC	Year-round	Sandy soil and humus with high moisture content; vegetated with oak or pine-oak woodland, chaparral; also wooded stream edges, and occasionally desert-scrub.	Riparian plant communities along the Los Angeles River and associated tributaries	Low. May persist along the Los Angeles River.	K. L. Garrett, editor, 1993 (*The Biota of the Los Angeles River,* unpublished report prepared by the Natural History Museum of Los Angeles County, prepared for CDFW)

Species	Regulatory Status[1]	Activity Period	Habitat Requirements	Potentially Suitable Habitat in the Wildlife RSA[2]	Potential to Occur and Survey Results	Source
Arizona elegans occidentalis California glossy snake	US: – CA: SSC	Primarily February–November	Prefers grasslands, coastal sage scrub, and chaparral with loose soils.	More open areas (annual grassland/ruderal habitats, parks and greenways)	Low. Habitat suitability is generally low within the Wildlife RSA and unknown from the lower Los Angeles River.	K. L. Garrett, editor, 1993 (*The Biota of the Los Angeles River,* unpublished report prepared by the Natural History Museum of Los Angeles County, prepared for CDFW)
Thamnophis hammondii Two-stripped garter snake	US: – CA: SSC	Year-round	Highly aquatic. Only in or near permanent sources of water. Streams with rocky beds supporting willows or other riparian vegetation.	Riparian habitats along the Los Angeles River and associated tributaries	Moderate. Apparently still occurs along the Los Angeles River.	K. L. Garrett, editor, 1993 (*The Biota of the Los Angeles River,* unpublished report prepared by the Natural History Museum of Los Angeles County, prepared for CDFW)
Emys marmorata Western pond turtle	US: – CA: SSC	Year-round	Ponds, marshes, rivers, streams, irrigation ditches, vernal pools. Needs basking sites such as partially submerged logs or rocks, and suitable upland habit (sandy banks or grassy open fields) for egg laying.	Riparian habitats along the Los Angeles River and associated tributaries	Low. Occurred formerly, but now apparently extirpated from the Los Angeles River.	Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018 K. L. Garrett, editor, 1993 (*The Biota of the Los Angeles River,* unpublished report prepared by the Natural History Museum of Los Angeles County, prepared for CDFW)

Species	Regulatory Status[1]	Activity Period	Habitat Requirements	Potentially Suitable Habitat in the Wildlife RSA[2]	Potential to Occur and Survey Results	Source
Athene cunicularia Burrowing owl	US: – CA: SSC	Year-round	Found in open, dry, annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Uses small burrows for nesting and roosting.	More open areas (annual grassland/ruderal habitats, parks and greenways)	Present. The species was recorded within the Wildlife RSA at Rio de Los Angeles State Park as recently as 2011 (eBird).	Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018 eBird 10.03.2016 and 12.28.2018
Lanius ludovicianus Loggerhead shrike	US: – CA: SSC (nesting)	Year round; nesting March–July	Breeds and forages in open habitats interspersed with shrubs and small trees, including disturbed habitats.	More open areas (annual grassland/ruderal habitats, parks and greenways)	Low. Probably nested previously but habitat suitability is generally low within the Wildlife RSA and the species is now very rare in the Los Angeles Basin.	eBird 10.03.2016 and 12.28.2018
Geothlypis trichas sinuosa Saltmarsh common yellowthroat	US: – CA: SSC	October–March	Nests primarily in brackish and freshwater marshes in the San Francisco Bay area and disperses, at least formerly, along the California coast as far as Humboldt Bay and San Diego.	Riparian habitats along the Los Angeles River and associated tributaries	Low. Recorded historically in the Los Angeles Basin but may no longer occur as frequently as it once did.	W. D. Shuford and T. G. Gardali, editors, 2008 (California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. *Studies of Western Birds*)
Setophaga petechia Yellow warbler	US: – CA: SSC (nesting)	April–August	Generally occupies riparian vegetation close to streams or wet meadows.	Riparian habitats along the Los Angeles River and associated tributaries	Present. Fairly common breeder along the Los Angeles River.	eBird 10.03.2016 and 12.28.2018

Species	Regulatory Status[1]	Activity Period	Habitat Requirements	Potentially Suitable Habitat in the Wildlife RSA[2]	Potential to Occur and Survey Results	Source
Icteria virens Yellow-breasted chat	US: – CA: SSC (nesting)	April–August	Riparian thickets of willows; brushy tangles near watercourses.	Riparian habitats along the Los Angeles River and associated tributaries	Present. Has been recorded within the Wildlife RSA along the Los Angeles River, but absent most years and not known to nest locally.	eBird 10.03.2016 and 12.28.2018
Ammodramus savannarum *Grasshopper sparrow*	US: – CA: SSC (nesting)	April–August	Grassland	Elysian Park, Rio de Los Angeles State Park, and other small open spaces with grassland/ruderal habitat components	Low. Suitable nesting habitat at Forest Lawn Hollywood Hills in 2002 is apparently no longer present. There is a high degree of disturbance at potentially suitable habitats that make nesting by this species in the Wildlife RSA unlikely.	eBird 10.03.2016 and 12.28.2018
Neotoma lepida intermedia San Diego desert woodrat	US: – CA: SSC	Year-round	Frequents poorly vegetated arid lands and is especially associated with cactus patches.	Annual grassland/ruderal habitats, parks and greenways, and mixed ornamental plantings near Elysian Park	Low. While this species was captured at Griffith Park in 2006, suitable habitat within the Wildlife RSA is restricted to small, isolated areas near Elysian Park.	Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018
Lepus californicus bennettii San Diego black-tailed jackrabbit	US: – CA: SSC	Year-round	Open country of coastal Southern California and northern Baja California.	More open areas (annual grassland/ruderal habitats, parks and greenways)	Low. Occurred within the Wildlife RSA historically, but has been extirpated from most of the Los Angeles Basin.	K. L. Garrett, editor, 1993 (*The Biota of the Los Angeles River,* unpublished report prepared by the Natural History Museum of Los Angeles County, prepared for CDFW)

Species	Regulatory Status[1]	Activity Period	Habitat Requirements	Potentially Suitable Habitat in the Wildlife RSA[2]	Potential to Occur and Survey Results	Source
Macrotus californicus California leaf-nosed bat	US: – CA: SSC	Year-round in Southern California	In California, primarily occupies low-lying desert areas, roosting in caves, mines, and old buildings with warm, stable temperatures. Rarely uses bridges for roosting. Historic records extend west to near Chatsworth, Los Angeles County, but most populations from the California coastal basins are believed to be extirpated.	Structures analogous to caves that have warm, stable temperatures	Low. May have occurred within the Wildlife RSA historically, but no suitable roosting habitat is present in the vicinity of the Wildlife RSA and coastal California populations in general are presumed extirpated.	Miner, K.L., and D.C. Stokes. 2005. *Bats in the South Coast Ecoregion: Status, Conservation Issues, and Research Needs*. USDA Forest Service Gen. Tech. Rep. PSW-GTR-195.
Eumops perotis californicus Western mastiff bat	US: – CA: SSC	Year-round in Southern California, but most active during the warmer months (i.e., April–October)	Occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, and chaparral; roosts in crevices in vertical cliff faces, high buildings, trees, and tunnels.	Bridges, buildings, and other structures throughout the Wildlife RSA	Moderate. Although only marginally suitable roosting habitat is present in the Wildlife RSA, numerous historic roosting areas exist in the Los Angeles Basin. In addition, foraging habitat is present along the Los Angeles River and open space areas such as Griffith Park and Elysian Park, and this species is known to forage over large distances from roost sites.	Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018
Nyctinomops femorosaccus Pocketed free-tailed bat	US: – CA: SSC	Year-round in Southern California, but most active during the warmer months (i.e., April–October)	Varied habitats, but usually associated with high cliffs or rocky areas. Roosts primarily in cliffs/rock crevices; may use buildings for roosting. Rarely roosts in bridges.	Bridges, buildings, and other structures throughout the Wildlife RSA	Moderate. Although roosting is unlikely within the Wildlife RSA, foraging habitat is present along the Los Angeles River and open space areas such as Griffith Park and Elysian Park, and this species is known to forage over large distances from roost sites.	Miner, K.L., and D.C. Stokes. 2005. *Bats in the South Coast Ecoregion: Status, Conservation Issues, and Research Needs*. USDA Forest Service Gen. Tech. Rep. PSW-GTR-195.

Species	Regulatory Status[1]	Activity Period	Habitat Requirements	Potentially Suitable Habitat in the Wildlife RSA[2]	Potential to Occur and Survey Results	Source
Nyctinomops macrotis Big free-tailed bat	US: – CA: SSC	Year-round in Southern California, but most active during the warmer months (i.e., April–October)	Mainly inhabits rugged, rocky habitats in arid regions. Roosts primarily in cliffs/rock crevices, and rarely in buildings, caves, and tree cavities. Not known to use bridges for roosting.	Buildings, culverts, and other structures throughout the Wildlife RSA	Moderate. Although roosting is unlikely within the Wildlife RSA, foraging habitat is present along the Los Angeles River and at open space areas such as Griffith Park and Elysian Park, and this species is known to forage over large distances from roost sites. This species was observed roosting at an apartment building in the City of Los Angeles as recently as 2011.	Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018 Remington, Stephanie. 2017. Personal communication with independent consultant and bat biologist who has performed bat surveys at and around Griffith Park for the Los Angeles Department of Recreation and Parks. May 2017.
Lasiurus blossevillii Western red bat	US: – CA: SSC	Year-round in Southern California, but most active during the warmer months (i.e., April–October)	Forages over a wide range of habitats, but often associated with intact riparian habitat, and particularly with willows, cottonwoods, and sycamores. Typically solitary, roosting in the foliage of trees or shrubs. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas.	Primarily riparian habitats along the Los Angeles River	High. Not known to use bridges for roosting but may roost in large-leaved trees along portions of the Los Angeles River and adjacent residential areas. Foraging and roosting habitat is present along the river, and this species was recorded at the river near Griffith Park as recently as 2008.	Miner, K.L., and D.C. Stokes. 2005. *Bats in the South Coast Ecoregion: Status, Conservation Issues, and Research Needs*. USDA Forest Service Gen. Tech. Rep. PSW-GTR-195. Remington, Stephanie. 2017. Personal communication with independent consultant and bat biologist who has performed bat surveys at and around Griffith Park for the Los Angeles Department of

Species	Regulatory Status[1]	Activity Period	Habitat Requirements	Potentially Suitable Habitat in the Wildlife RSA[2]	Potential to Occur and Survey Results	Source
						Recreation and Parks. May 2017.
Lasiurus xanthinus Western yellow bat	US: – CA: SSC	Year-round in Southern California, but most active during the warmer months (i.e., April–October)	Varied habitats from the southwestern United States to southern Mexico; often associated with palms and desert riparian habitats. In southern California occurs in palm oases and in residential areas with untrimmed palm trees. Roosts primarily in trees, especially the dead fronds of palm trees, though they have also been documented to roost under the leaves of deciduous trees such as cottonwoods.	Primarily along the Los Angeles River and within parks and greenways	Moderate. Not known to use bridges for roosting but may roost in palms along portions of the Los Angeles River and adjacent residential areas. Foraging habitat is present along the river.	Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018
Antrozous pallidus Pallid bat	US: – CA: SSC	Year-round in Southern California, but most active during the warmer months (i.e., April–October)	Varied habitats including grasslands, shrublands, woodlands, deserts, and forest. Primarily day roosts in bridges, hollows or crevices of trees, or buildings. Occasionally roosts in mines, caves, and cliff/rock crevices.	Bridges, buildings, and other structures throughout the Wildlife RSA, particularly those near the Los Angeles River and open space areas such as Elysian Park	Moderate. Known to frequently roost in bridges. Foraging habitat is present along the Los Angeles River and open space areas. Recorded throughout the Los Angeles area.	Burbank to Los Angeles CNDDB Lit search 09.29.2016 and 12.28.2018

[1] US: Federal Classifications
- FE Listed as Endangered
- FT Listed as Threatened
- FD Federally delisted

CA: State Classifications
- SE State-listed as Endangered
- ST State-listed as Threatened
- SD State delisted
- SSC Species of Special Concern

[2] The Wildlife RSA is defined as the project footprint plus 1,000 feet.

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APPENDIX H: DAYTIME BAT HABITAT SUITABILITY ASSESSMENT AND NIGHTTIME SURVEY MEMORANDUM

Memorandum

DATE: January 2, 2019

TO: Jaime Guzman, California High-Speed Rail Authority

FROM: Jill Carpenter, LSA Senior Biologist/Bat Specialist

SUBJECT: Daytime Bat Habitat Suitability Assessment and Nighttime Survey for the California High-Speed Rail Project (Burbank to Los Angeles Project Section), Los Angeles County, California

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1.1 Introduction

This memorandum documents the results of a daytime bat habitat suitability assessment and a follow-up nighttime bat survey conducted for the Burbank to Los Angeles Project Section of the California High-Speed Rail System. The daytime bat habitat suitability assessment and nighttime survey described in this document were performed to ascertain whether any suitable or occupied bat roosting habitat exists within bridge and culvert structures within the Wildlife Resource Study Area (WRSA) for the proposed project, which is defined as the project footprint plus a 1,000-foot buffer (Figure 1; provided in Attachment A). Field surveys were conducted throughout the WRSA in September, October, and November 2016, as well as May 2017. This memorandum has been prepared to support documentation for compliance with the California Environmental Quality Act (CEQA) and includes recommendations to minimize potential impacts to suitable bat roosting habitats from activities associated with the proposed project.

1.2 Regulatory Setting

All bat species (regardless of listing status) and other nongame mammals are protected by California Fish and Game Code Section 4150, which states that all nongame mammals or parts thereof may not be taken or possessed except as provided otherwise in the code or in accordance with regulations adopted by the California Fish and Game Commission. Activities resulting in the mortality of nongame mammals (e.g., destruction of an occupied bat roost, resulting in the death of bats) or disturbance that results in the loss of a maternity colony of bats (including the death of young) may be considered a "take" by the California Department of Fish and Wildlife (CDFW). Furthermore, any structure occupied by a bat maternity colony of any species is considered a native wildlife nursery site that is essential to the viability of local populations. As such, impacts to a maternity colony could be considered potentially significant under CEQA. Bat species with potential to occur within the WRSA and their regulatory statuses are listed and described in Table 1.

Table 1: Bat Species with Potential to Occur Within the Wildlife Resource Study Area and Their Regulatory Statuses

Species Name (Scientific/Common)	Status	Description of Roosting Habitat and Foraging Habitat/Prey Base	Seasonal Presence
Antrozous pallidus Pallid bat	US: – CA: SSC	Roosts in crevices in rocky outcrops and cliffs, caves, mines, hollows or cavities of large trees, as well as anthropogenic structures, such as bridges and buildings. May also roost near the ground in rock piles. Foraging habitat includes grassland, open scrub, open forest, and gravel roads. Diet composition varies among populations, but considered opportunistic generalists. Glean a variety of arthropod prey from surfaces, but also capture insects on the wing. Examples of prey include antlions, beetles, centipedes, cicadas, crickets, grasshoppers, Jerusalem crickets, katydids, moths, and scorpions (Rambaldini 2005).	Nonmigratory; present year-round in Southern California
Eptesicus fuscus Big brown bat	US:— CA: *	Roosts in trees, caves, and crevices in cliff faces and in anthropogenic structures, such as bridges, buildings, and mines. Typically forages for heavy-bodied insects along tree canopies, over meadows, or along watercourses within a few kilometers of roost sites. Primarily beetle (coleopteran) specialists, but diet also includes hemipterans, dipterans, lepidopterans, trichopterans, and hymenopterans (Perkins 2005).	Nonmigratory; present year-round in Southern California
Lasiurus blossevillii Western red bat	US: – CA: SSC	Typically solitary. Roosts in the foliage of broad-leafed trees or shrubs within streams or fields, in orchards, and occasionally in urban areas; commonly roosts in mature cottonwoods and sycamores. Also documented roosting in mature eucalyptus trees. Strongly associated with riparian corridors, but has also been observed foraging around streetlights and floodlights in urban settings. Examples of prey include homopterans, coleopterans, hymenopterans, dipterans, and lepidopterans (Bolster 2005).	Migratory, but documented year-round in Southern California
Lasiurus cinereus Hoary bat	US: – CA: SA	Solitary. Roosts in the foliage of coniferous, deciduous, and evergreen trees and shrubs, often at the edge of a clearing. Typically roosts near the ends of branches approximately 3 to 12 meters above the ground. Generally considered to prefer moths, but also consumes beetles, flies, grasshoppers, termites, dragonflies, and wasps. Migratory wintering sites have not been well documented, and specific migration routes are not known (Bolster 2005).	Migratory; documented September–May in Southern California
Lasiurus xanthinus Western yellow bat	US: – CA: SSC	Roosts hanging from the underside of leaves in trees. Commonly roosts in the dead fronds of native and nonnative palm trees, but has also been documented roosting in cottonwood trees. Foraging areas include natural and nonnatural water features, canyons, riparian areas, orchards, and residential areas. Diet includes Coleoptera, Diptera, Hemiptera, Homoptera, Lepidoptera, and Orthoptera (Williams 2005).	Migratory status not well known, but documented year-round in Southern California

Species Name (Scientific/Common)	Status	Description of Roosting Habitat and Foraging Habitat/Prey Base	Seasonal Presence
Myotis californicus California myotis	US: – CA: –	Roosts in crevices within caves, mines, and rocky hillsides, as well as under tree bark and in buildings. Forages in a variety of habitats. Typically consumes moths and flies, but is known to eat other insects (Bogan et al. 2005c).	Nonmigratory; present year-round in Southern California
Myotis ciliolabrum Small-footed myotis	US: – CA: SA	Roosts in cliff and rock crevices, caves, mines, and buildings. Forages on small insects over desert, scrub, chaparral, and riparian habitats (Bogan et al. 2005a).	Nonmigratory; present year-round in Southern California
Myotis yumanensis Yuma myotis	US: – CA: SA, *	Roosts in crevices within bridges, buildings, culverts, cliff crevices, caves, mines, and trees, typically near a perennial water source. Also documented roosting in swallow nests. Forages primarily on aquatic emergent insects; example prey items include caddis flies, flies, midges, small moths, and small beetles (Bogan et al. 2005b).	Nonmigratory; present year-round in Southern California
Parastrellus hesperus Western canyon bat	US:— CA: –	Roosts in small crevices in rocky canyons, caves, mines, bridges, and outcrops; may roost under rocks or in small burrows. Feeds on small swarming insects such as flying ants, mosquitoes, fruit flies, leafhoppers, and ants (Brown 2005).	Nonmigratory; present year-round in Southern California
Tadarida brasiliensis Mexican free-tailed bat	US:— CA: *	Roosts in caves, rock crevices on cliff faces, and anthropogenic structures such as mines, culverts, tunnels, and bridges. Also documented roosting in swallow nests. Highly colonial. Forages over a variety of habitats, consuming mostly moths, but also flying ants, weevils, stink-bugs, and ground beetles (Bat Conservation International 2005).	Migratory, but documented year-round in Southern California

* = Although individuals belonging to this species do not have special status, these species form large aggregations (maternity colonies). Actions or activities impeding use of these native wildlife nursery sites could be considered significant impacts under the California Environmental Quality Act.
SA = Special Animal. Taxon of concern to the California Natural Diversity Database regardless of its legal or protection status.
SSC = California Species of Special Concern. Refers to taxa identified by California Department of Fish and Wildlife as having vulnerable or seriously declining populations.

1.3 Bat Natural History

Bats are the primary predators of nocturnal, flying insects and are largely adapted to a variety of habitats. Bat populations are generally declining throughout Southern California and globally due to various factors, including loss of natural roosting and foraging habitats, exposure to pesticides and pathogens, and direct extermination (Johnston et al. 2004; Miner and Stokes 2005). Because bats have low reproductive turnover (i.e., most species have only one young per year, and only a few species have twins or multiple births) and high juvenile mortality, it can take many years for a colony or population of bats to recover from impacts[1] that result in mortality or even in a decrease in reproductive ability. As natural roost sites become scarcer due changes in land use from urban development, some bat species (including special-status bat species and maternity colonies of bat species) have been increasingly using humanmade structures (e.g., bridges and buildings) as roost sites (Erickson et al. 2003). The importance and ecological value of anthropogenic structures as roosts have consequently increased to the point that many of these artificial roost sites are becoming

[1] These include actions or activities that result in the destruction of a roost site or impede the use of that roost site either directly (e.g., a physical obstruction) or indirectly (e.g., removal of adjacent foraging habitat that renders that structure less viable in terms of energy expenditure when commuting from roosts to foraging areas

essential to the survival of local bat populations (Johnston et al. 2004; Smith and Stevenson 2013). However, these anthropogenic roosting sites are also highly vulnerable because bats are often driven out of them or killed once they are discovered occupying them. Even bats attempting to roost in landscape plantings can be subject to impacts from tree removal or trimming activities (e.g., the trimming of palm fronds). Therefore, as urban and suburban development occurs across the landscape, many of these areas may act as habitat "sinks,"[1] where bats may at first appear to be relatively common and may even be attracted to humanmade structures, but then decrease in abundance over time as development of that area continues (Miner and Stokes 2005; Remington 2000). Historic records of bats within the Los Angeles Basin (as documented in Los Angeles County Public Health records), along with the results of recent focused bat research efforts, support the idea of habitat sink, with significant declines in the number and diversity of bats reported in the past few decades (Constantine 1998, Pierson and Rainey 1998). The protection of bat roosting , particularly those identified as being maternity or nursery sites of both common and special-status bat species is therefore evaluated during the environmental review process to prevent potentially significant negative effects to or further loss of remaining populations.

Day roosts protect bats from predators and the elements while resting and/or rearing their young during the daytime. A night roost, on the other hand, refers to a structure or structural feature (i.e., natural or human-made) in which bats roost during the evening between foraging bouts (e.g., crevices, cavities, corners, culvert walls, and recessed open spaces that are sheltered from the wind). Examples of day roosts include, but are not limited to, humanmade structures, trees, cliff or rock crevices, caves, and mines. In humanmade structures (e.g., bridges and culverts), day roosts are typically in expansion joints, hinges, or other crevices. Some types of day roosts where bats are particularly vulnerable to disturbance include maternity colonies, where female bats congregate in the spring and summer months to give birth and raise young, and hibernacula (where bats enter a period of hibernation during the winter months). In the absence of crevices, some bat species day roost in clusters on the ceiling of a tunnel or cavity. While some bat species (e.g., Townsend's big-eared bat [*Corynorhinus townsendii*]) commonly roost in this manner, other species that typically roost in crevices will occasionally use this roosting strategy. Bat species that commonly utilize humanmade structures for day and/or night roosting include the Mexican free-tailed bat (*Tadarida brasiliensis mexicana*), big brown bat (*Eptesicus fuscus*), pallid bat (*Antrozous pallidus*), and Yuma myotis (*Myotis yumanensis*). Other species that may use these types of roosts include small-footed myotis (*Myotis ciliolabrum*), California myotis (*Myotis californicus*), western mastiff bat (*Eumops perotis*), western canyon bat (*Parastrellus hesperus*), and Townsend's big-eared bat. Some species of bats, such as the western red bat (*Lasiurus blossevillii*), western yellow bat (*Lasiurus xanthinus*), and hoary bat (*Lasiurus cinereus*), day roost in the foliage of both native and ornamental trees and shrubs. Other bat species, such as pallid bat and big brown bat, day roost in crevices or cavities found in mature trees and snags.

Night roosts are typically situated in or near a foraging area and play an important role in the energetics and social interaction of bats. When a night roost is eliminated, the energetics for bats to successfully utilize the surrounding foraging area may be negatively affected. Day roosts may also double as night roosts, particularly if they are situated in or near a foraging area. Because bats have separate roosting and foraging habitat requirements, it is expected that some bats may utilize one area for foraging and another for roosting. While more extensive and direct impacts (e.g., mortality) to special-status bats or maternity colonies of bats can occur through roost removal, destruction, or disturbance, indirect impacts (e.g., decline of prey base due to loss or modification of foraging habitat) can also be substantial because they can negatively affect reproductive turnover and therefore the viability of the local population. Therefore, when assessing the potential effects of proposed alterations to habitat for a proposed project, a landscape-level approach is required to adequately determine any potential impacts to special-status bats or maternity colonies of bats.

[1] A habitat sink refers to an area where the productivity (births) of a given species is insufficient to offset mortality (deaths).

1.4 Methodology

1.4.1 Daytime Bat Habitat Assessment

During the daylight hours on September 13 and 27, October 4, and November 3 and 15, 2016, LSA Senior Biologist and bat specialist Jill Carpenter and LSA Biologist Bo Gould performed a daytime bat habitat suitability assessment to determine whether day- and/or night-roosting habitat for bats is present in any bridge or culvert structures within the proposed project footprint plus 500 feet. The WRSA for the proposed project was later expanded to include the project footprint plus 1,000 feet, and an additional assessment was performed on May 9 and 12, 2017. Buildings situated within the WRSA may also provide potential bat day- and/or night-roosting habitat; however, no buildings were examined during the surveys due to access constraints. Potential roosting sites within the WRSA and immediate surrounding areas were first identified by reviewing aerial map imagery to locate bridges and drainage (i.e., culvert) structures greater than 3 feet in height or diameter. These structures were then visited on foot, and potential bat roosting sites were identified by examining the sides and underside of each bridge or culvert structure with a light-emitting diode (LED) spotlight for any structural features such as crevices or recessed spaces that may be suitable for use as day- or night-roosting habitat. Structural features suitable for day-roosting bats include crevices (e.g., hinges or expansion joints, weep holes, or cavities), while structural features used by night-roosting bats include features suitable for day roosting as well as recessed areas (e.g., concrete girders that can trap warm air, or the walls of concrete box culverts). The structures were also inspected for the presence of bats or any bat sign (e.g., guano, urine staining, or vocalizations) indicating current or past use of an area by roosting bats.

Each structure containing suitable day- and/or night-roosting habitat was also evaluated for its potential for use by bats based on the quality of the structural feature(s) present and the proximity of the structure to water and/or vegetated areas that may provide foraging habitat. These factors increase the desirability of a given structure as a potential roost site. Locations containing suitable day-roosting habitat were also assessed for potential use as maternity roost sites based on indications that the observed roost feature supports or may support a large congregation of bats. However, it should be noted that the use of structures for roosting by maternity colonies could not be confirmed during this assessment because the majority of the structures were examined after the conclusion of the bat maternity season (April 1–August 31), when maternity colonies may have already disbanded. In addition, absence of guano beneath roost features cannot be construed as evidence that bats do not use the feature, because guano accumulations that might otherwise be present beneath some roost features can be obscured or removed by flowing water such as in a drainage channel, or by human disturbance.

The presence of large trees and palm trees within the WRSA that are suitable for foliage-roosting species (bat species that day roost among the leaves of trees or shrubs) were noted during the assessment, but roosting activity at these locations is difficult to confirm due to the nature of this roosting behavior (i.e., these species tend to roost singly, beneath leaves, and may roost in a different location each night). In addition, mapping the locations of all large trees within the WRSA is labor-intensive and impractical, and extensive tree removal is not expected as part of the proposed project construction. Therefore, none of the trees were closely investigated or mapped during the habitat assessment.

1.4.2 Nighttime Acoustic Survey

A single nighttime emergence and acoustic survey was performed at one location, the North Broadway Viaduct, on November 3, 2016. This survey was performed opportunistically rather than being specifically planned, because the bat habitat assessment had concluded at that location just before dusk and acoustic equipment was on hand. The nighttime survey began 0.5 hour before sunset (which occurred at 17:58 on the evening of the survey) and continued until one hour after sunset. Both observers, along with acoustic ultrasound detectors, were positioned at vantage points that would optimize visibility of any bats exiting or entering the bridge to obtain an estimate of the number of bats present, and to correlate the acoustic data recorded with visual observations. Numbers of bats exiting or entering the culvert were recorded using handheld tally counters. Observers remained in position counting bats until one hour after sunset (19:00).

A combination of Pettersson D240X and Wildlife Acoustics EchoMeter 3+ ultrasound detectors were used in time expansion mode to collect acoustic data during the nighttime survey, and digital media players or secure digital (SD) memory cards were used to record the call files. These data, consisting of full-spectrum sonograms of echolocation calls, were subsequently analyzed using SonoBat 2.9 acoustic analysis software. Species identifications were made by comparing call recordings with a library of "voucher" calls from known hand-released bats.

1.4.2.1 Survey Limitations

Some limitations are inherent in acoustic monitoring and in the analysis of acoustic data; these include (but are not limited to) human bias and past experience in data interpretation, as well as the fact that some species are not equally detectable or may not be recorded at all. Some bats, such as Mexican free-tailed bats, emit loud low-frequency echolocation calls that can be recorded from great distances and will be overrepresented in the data, while "whispering" bats, such as Townsend's big-eared bats, emit faint calls that may not be recorded at all. In addition, not all call sequences are identifiable, since different bat species may use similar types of echolocation calls, or the same species may use different types of echolocation calls based on the perceptual task and the immediate environment or habitat. In addition, not all bats recorded will be those exiting or entering the structure in question. Some are foraging bats en route to or from other structures.

Since the height of many structures within the WRSA makes it difficult to inspect them for bats or sign of bats, the possibility of bats day roosting within those structures cannot be ruled out. Roosting activity at many of the bridges along the Los Angeles River was also difficult to confirm during the daytime assessments due to the presence of flowing water beneath the structures, which washes away any guano that would typically accumulate beneath the crevices to indicate the presence of roosting bats. Some of the structures within the WRSA could not be closely examined in their entirety due to safety and/or access issues, particularly structures within the railroad right-of-way and areas where permission to enter was not granted (e.g. private properties).

Although it is possible to assess the presence of suitable roosting habitat for maternity colonies at any time of the year, the presence of maternity colonies within the WRSA could not be confirmed during this assessment because the majority of structures were visited outside the bat maternity season (April 1–August 31) and after these colonies have disbanded. Consequently, the absence of bats, bat colonies, or bat sign at a given structure during this assessment cannot be construed as evidence that bats do not occupy that structure. Given these limitations, nighttime bat surveys should be performed during the maternity season (preferably in June or July) at structures where suitable roosting habitat was observed and well in advance of construction in order to identify the numbers and species of any bats present. This information will aid in determining appropriate site-specific and species-specific minimization measures.

1.5 Survey Findings and Results

1.5.1 Daytime Habitat Assessment

Most the vegetation within the WRSA comprises ruderal, nonnative species and/or ornamental plantings, which do not typically support diverse insect fauna but do provide some prey base and therefore limited foraging habitat for special-status bat species and maternity colonies of bat species. However, high-quality foraging habitat is present in areas of native riparian habitat consisting of mature western cottonwoods (*Populus fremontii*), willows (*Salix* spp.), and mulefat (*Baccharis salicifolia*) in portions of the Los Angeles River; in areas adjacent to the Los Angeles River (e.g., Verdugo Wash); and in various drainages throughout the WRSA. Native habitat restoration areas consisting of upland and riparian/wetland vegetation are also present adjacent to the Los Angeles River (e.g., Rio De Los Angeles Park and Reyes Greenway). A detailed inventory of wildlife habitats and riparian areas existing within the WRSA can be found in the *Burbank to Los Angeles Project Section: Biological and Aquatic Resources Technical Report* (California High-Speed Rail Authority [Authority] and Federal Railroad Administration [FRA] 2017). Concrete channels conveying and containing water also provide water sources for drinking, as well as insect prey for bats. Any of these native habitat areas or areas containing water, and their associated insect fauna, may provide high-quality foraging habitat for a variety of bat species, including those with special status and/or comprising maternity colonies.

In addition to providing foraging habitat, some of the mature trees within the WRSA may also be used as roosts by foliage-roosting species[1] such as the western red bat (a CDFW Species of Special Concern), which typically roosts in the leaves of broad-leafed trees (e.g., western cottonwoods and sycamores [*Platanus racemosa*]), but may also roost in eucalyptus (*Eucalyptus* spp.) or fruit trees within the WRSA. Hoary bats (a CDFW Special Animal) roost in a variety of native and ornamental trees (e.g., *Pinus* spp.) found throughout the WRSA. Mexican fan palms (*Washingtonia robusta*) observed throughout the WRSA could provide roosting habitat for western yellow bats (a CDFW Species of Special Concern), which primarily utilize palm fronds for roosting but have also been documented to occasionally roost in broad-leafed trees (e.g., cottonwoods). Other special-status bat species have been observed roosting in palm trees within urbanized areas in Southern California in recent years, including western mastiff bat, pallid bat, and hoary bat (C. Myers, personal communication). Mature native and ornamental trees in residential areas and urban parks throughout the WRSA may provide foraging habitat as well as roosting habitat for hoary bats and other bat species, including crevice-roosting bats (e.g., a variety of myotis species [*Myotis* spp.]) that may use crevices behind the peeling bark of mature trees for day roosting.

Many of the overcrossing and undercrossing structures within the WRSA contain crevice or cavity features suitable for day- and/or night-roosting bats, or concrete girders suitable for night-roosting bats; however, the location of some of these structures over active roadways, coupled with the marginal quality of the adjacent foraging habitat, significantly decreases the desirability of those structures to roosting bats. Therefore, some of the structures were given a low probability of use by roosting bats based upon the relatively low quality of the surrounding habitat for foraging and the lack of bats or bat sign (e.g., guano, urine staining, or vocalizations) observed at those structures. Regardless, it is possible that bats may utilize hinges, expansion joints, and other crevices in many of the large bridge structures within the WRSA, particularly at locations where the additional aboveground height of the structures provides greater distance from vehicular traffic below, or at those associated with the Los Angeles River and its tributaries. Swallow nests, which are occasionally used by bats for day roosting, were also noted on various structures but were not mapped due to the ephemeral nature of these mud nests.

Concrete box and concrete pipe culverts present throughout the WRSA also provide day-roosting habitat for bats, and guano and staining indicating use by roosting bats was observed at multiple concrete culvert structures within the WRSA. Most of these culverts are situated within concrete channels (e.g., Burbank Western Channel and Lockheed Channel) that convey water to the Los Angeles River or its tributaries. Structural features commonly used for day roosting within concrete box culverts include expansion joints and recessed areas (e.g., manholes or inlets that can trap warm air). Although many of the culverts within the WRSA lack crevice and cavity habitat that is desirable for day roosting, crevice-dwelling bats will occasionally day roost in clusters along the walls and ceilings of culverts in the absence of crevices. This roosting behavior was observed multiple times during the assessments.

[1] Bat species such as western red bat, western yellow bat, and hoary bat typically roost in the foliage of trees, rather than in crevices or cavities of trees or structures.

Bat roosting was confirmed through the presence of bats and/or bat sign at 20 structures within the WRSA, and the probability of roosting is moderate to high at an additional 26 structures where bats and bat sign were not observed during this assessment (Figure 1). Yuma myotis, a CDFW Special Animal, was observed roosting within multiple structures in the WRSA. Other bat species that may roost in structures within the WRSA include Mexican free-tailed bat, big brown bat, and pallid bat (a CDFW Species of Special Concern). Although Mexican free-tailed bat and big brown bat do not have special status, these species form maternity colonies that are afforded protections as native wildlife nursery sites under CEQA. One type of guano observed during the assessment was consistent in size and deposition with either big brown bat or pallid bat. Bat species that may roost in trees within the WRSA include western yellow bat, western red bat, and hoary bat. Townsend's big-eared bat is not expected to occur within the WRSA due to lack of suitable cavernous roosting habitat for this species. This species is also characteristically intolerant of disturbance and is not likely to occur in an urban setting.

Detailed results of the bat habitat assessment are provided in Tables 2 and 3 (Attachment B), while representative photographs of the areas surveyed are provided in Attachment C.

1.5.2 Nighttime Acoustic Survey

Yuma myotis and Mexican free-tailed bats were observed and detected during the nighttime acoustic and emergence survey at the N Broadway Viaduct. At least one of the Yuma myotis bats observed appeared to emerge from the archways in the bridge structure. Extensive foraging activity over the Los Angeles River by those two species was also observed during the survey.

Although a single evening survey at a given location cannot be construed as providing the whole picture with regard to bat species diversity for that area (Moreno and Halffter 2000), the opportunistic nighttime survey performed on November 3, 2016, does confirm the presence of those species at that location and indicates the presence of over-wintering bats within the WRSA. Additional surveys are needed, especially in the summer months, to gather more information about potential maternity colonies in many of the structures within the WRSA. Maternity colonies or groups of bats likely occupy various bridge and culvert structures along the Los Angeles River, and habitat that could support bat colonies and/or special-status bat species are present throughout the WRSA. It should be noted that in heavily urbanized areas (e.g., the Los Angeles Basin) where wildlife species (e.g., bats) have been subjected to numerous pressures over a period of decades, it is possible that a small group of bats may actually represent the entire reproductive population of a particular species for the local area. The size of a particular group or colony of bats may therefore have little relevance to the viability of the local population for that species. Consequently, the lack of any "large colonies" cannot be construed as a lack of potential for significant impacts to local populations.

1.6 Recommended Impact Avoidance and Minimization Measures

As shown on Figure 1, bat roosting was confirmed through the presence of bats and/or bat sign at 20 structures within the WRSA, and the probability of roosting is moderate to high at an additional 26 structures where bats and bat sign were not observed during this assessment but the presence of suitable roosting habitat exists. Yuma myotis, a CDFW Special Animal, was observed roosting within multiple structures in the WRSA. Other bat species that may roost in structures within the WRSA include Mexican free-tailed bat, big brown bat, and pallid bat; in fact, one type of guano observed during the assessment was consistent in size and deposition with either big brown bat or pallid bat. Although Mexican free-tailed bat and big brown bat do not have special status, these species form maternity colonies that are afforded protections as native wildlife nursery sites under CEQA. Bat species that may roost in trees within the WRSA include western yellow bat, western red bat, and hoary bat. Townsend's big-eared bat is not expected to occur within the WRSA due to lack of suitable cavernous roosting habitat and the high degree of disturbance associated with the urban setting.

To minimize potential impacts to day-roosting special-status bat species and maternity colonies from project construction, LSA recommends the following measures:

- Nighttime exit counts and acoustic surveys shall be performed by a qualified bat biologist at all structures (including buildings, which were not examined as part of this assessment) that may be subject to project-related impacts. These surveys shall be performed well in advance of construction in order to provide adequate time for mitigation planning.
- Within 500 feet of structures where maternity roosting is confirmed, demolition and pile driving activities shall avoid the recognized bat maternity season (April 1–August 31) to prevent potential mortality of flightless young bats.
- Construction activities at structures housing maternity colonies shall be coordinated with a qualified bat biologist and the CDFW.
- If direct impacts to bat roosting habitat are anticipated, humane evictions and exclusions of roosting bats should be performed under the supervision of a qualified bat biologist in the fall (September or October) prior to any work activities that would result in direct impacts or direct mortality to roosting bats. This action will be performed in coordination with the CDFW. To avoid potential mortality of flightless juvenile bats, evictions and exclusions of bats cannot be performed during the maternity season (April 1–August 31). Winter months are also inappropriate for bat eviction because not all individuals in a roost will emerge on any given night. In addition, long-distance movements to other roost sites are more difficult during the winter when prey availability is scarce, resulting in high mortality rates of evicted bats.
- Alternate bat roosting habitat structures should be installed on the structure prior to the eviction/exclusion of bats from that structure. The design, numbers, and locations of these roost structures should be determined in consultation with a qualified bat biologist.[1]
- If permanent, direct impacts to bat roosting habitat are anticipated and a humane eviction/ exclusion is performed, alternate roosting habitat shall be provided to ensure no net loss of bat roosting habitat. This action shall be coordinated with the CDFW and a qualified bat biologist to ensure that the installed habitat will provide adequate mitigation for impacts.

Based on the presence and distribution of bat sign, it is assumed that night roosting occurs at many of the culvert structures throughout the WRSA. The loss of a night roost can negatively affect the use of a foraging area, and consequently may result in reduced fecundity in species that are already slow to reproduce. To minimize potential impacts to night-roosting and foraging bats, LSA recommends the following measure:

- If night work cannot be avoided at structures where night roosting is suspected or confirmed, night lighting shall be focused only on the area of direct work, airspace access to and from the roost features of the structure shall not be obstructed, and light spillover into the adjacent foraging areas shall be minimized to greatest extent feasible.

Foliage-roosting bat species, such as western yellow bats, western red bats, and hoary bats, may roost in trees throughout the WRSA. If mature native or ornamental trees (particularly palm trees) are removed or trimmed for project construction, measures should be implemented to avoid direct mortality to tree-roosting bats. To reduce potential impacts to tree-roosting bats, LSA recommends the following measures:

- To the greatest extent feasible, tree trimming/removal activities shall be performed outside the bat maternity season (April 1–August 31) to avoid direct impacts to nonvolant (flightless) young that may roost in trees within the study area. This period also coincides with the bird nesting season of March 15–September 15.

[1] This type of mitigation is commonly implemented on other transportation projects throughout California at both the state (i.e., California Department of Transportation) and local (e.g., city or county) levels.

- If trimming or removal of trees during the bat maternity season (April 1–August 31) cannot be avoided, a qualified biologist shall monitor tree removal.

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Attachments: A: Figure 1

B: Tables 2 and 3

C: Photographs

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ATTACHMENT A: FIGURE 1

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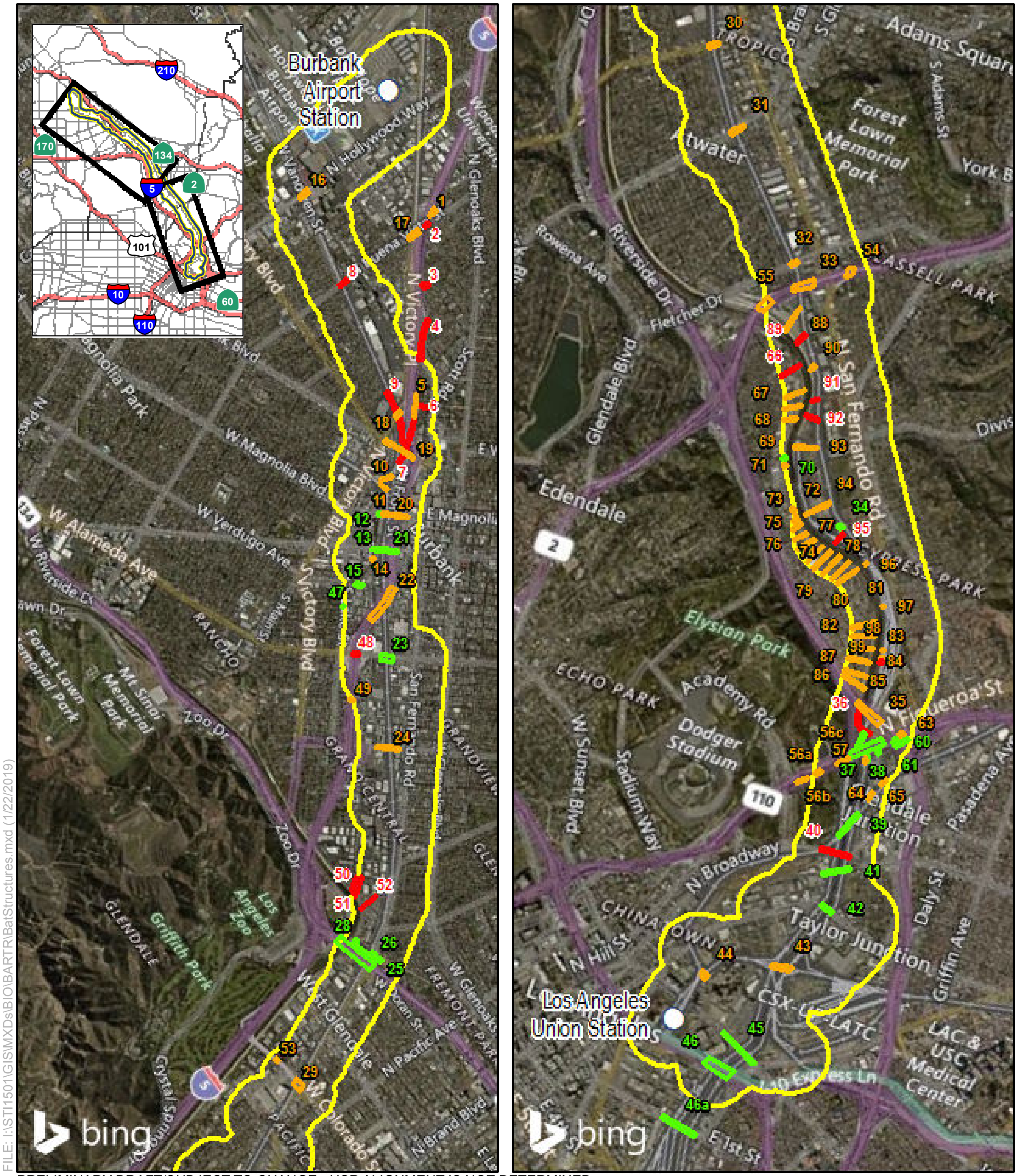

FILE: I:\STI1501\GIS\MXDs\BIO\BART\BatStructures.mxd (1/22/2019)

PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: CHSRA (11/2018); National Geographic/Esri (2016)

N

0 0.5 1 Miles

0 0.75 1.5 Kilometers

Wildlife Resource Study Area (project footprint plus 1000')

HSR Stations

Bat Structures

Structures Where Probability of Roosting Bats is Low

Structures Where Probability of Roosting Bats is Moderate to High

Structures Where Presence of Bats Confirmed*

*All bat roosting sightings were of Yuma myotis (*Myotis yumanensis*) individuals. Both Yuma myotis and Mexican free-tailed bats (*Tadarida brasiliensis*) were observed foraging over the Los Angeles River near the North Broadway Bridge.

Figure 1

Project Location and Structures Examined During the Bat Habitat Assessment

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ATTACHMENT B: TABLES 2 AND 3

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Table 2: Results of Bat Habitat Suitability Assessment (September–November 2016) Within the Wildlife Resource Study Area by Structure

Structure No. on Map Figure	Bridge/Culvert Name	Structure Description	Observations	Type of Roosting Habitat Present	Bats/Bat Sign Present and Type	Probability of Roosting Bats
1	N Buena Vista Street I-5 Off-Ramp and On-Ramp over Burbank Western Channel (Photo 1)	Concrete slab; large concrete single-box culvert.	No crevices or cavities suitable for roosting bats observed.	None	None observed	None
2	N Buena Vista Street/Winona Avenue over Burbank Western Channel (Photo 2)	Concrete slab; large concrete single-box culvert.	Single expansion joint with suitable crevice habitat for bats. Yuma myotis bat observed.	Day roosting, including maternity roosting Night roosting	Yes; Yuma myotis bat and guano/ staining observed.	Presence of bats confirmed
3	Burbank Western Channel Double-Box Culvert near N Lamer Street (Photos 3–6)	Long double-box culvert conveying flow into Burbank Western Channel; approximately 7 ft tall. Very long structure, and only the first 300 ft was examined.	Day-roosting Yuma myotis bats observed. Very large quantities of accumulated guano (two or more species) and staining indicating extensive day and/or night roosting by at least two species. One type of guano observed is consistent with big brown bat or pallid bat.	Day roosting, including maternity roosting. Night roosting	Yes; Yuma myotis bats and guano/ staining belonging to at least two bat species observed.	Presence of bats confirmed
4	N San Fernando Road over Burbank Western Channel Single-Box Culvert (Photos 7–8)	Large concrete single-box culvert beneath San Fernando Road; extends from Morgan Avenue to Grismer Avenue.	Most expansion joints are sealed, but some have gaps suitable for day roosting. Staining and small amounts of guano observed at multiple locations. Day-roosting Yuma myotis observed.	Day roosting, including maternity roosting. Night roosting	Yes; Yuma myotis bat and guano/ staining observed.	Presence of bats confirmed
5	Burbank Western Channel Single-Box Culvert near Leland Way (Photos 9–10)	Under construction. Single-box culvert being constructed by the capping of the Burbank Western Channel.	This is a new culvert currently being constructed by the capping of the Burbank Western Channel. Could provide new day- and night-roosting habitat for bats.	Structure may provide day- and/or night-roosting habitat for bats when construction is complete	N/A	Unknown

Structure No. on Map Figure	Bridge/Culvert Name	Structure Description	Observations	Type of Roosting Habitat Present	Bats/Bat Sign Present and Type	Probability of Roosting Bats
6	Burbank Western Channel Double-Box Culvert near Broadway at Leland Way (within newly capped section of channel) (Photos 11-12)	Double-box culvert conveying flow into Burbank Western Channel. Within newly capped section of channel. Each box approximately 5 ft wide by 10 ft tall. Very long structure, and only the first 300 ft was examined.	Accumulated guano found in patches throughout first 300 ft of the culvert. Staining found at multiple locations, and at least two Yuma myotis bats observed day roosting in the culvert. The whole length of the culvert was not examined.	Day roosting, including maternity roosting. Night roosting	Yes; Yuma myotis bats and guano/ staining observed.	Presence of bats confirmed
7	I- 5 over Burbank Western Channel (Photo 13)	Large single-box culvert beneath I-5, approximately 30 ft wide by 18 ft tall	Small amounts of guano beneath some of the seams. No crevice habitat observed.	Night roosting	Yes; guano	Presence of bats confirmed
7a	Elevated Side Culvert Within I-5 over Burbank Western Channel (Photos 14–16)	Elevated side culvert near the south end of the I-5 culvert; approximately 6 ft wide by 8 ft tall. Very long structure, and only the first 900 ft was examined.	Did not walk the entire length of the culvert. Scattered guano found along the walls throughout the culvert. More concentrated guano and staining found near San Fernando Road. At least two Yuma myotis bats observed day roosting in the culvert.	Day roosting Night roosting	Yes; Yuma myotis bat and guano/ staining observed.	Presence of bats confirmed
8	Lockheed Channel Culvert beneath N Buena Vista Street (Photos 17–18)	Single-box culvert in a section of Lockheed Channel. Approximately 12 ft wide by 6.5 ft tall	Water present along whole length of culvert, obscuring or washing away guano. Crevices suitable for day roosting observed throughout culvert. Vegetation along channel sides provides good quality foraging habitat. Two Yuma myotis observed day roosting in structure. Palm trees suitable for western yellow bats present at eastern end of culvert.	Day roosting, including maternity roosting Night roosting	Yes; Yuma myotis bats observed.	Presence of bats confirmed
9	Lockheed Channel Culvert near Costco (Photos 19–23)	Long single-box culvert in a section of Lockheed Channel. Approximately 12 ft wide by 6.5 ft tall.	Five Yuma myotis bats observed throughout the culvert. Crevices suitable for maternity roosting present.	Day roosting, including maternity roosting. Night roosting	Yes; Yuma myotis bats observed. Large amounts of guano/ staining	Presence of bats confirmed

Structure No. on Map Figure	Bridge/Culvert Name	Structure Description	Observations	Type of Roosting Habitat Present	Bats/Bat Sign Present and Type	Probability of Roosting Bats
10	West Wye SPRR Bridge over Burbank Western Channel (Photos 24–25)	Steel stringer	Day roosting beneath deck less likely due to gaps in railroad ties; however, abutments have recessed areas that could be used for night roosting.	Night roosting	None observed	Low
11	East Wye SPRR Bridge over Burbank Western Channel (Photo 26)	Steel stringer.	Day roosting beneath deck less likely due to gaps in railroad ties; however, abutments have recessed areas that could be used for night roosting.	Night roosting	None observed	Low
12	Magnolia Boulevard Bridge over Burbank Western Channel (Photo 27)	Concrete tee beam bridge.	No crevices suitable for day roosting observed; however, night-roosting habitat present in girders throughout structure.	Night roosting	None observed	Moderate
12a	Pipe culvert next to Magnolia Boulevard Bridge over Burbank Western Channel	Concrete pipe culvert, 6 ft in diameter.	No crevices suitable for day roosting observed; however, night-roosting habitat present.	Night roosting	None observed	Moderate
13	Olive Avenue Bridge over Burbank Western Channel (Photos 28–29)	Concrete tee beam bridge.	Long crevice on south side of bridge near edge suitable as crevice habitat for day roosting. Night roosting habitat present in girders throughout structure.	Day roosting, including maternity roosting. Night roosting	None observed	Moderate
13a	Pipe culvert next to Olive Avenue Bridge over Burbank Western Channel	Concrete pipe culvert, 7 ft in diameter.	No crevices suitable for day roosting observed; however, night-roosting habitat present.	Night roosting	None observed	Moderate
14	Fawkes Drill Railroad Bridge over Burbank/ Lockheed Channel (Photo 30)	Steel stringer	Day roosting beneath deck less likely due to gaps in railroad ties; however, abutments have recessed areas that could be used for night roosting.	Night roosting	None observed	Low

Structure No. on Map Figure	Bridge/Culvert Name	Structure Description	Observations	Type of Roosting Habitat Present	Bats/Bat Sign Present and Type	Probability of Roosting Bats
15	Verdugo Avenue Bridge over Burbank/Lockheed Channel (Photo 31)	Concrete tee beam bridge	Many mud nests (swallow and black phoebe) observed beneath bridge; swallow nests may provide day-roosting habitat for bats. Night-roosting habitat present in girders throughout structure. Palm trees suitable for western yellow bat adjacent to north of structure. Mature walnut tree may also provide day-roosting habitat.	Day roosting Night roosting	None observed	Moderate
16	Hollywood Way Undercrossing (Photo 32)	Concrete bridge with weep holes; carries railroad over Hollywood Way	No crevices observed. Weep holes may be used by day-roosting bats, but proximity to busy roadway and lack of nearby foraging reduce desirability.	Marginal day roosting	None observed	Low
17	Buena Vista Street Undercrossing/ Grade Separation	Under construction; new structure will carry railroad over Buena Vista Street	Bridge structure was being constructed at time of survey. This was previously an at-grade crossing.	None at time of survey, but bridge may provide habitat for bats when construction is complete	N/A	Unknown
18	Victory Place Undercrossing (Photo 33)	Steel girder; carries railroad over Victory Place	No crevices observed. Marginal night-roosting habitat at abutments; however, likelihood of night roosting low due to lack of nearby foraging habitat	Marginal night roosting	None observed	Low
19	Burbank Boulevard Overcrossing (Photo 34)	Steel girder and concrete	Crevices and weep holes in parts of the structure may be used by day-roosting bats, but poor crevice quality, proximity to busy roadway, and lack of nearby foraging reduce desirability.	Marginal day roosting	None observed	Low
20	Magnolia Avenue Overcrossing (Photo 35)	Concrete	Crevices and weep holes in parts of the structure may be used by day-roosting bats, but poor crevice quality, proximity to busy roadway, and lack of nearby foraging reduce desirability	Marginal day roosting	None observed	Low

Structure No. on Map Figure	Bridge/Culvert Name	Structure Description	Observations	Type of Roosting Habitat Present	Bats/Bat Sign Present and Type	Probability of Roosting Bats
21	Olive Avenue Overcrossing (Photos 36–37)	Concrete	Crevices in parts of the structure may be used by day-roosting bats. Although proximity to busy roadway may reduce desirability, crevice quality is high.	Day roosting	None observed	Moderate
22	I-5 Overcrossing (Photos 38–39)	Steel girder; carries I-5 over railroad	Bridge structure was under construction at time of survey. Due to scaffolding and falsework, it was difficult to adequately inspect the structure for bat roosting habitat.	Potentially day and/or night roosting	None observed	Unknown
23	Alameda Avenue Undercrossing (Photos 40–42)	Concrete bridge	Crevices in parts of the structure may be used by day-roosting bats. Although proximity to busy roadway may reduce desirability, crevice quality is high.	Day roosting	None observed	Moderate
24	Western Avenue Overcrossing (Photos 43–44)	Concrete tee beam bridge	No crevice habitat observed; however, small gaps approximately 6 inches wide present at abutments. Night-roosting habitat present in girders throughout structure, but adjacent foraging habitat is of marginal quality.	Marginal day roosting Night roosting	None observed	Low.
25	Fairmont Avenue Overcrossing (Photos 45–46)	Concrete box girder	Spans Verdugo Wash, railroad tracks, and utility yards. Hinges and weep holes may be used by day-roosting bats. Proximity to high-quality foraging habitat in Verdugo Wash increases probability of roosting.	Day roosting Night roosting	None observed	High
26	San Fernando Road over Verdugo Wash (Photos 47–49)	Steel stringer with concrete railings	Spans Verdugo Wash. Potential roosting habitat in abutments. Proximity to high-quality foraging habitat in Verdugo Wash increases probability of roosting.	Day roosting Night roosting	None observed	Moderate
27	Railroad Bridge over Verdugo Wash (Photos 50–52)	Steel stringer	Spans Verdugo Wash. Potential roosting habitat in abutments. Proximity to high-quality foraging habitat in Verdugo Wash increases probability of roosting.	Day roosting Night roosting	None observed	Moderate

Structure No. on Map Figure	Bridge/Culvert Name	Structure Description	Observations	Type of Roosting Habitat Present	Bats/Bat Sign Present and Type	Probability of Roosting Bats
28	SR 134 Overcrossing (Photos 53–54)	Steel girder and concrete box girder.	Spans Verdugo Wash, railroad, and utility yards. Potential roosting habitat in hinges and weep holes. Proximity to high-quality foraging habitat in Verdugo Wash increases probability of roosting.	Day roosting Night roosting	None observed	High
29	Colorado Street Undercrossing (Photos 55–56)	Steel girder.	No crevices observed. Weep holes in immediately adjacent concrete box girder structures may be used by day-roosting bats, but proximity to busy roadway and lack of nearby foraging reduce desirability	Marginal day roosting	None observed	Low
30	Los Feliz Boulevard Undercrossing (Photos 57–58)	Steel girder.	Crevices observed in concrete pier walls but poor quality. Proximity to busy roadway and lack of nearby foraging reduce desirability	Marginal day roosting	None observed	Low
31	Glendale Boulevard Undercrossing (Photos 59–60)	Steel girder.	Crevices observed in concrete abutment walls but poor quality. Proximity to busy roadway and lack of nearby foraging reduce desirability	Marginal day roosting	None observed	Low
32	Fletcher Drive Undercrossing (Photos 61–62)	Steel girder.	Crevices observed in steel to concrete interfaces but poor quality. Proximity to busy roadway and lack of nearby foraging reduce desirability	Marginal day roosting	None observed	Low
33	SR 2 Overcrossing (Photos 63–64)	Steel girder with concrete pier walls.	Crevices observed in steel to concrete interfaces but difficult to examine due to height of bridge. Palm trees suitable for western yellow bat present near bridge.	Day roosting	None observed	Low
34	Metrolink CMF Access Road Undercrossing (Photos 65–67)	Concrete	Crevices suitable for day roosting present. Adjacent foraging habitat increases likelihood of roosting.	Day roosting Night roosting	None observed	Moderate

Structure No. on Map Figure	Bridge/Culvert Name	Structure Description	Observations	Type of Roosting Habitat Present	Bats/Bat Sign Present and Type	Probability of Roosting Bats
35	I-5 Overcrossing (Photos 68–69)	Steel girder; carries I-5 over railroad and Los Angeles River	Bridge structure was under construction at time of survey. Due to scaffolding and falsework, it was difficult to adequately inspect the structure for bat roosting habitat. Spans and is adjacent to foraging habitat in Los Angeles River.	Potentially day and/or night roosting	None observed	Unknown
36	Figueroa Street Overcrossing (Photos 70–72)	Concrete bridge currently under construction. Carries Figueroa Street over railroad, Los Angeles River, and railroad again.	Western portion of old bridge has bat habitat installed as mitigation; guano observed below this habitat. New bridge section over Los Angeles River and eastern railroad tracks has crevices.	Day roosting, including maternity roosting Night roosting	Guano observed beneath bat habitat mitigation structures	Presence of bats confirmed at old bridge section; moderate at new bridge section
37	Downey Bridge (Railroad bridge near Arroyo Seco) (Photos 73–74)	Steel girder.	Concrete bridge piers contain cavities accessible via holes and crevices.	Day roosting	None observed	Moderate
38	SR 110 Overcrossing (Photos 75–77)	Concrete and steel arch girders, with crevices in the concrete deck.	Crevices suitable for day-roosting bats present in the concrete deck. Difficult to examine the structure closely for bats or bat sign due to aboveground height of structure.	Day roosting Night roosting	None observed	Moderate
39	Metro Gold Line Overcrossing (Photos 78–80)	Concrete bridge with crevices at abutments. Spans Los Angeles River.	Park (Reyes Greenway) with foraging habitat immediately adjacent to east abutment, increasing the desirability of the structure for roosting.	Marginal day roosting	None observed	Moderate
40	N Broadway Viaduct (Photos 81–85)	Historic-looking concrete bridge with archways and decorative trim. Spans Los Angeles River, railroad, and city streets.	Suitable day- and/or night-roosting habitat present throughout arches and girders of structure. Nighttime survey performed here on November 3, 2016.	Day roosting Night roosting	Yes; Yuma myotis and Mexican free-tailed bats observed foraging. Yuma myotis observed emerging from structure	Presence of bats confirmed during nighttime survey

Structure No. on Map Figure	Bridge/Culvert Name	Structure Description	Observations	Type of Roosting Habitat Present	Bats/Bat Sign Present and Type	Probability of Roosting Bats
41	N Spring Street Bridge (Photos 86–88)	Historic-looking concrete bridge with archways and decorative trim. Spans Los Angeles River and railroad.	Under construction at time of survey. Suitable day- and/or night-roosting habitat present throughout arches and girders of structure.	Day roosting Night roosting	None observed	High
42	Main Street Bridge over the Los Angeles River (Photos 89–91)	Concrete arch bridge with girders.	Suitable day- and/or night-roosting habitat present throughout arches and girders of structure. Bats may day roost in swallow nests. No crevices visible in main structure, but difficult to access abutments to examine for crevices due to occupied encampments. May be subject to indirect impacts from construction of proposed new adjacent Main Street Bridge structure.	Day roosting (swallow mud nests; possibly also at abutments) Night roosting	None observed	Moderate
43	Mission Tower Bridge over the Los Angeles River	Steel girder.	Spans Los Angeles River. Day roosting beneath deck less likely due to gaps in railroad ties; however, abutments have recessed areas that could be used for night roosting.	Night roosting	None observed	Low
44	Vignes Street Undercrossing	Concrete.	Small crevices present, but proximity to busy roadway and lack of nearby foraging reduce desirability	Marginal day roosting	None observed	Low
45	Cesar Chavez Avenue Undercrossing (Photos 93–94)	Historic-looking concrete bridge with archways and decorative trim. Spans Los Angeles River and railroad.	Suitable day and/or night-roosting habitat present throughout arches and girders of structure. Suitable crevices observed throughout structure.	Day roosting Night roosting	None observed	High
46	US 101 Bridges (Photos 95–98)	Historic-looking concrete bridge with archways and decorative trim. Spans Los Angeles River and railroad.	Suitable day and/or night-roosting habitat present throughout arches and girders of structure. Suitable crevices observed throughout structure. Bats may also day roost in swallow nests.	Day roosting Night roosting	None observed	High

Structure No. on Map Figure	Bridge/Culvert Name	Structure Description	Observations	Type of Roosting Habitat Present	Bats/Bat Sign Present and Type	Probability of Roosting Bats
46a	1st Street Bridge (Photos 147–148)	Historic-looking concrete bridge with archways and decorative trim. Spans Los Angeles River, railroad, and city streets.	Suitable day and/or night-roosting habitat present throughout arches and girders of structure. Suitable crevices observed throughout structure. Bats may also day roost in swallow nests.	Day roosting Night roosting	None observed	High

CMF = Central Maintenance Facility
ft = foot/feet
I = Interstate
Metro = Los Angeles County Metropolitan Transportation Authority
N/A = not applicable
SPRR = Southern Pacific Railroad
SR = State Route

Table 3: Results of Bat Habitat Suitability Assessment (May 2017) Within the Wildlife Resource Study Area by Structure

Structure No. on Map Figure	Bridge/Culvert Name	Structure Description	Observations	Type of Roosting Habitat Present	Bats/Bat Sign Present and Type	Probability of Roosting Bats
47	Providencia Avenue Bridge over Burbank Channel (Photos 99–100)	Concrete tee beam bridge.	No crevices observed. Cavities suitable for day roosting present at abutments. Night-roosting habitat present throughout girders.	Day roosting Night roosting	None observed	Moderate
48	I-5 over Alameda Avenue (Photos 101–102)	Concrete cast-in-place deck with steel beams.	Northbound and southbound bridge structures under construction at time of survey, presumably for widening. Suitable vertical roost crevices observed at abutment walls. Although proximity to busy roadway may reduce desirability, crevice quality is high.	Day roosting	Yes; guano observed at abutment wall crevices	Presence of bats confirmed
49	I-5 over Allen Avenue (Photo 103)	Concrete tee beam bridge.	Suitable vertical roost crevices observed at abutment walls. Suitable longitudinal joint crevice for day roosting present. Night-roosting habitat present throughout girders.	Day roosting Night roosting	None observed	Moderate

Structure No. on Map Figure	Bridge/Culvert Name	Structure Description	Observations	Type of Roosting Habitat Present	Bats/Bat Sign Present and Type	Probability of Roosting Bats
50	Culvert west of large culvert on north side of Los Angeles River near Flower Street at Fairmont Avenue (Photo 104)	Concrete pipe culvert, 9 ft in diameter. Very long structure, and only the first 150 ft was examined.	Only first 150 ft examined. Joint crevices sealed, but suitable for night roosting. Guano observed at multiple locations. Dozens of cliff swallow nests at entrance.	Day roosting Night roosting	Yes; fresh guano observed at multiple locations at joints	Presence of bats confirmed
51	Large culvert on north side of Los Angeles River near Flower Street at Fairmont Avenue (Photos 105–106)	Large concrete single-box culvert, approximately 20 ft wide by 18 ft tall. Very long structure; only the first 250 ft was examined.	Only first 250 ft examined. Suitable vertical roost crevices observed near culvert entrance. Staining indicating night roosting present along culvert walls.	Day roosting Night roosting	Yes; guano observed at multiple locations	Presence of bats confirmed
52	Culvert east of large culvert on north side of Los Angeles River near Flower Street at Fairmont Avenue (Photos 107–108)	Concrete pipe culvert, 8 ft in diameter. Very long structure, and only the first 400 ft was examined.	Only first 400 ft examined. Joint crevices sealed, but suitable for night roosting. Dense concentrations of guano observed at multiple locations beginning approximately 150 ft from entrance. Structure transitions to single-box culvert (8 ft wide by 6 ft tall) approximately 400 ft from entrance, where temperature noticeably increases.	Day roosting Night roosting	Yes; fresh guano observed at multiple locations at joints	Presence of bats confirmed
53	I-5 Colorado Street Freeway Extension over Edenhurst Avenue (Photo 109)	Concrete bridge.	No crevices other than a longitudinal joint that opens to interior, which could provide day- or night-roosting habitat.	Marginal day roosting Marginal night roosting	None observed	Low
54	SR 2 over Delay Drive Overhead (Photo 110)	Concrete slab, concrete cast-in-place.	Two longitudinal crevices present. These crevices are mostly sealed, but some gaps with suitable roosting habitat observed.	Day roosting Marginal night roosting	None observed	Low

Structure No. on Map Figure	Bridge/Culvert Name	Structure Description	Observations	Type of Roosting Habitat Present	Bats/Bat Sign Present and Type	Probability of Roosting Bats
55	SR 2 over Fletcher Drive SR-2 On-Ramp (Photos 111–112)	Concrete deck with steel beams.	Only north side of structure (from north abutment to Los Angeles River) is within WRSA and was examined. Crevice habitat present in longitudinal joint and in bridge deck. Large homeless encampment present and running gas generators at time of survey. Mixed ornamental and native vegetation and Los Angeles River vegetation could provide foraging habitat, but bats more likely to roost in less disturbed areas of the structure situated over the river.	Day roosting	None observed	Low (in portion of structure within WRSA)
56	Figueroa Street Tunnels (Photos 113–115)	Series of four concrete arched tunnels (three of which are in the WRSA).	Four concrete tunnels carrying Arroyo Seco Parkway/I-110 beneath Elysian Park. Unsafe to enter tunnels due to narrow curbs and heavy, fast-moving traffic. One of the tunnels was examined from north side at wide sidewalk, and no crevices were observed in that tunnel; however, the presence or absence of crevices in the remaining tunnels is unknown.	Unknown	Unknown	Unknown
57	SPRR Bridge over Arroyo Seco at Los Angeles River (Photo 116)	Steel girder bridge.	Steel girders with concrete abutments/channel walls. Marginal night-roosting habitat in steel beams. Water beneath entire bridge at time of survey potentially obscuring presence of bat sign.	Marginal night roosting	None observed; however, water may have washed away bat sign	Low

Structure No. on Map Figure	Bridge/Culvert Name	Structure Description	Observations	Type of Roosting Habitat Present	Bats/Bat Sign Present and Type	Probability of Roosting Bats
58	Avenue 19 over Arroyo Seco (Photos 117–118)	Concrete box bridge.	Next to SPRR bridge. Suitable roosting habitat in vertical crevices in channel walls below bridge. Closure pour may provide night-roosting habitat. Water beneath entire bridge at time of survey potentially obscuring presence of bat sign.	Day roosting Night roosting	None observed; however, water may have washed away bat sign	Moderate
59	San Fernando Road over Arroyo Seco (Photo 119)	Concrete arch bridge.	No crevices in bridge structure itself; however, suitable roosting habitat in vertical crevices in channel walls below and adjacent to bridge.	Day roosting	None observed	Moderate
60	Southbound I-5 to Northbound SR 110 over Arroyo Seco (Photo 120)	Concrete deck with steel beams.	Structure under construction at time of survey, and falsework obscured much of the bridge underside. Joints in concrete deck at piers may have suitable crevice habitat.	Day roosting	None observed	Moderate
61	I-5 over Arroyo Seco (Photos 121–122)	Concrete box bridge.	Structure under construction at time of survey, and falsework obscured much of the bridge underside. Wide longitudinal joint present south of the channel.	Day roosting Night roosting	None observed	Moderate
62	Southbound SR 110 to Northbound I-5 over Arroyo Seco (Photos 123–124)	Concrete deck with steel beams transitioning to concrete box bridge.	Structure under construction at time of survey, and falsework obscured much of the bridge underside. Joints in concrete deck at piers may have suitable crevice habitat. Recessed area at transition from one bridge type to the other may provide day- and/or night-roosting habitat.	Day roosting Night roosting	None observed	Moderate
63	SR 110 Figueroa Street Off-Ramp Undercrossing (Photo 125)	Concrete slab.	No crevices in bridge structure, but suitable vertical crevices present on walls at edges of structure. Heavy vehicular traffic.	Day roosting	None observed	Low
64	Railroad over San Fernando Road (Photo 126)	Pony plate girder bridge.	No crevices visible. All steel except for concrete abutments.	None	None observed	Low

Structure No. on Map Figure	Bridge/Culvert Name	Structure Description	Observations	Type of Roosting Habitat Present	Bats/Bat Sign Present and Type	Probability of Roosting Bats
65	Railroad over Avenue 19 (Photo 127)	Pony plate girder bridge.	No crevices visible. All steel except for concrete abutments.	None	None observed	Low
66	Los Angeles River Culvert; West Bank near Allesandro Street (Photo 128)	Concrete pipe culvert, approximately 7 ft in diameter, with concrete box at outlet/entrance transitioning to pipe.	Concrete box at outlet; bird mud nests at transition. Accumulated silt at entrance. Standing water in sections of culvert. Small amounts of scattered guano present throughout culvert.	Day roosting Night roosting	Yes; scattered guano	Presence of bats confirmed
67	Los Angeles River Culvert; West Bank near Denby Avenue (Photo 129)	Concrete pipe culvert, approximately 4 ft in diameter, with steel door.	Structure not entered due to presence of heavy steel door obstructing the entrance/outlet. Bat use of this structure is not expected due to this door.	N/A	N/A	None
68	Los Angeles River Culvert; West Bank near Knox Avenue	Concrete pipe culvert, approximately 4 ft in diameter, with steel door	Structure not entered due to presence of heavy steel door obstructing entrance/ outlet. Bat use of this structure is not expected due to this door.	N/A	N/A	None
69	Los Angeles River Culvert; West Bank near Newell Street	Concrete pipe culvert, approximately 4 ft in diameter, with steel door	Structure not entered due to presence of heavy steel door obstructing entrance/outlet. Bat use of this structure is not expected due to this door.	N/A	N/A	None
70	Los Angeles River Culvert; West Bank near Queen Street (Photo 130)	Concrete single-box culvert, approximately 10.5 ft wide by 3 ft tall	Only first 100 ft of structure examined. No crevices observed. Some water present.	Night roosting	None observed.	Moderate
71	Los Angeles River Culvert; West Bank near Pirtle Street	Concrete pipe culvert, approximately 3 ft in diameter, with steel door	Structure not entered due to presence of heavy steel door obstructing entrance/outlet. Bat use of this structure is not expected due to this door.	N/A	N/A	None
72	Los Angeles River Quadruple Culvert; West Bank near Forney Street (Photo 131)	Quadruple concrete pipe culvert, each approximately 3 ft in diameter, with steel doors	Structures not entered due to presence of heavy steel doors obstructing entrances/ outlets. Bat use of these structures is not expected due to these doors.	N/A	N/A	None

Structure No. on Map Figure	Bridge/Culvert Name	Structure Description	Observations	Type of Roosting Habitat Present	Bats/Bat Sign Present and Type	Probability of Roosting Bats
73	Los Angeles River Culvert; West Bank near Eads Street	Concrete pipe culvert, approximately 3–4 ft in diameter, with steel door	Structure not entered due to presence of heavy steel door obstructing entrance/outlet. Bat use of this structure is not expected due to this door.	N/A	N/A	None
74	Los Angeles River Culvert; West Bank near Dallas Street	Concrete pipe culvert, approximately 3–4 ft in diameter, with steel door	Structure not entered due to presence of heavy steel door obstructing entrance/outlet. Bat use of this structure is not expected due to this door.	N/A	N/A	None
75	Los Angeles River Culvert; West Bank near Cabot Street	Concrete pipe culvert, approximately 3 ft in diameter, with steel door	Structure not entered due to presence of heavy steel door obstructing entrance/outlet. Bat use of this structure is not expected due to this door.	N/A	N/A	None
76	Los Angeles River Culvert; West Bank near Birkdale Street	Concrete pipe culvert, approximately 3 ft in diameter, with steel door	Structure not entered due to presence of heavy steel door obstructing entrance/outlet. Bat use of this structure is not expected due to this door.	N/A	N/A	None
77	Los Angeles River Culvert; West Bank near Altman Street	Concrete pipe culvert, approximately 3 ft in diameter, with steel door	Structure not entered due to presence of heavy steel door obstructing entrance/outlet. Bat use of this structure is not expected due to this door.	N/A	N/A	None
78	Los Angeles River Culvert; West Bank near south of Altman Street	Concrete pipe culvert, approximately 4 ft in diameter, with steel door	Structure not entered due to presence of heavy steel door obstructing entrance/outlet. Bat use of this structure is not expected due to this door.	N/A	N/A	None
79	Los Angeles River Culvert; West Bank near Doris Place	Concrete pipe culvert, approximately 4 ft in diameter, with steel door	Structure not entered due to presence of heavy steel door obstructing entrance/outlet. Bat use of this structure is not expected due to this door.	N/A	N/A	None
80	Los Angeles River Culvert; West Bank near Glover Place	Concrete-lined corrugated metal culvert, approximately 4 ft in diameter	Approximately 25 ft long with storm drain at back; this short length renders structure a bit open and drafty. Mud bird nests in storm drain area.	Marginal night roosting	None observed.	Low

Structure No. on Map Figure	Bridge/Culvert Name	Structure Description	Observations	Type of Roosting Habitat Present	Bats/Bat Sign Present and Type	Probability of Roosting Bats
81	Los Angeles River Culvert; West Bank near Riverdale Avenue	Concrete pipe culvert, approximately 4 ft in diameter, with steel door	Structure not entered due to presence of heavy steel door obstructing entrance/outlet. Bat use of this structure is not expected due to this door.	N/A	N/A	None
82	Los Angeles River Culvert; West Bank near Fernleaf Street	Concrete pipe culvert, approximately 4 ft in diameter, with steel door	Structure not entered due to presence of heavy steel door obstructing entrance/outlet. Bat use of this structure is not expected due to this door.	N/A	N/A	None
83	Los Angeles River Culvert; West Bank near Elmgrove Street	Concrete pipe culvert, approximately 4 ft in diameter, with steel door	Structure not entered due to presence of heavy steel door obstructing entrance/outlet. Bat use of this structure is not expected due to this door.	N/A	N/A	None
84	Los Angeles River Culvert; West Bank near Duvall Street	Concrete pipe culvert, approximately 4 ft in diameter, with steel door	Structure not entered due to presence of heavy steel door obstructing entrance/outlet. Bat use of this structure is not expected due to this door.	N/A	N/A	None
85	Los Angeles River Culvert; West Bank near Oros Street	Concrete pipe culvert, approximately 4 ft in diameter, with steel door	Structure not entered due to presence of heavy steel door obstructing entrance/outlet. Bat use of this structure is not expected due to this door.	N/A	N/A	None
86	Los Angeles River Culvert; West Bank near Barclay Street	Concrete pipe culvert, approximately 4 ft in diameter, with steel door	Structure not entered due to presence of heavy steel door obstructing entrance/outlet. Bat use of this structure is not expected due to this door.	N/A	N/A	None
87	Los Angeles River Culvert; West Bank near N Arnold Street	Concrete pipe culvert, approximately 6 ft in diameter, with steel door	Structure not entered due to presence of heavy steel door obstructing entrance/outlet. Bat use of this structure is not expected due to this door.	N/A	N/A	None

Structure No. on Map Figure	Bridge/Culvert Name	Structure Description	Observations	Type of Roosting Habitat Present	Bats/Bat Sign Present and Type	Probability of Roosting Bats
88	Los Angeles River Culvert; East Bank Southwest of Interpretive Signs for Bowtie Parcel (Photo 132)	Concrete pipe culvert approximately 5 ft in diameter, with wire gate	Not entered due to presence of wire gate, which likely precludes bat entry, although it is possible bats could still access the structure.	N/A	N/A	Low
89	Los Angeles River Culvert; East Bank near Interpretive Signs for Bowtie Parcel (Photos 133–136)	Concrete box culvert, approximately 10 ft wide by 12 ft tall	Very long structure; only first 500 ft examined. Water present at time of survey. Throughout structure, height varied from 12 ft to approximately 16 ft and back to 12 ft. Crevices present in spalls where concrete walls meet a metal ceiling throughout culvert. At least three bats observed day roosting.	Day roosting Night roosting	Yes; at least three *Myotis* sp. (likely Yuma myotis) individuals observed. Scattered guano observed.	Presence of bats confirmed.
90	Los Angeles River Culvert; East Bank near Allesandro Street	Concrete pipe culvert, approximately 3 ft in diameter, with steel door	Structure not entered due to presence of heavy steel door obstructing entrance/outlet. Bat use of this structure is not expected due to this door.	N/A	N/A	None
91	Los Angeles River Culvert; East Bank near Knox Avenue (Photo 137)	Concrete pipe culvert approximately 12 ft in diameter	Concrete beam along top of culvert. Water present at time of survey. Guano present at box culvert transition at outlet/entrance, and scattered throughout culvert.	Day roosting Night roosting	Yes; scattered guano on walls, ground, and ceiling	Presence of bats confirmed.
92	Los Angeles River Culvert; East Bank near Newell Street (Photos 138–140)	Concrete single-box culvert, approximately 10 ft wide by 10 ft tall	Very long structure; only first 600 ft examined. A few hundred feet in, structure became an arched culvert, then transitioned back to a single box measuring approximately 12 ft wide by 8 ft tall. Crevices present in spalls where concrete walls meet a metal ceiling throughout culvert. Recessed areas in concrete with large guano concentrations below. Patches of guano observed throughout culvert.	Day roosting Night roosting	Yes; a *Myotis* sp. (likely Yuma myotis) individual observed; patches of guano belonging to at least two species observed	Presence of bats confirmed.

Structure No. on Map Figure	Bridge/Culvert Name	Structure Description	Observations	Type of Roosting Habitat Present	Bats/Bat Sign Present and Type	Probability of Roosting Bats
93	Los Angeles River Culvert; East Bank near Queen Street	Concrete pipe culvert, approximately 3 ft in diameter, with steel door	Structure not entered due to presence of heavy steel door obstructing entrance/outlet. Bat use of this structure is not expected due to this door.	N/A	N/A	None
94	Los Angeles River Culvert; East Bank near Eads Street	Concrete pipe culvert, approximately 3 ft in diameter, with steel door	Structure not entered due to presence of heavy steel door obstructing entrance/outlet. Bat use of this structure is not expected due to this door.	N/A	N/A	None
95	Los Angeles River Culvert; East Bank near Altman Street (Photos 141–142)	Concrete pipe culvert, approximately 6 ft in diameter	First 200 ft of structure examined. Evidence of former human occupation (trash, evidence of fires). Sediment and areas of water present. No crevices observed. Patches of guano and scattered guano observed.	Day roosting Night roosting	Yes; scattered guano on ground and ceiling	Presence of bats confirmed.
96	Los Angeles River Culvert; East Bank near Riverdale Avenue (Photo 143)	Corrugated metal culvert, approximately 4 ft in diameter	Water and sediment present, potentially obscuring presence of bat sign. Evidence of human disturbance (i.e., trash).	Night roosting	None observed	Low.
97	Los Angeles River Culvert; East Bank near Gatewood Street	Concrete pipe culvert, approximately 3 ft in diameter, with steel door	Structure not entered due to presence of heavy steel door obstructing entrance/outlet. Bat use of structure not expected due to this door.	N/A	N/A	None
98	Los Angeles River Culvert; East Bank near Duvall Street (Photo 144)	Concrete pipe culvert, approximately 5–6 ft in diameter, with wire gate	Structure not entered due to presence of heavy wire gate obstructing entrance/outlet. Bat use of structure not expected due to wire gate.	N/A	N/A	None
99	Los Angeles River Culvert; East Bank near south of Duvall Street	Concrete pipe culvert, approximately 3 ft in diameter, with steel door	Structure not entered due to presence of heavy steel door obstructing entrance/outlet. Bat use of structure not expected due to this door.	N/A	N/A	None

Structure No. on Map Figure	Bridge/Culvert Name	Structure Description	Observations	Type of Roosting Habitat Present	Bats/Bat Sign Present and Type	Probability of Roosting Bats
100	Los Angeles River Culvert; East Bank near Oros Street (Photos 145–146)	Concrete pipe/ arch culvert, approximately 5 ft in diameter	First 400 ft examined. Structure transitions to 4 ft diameter concrete pipe culvert. Some water present, with soot on ceiling near entrance. Patches of guano observed.	Day roosting Night roosting	Yes; patches of guano observed	Presence of bats confirmed

ft = foot/feet
I = Interstate
N/A = not applicable
SPRR = Southern Pacific Railroad
SR = State Route
WRSA = Wildlife Resource Study Area

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ATTACHMENT C: PHOTOGRAPHS

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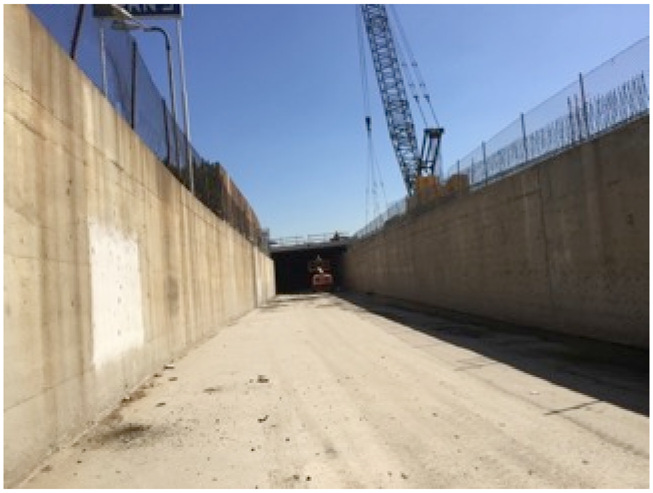
1) I-5 N Buena Vista Street off-ramp and on-ramp over Burbank Western Channel—View looking north at the structure

2) N Buena Vista Street/Winona Avenue over Burbank Western Channel—View of crevice containing day-roosting habitat where Yuma myotis bat was observed

3) Double-box culvert in Burbank Western Channel near Lamer Street—View of exterior, looking northeast

4) Double-box culvert in Burbank Western Channel near Lamer Street—Yuma myotis bat observed day roosting

5) Double-box culvert in Burbank Western Channel near Lamer Street—Example of guano accumulations belonging to big brown bat and/or pallid bat observed 	**6)** Double-box culvert in Burbank Western Channel near Lamer Street—Examples of extensive staining observed throughout the structure 
7) N San Fernando Road over Burbank Western Channel—Looking south at the upstream entrance 	**8)** N San Fernando Road over Burbank Western Channel—Day-roosting Yuma myotis inside the culvert 

9) New culvert created by the capping of the Burbank Western Channel near Leland Way—North side 	**10)** New culvert created by the capping of the Burbank Western Channel near Leland—Newly created crevices that could provide day-roosting habitat for bats 
11) Double-box culvert within the new culvert—Example of guano and staining indicating extensive night roosting along walls 	**12)** Double-box culvert within the new culvert—Yuma myotis observed day roosting on culvert ceiling 

13) I-5 culvert over Burbank Western Channel—Interior of culvert looking south 	**14)** Elevated side culvert within I-5 culvert over Burbank Western Channel—Looking north, with the yellow arrow indicating the entrance to the culvert 
15) Elevated side culvert within I-5 culvert over Burbank Western Channel—Example of guano accumulations observed throughout the structure 	**16)** Elevated side culvert within I-5 culvert over Burbank Western Channel—Yuma myotis bat observed day roosting within the structure 

17) Lockheed Channel culvert beneath N Buena Vista Street—Looking east at upstream entrance

18) Lockheed Channel culvert beneath N Buena Vista Street—Bat observed roosting within a crevice

19) Lockheed Channel culvert near Costco—Looking east toward upstream entrance

20) Lockheed Channel culvert near Costco—Yuma myotis bat observed day roosting on the ceiling of the structure

21) Lockheed Channel culvert near Costco—Yuma myotis bat observed day roosting along the walls of the structure

22) Lockheed Channel culvert near Costco—Representative example of crevice habitat suitable for day roosting and maternity roosting, and Yuma myotis bat observed day roosting in crevice.

23) Lockheed Channel culvert near Costco—View looking west at downstream entrance, adjacent concrete pipe culvert, and surrounding foraging habitat for bats

24) West Wye Southern Pacific Railroad Bridge over Burbank Western Channel—View looking toward eastern abutment

25) West Wye Southern Pacific Railroad Bridge over Burbank Western Channel—Underside of bridge with gaps between railroad ties

26) East Wye Southern Pacific Railroad Bridge over Burbank Western Channel—View looking toward eastern abutment

27) Magnolia Boulevard Bridge over Burbank Western Channel—Night-roosting habitat along underside of bridge

28) Olive Avenue Bridge over Burbank Western Channel—Looking north at bridge

29) Olive Avenue Bridge over Burbank Western Channel—Underside of bridge with night-roosting habitat and crevices suitable for day roosting

30) Fawkes Drill Southern Pacific Railroad Bridge over Burbank Western Channel—Underside of bridge and east abutment

31) Verdugo Avenue Bridge over Burbank Western Channel—Night-roosting habitat along underside of bridge

32) Hollywood Way Undercrossing—Underside of bridge structures

33) Victory Place Undercrossing—Eastern abutment of structure

34) Burbank Boulevard Overcrossing—Underside of structure with potential day-roosting habitat

35) Magnolia Overcrossing—Underside of structure with potential day-roosting habitat

36) Olive Avenue Overcrossing—Underside of structure with potential day-roosting habitat

37) Olive Avenue Overcrossing—Underside of the structure with potential day-roosting habitat

38) I-5 Overcrossing—Underside of the southern section of the structure looking to the north

39) I-5 Overcrossing—Underside of the northern section of the structure looking to the southeast

40) Alameda Avenue Undercrossing—Looking east at the structure

41) Alameda Avenue Undercrossing—Example of some crevices containing suitable day-roosting habitat for bats beneath the structure

42) Alameda Avenue Undercrossing—Example of some other crevices containing suitable day-roosting habitat for bats beneath the structure

43) Western Avenue Overcrossing—Night-roosting habitat along the underside of the structure

44) Western Avenue Overcrossing—View of wide crevices in the eastern abutment

45) Fairmont Avenue Overcrossing—View looking east at the section of the structure spanning Verdugo Wash and the associated high-quality foraging habitat 	**46)** Fairmont Avenue Overcrossing—View looking west at the structure spanning railroad, utility yards, and Verdugo Wash 
47) San Fernando Road over Verdugo Wash—View looking east at the bridge structure 	**48)** San Fernando Road over Verdugo Wash—Underside of the bridge structure 

49) San Fernando Road over Verdugo Wash—View of small cavities at the bridge structure abutments that could provide day- or night-roosting habitat

50) Railroad Bridge over Verdugo Wash—View looking west at the bridge structure and the adjacent high-quality foraging habitat

51) Railroad Bridge over Verdugo Wash—View of the underside of the bridge structure and the northern abutment

52) Railroad Bridge over Verdugo Wash—View of the underside of the bridge structure and the small crevices between the steel trusses

53) SR 134 over Verdugo Wash, Railroad, and Utility Yards—View of the underside of the bridge structure and weep holes and hinges containing bat day-roosting habitat

54) SR 134 over the Los Angeles River—View of the bridge sections spanning the Los Angeles River and high-quality foraging habitat

55) Colorado Street Undercrossing—View of the bridge structures carrying San Fernando Road and the railroad across Colorado Street

56) Colorado Street Undercrossing—View of the undersides of the bridge structures

57) Los Feliz Undercrossing—View of the bridge structure carrying the railroad over Los Feliz

58) Los Feliz Undercrossing—View of the underside of the bridge structure

59) Glendale Boulevard Undercrossing—View of the bridge structure carrying the railroad over Glendale Boulevard

60) Glendale Boulevard Undercrossing—View of the underside of the bridge structure

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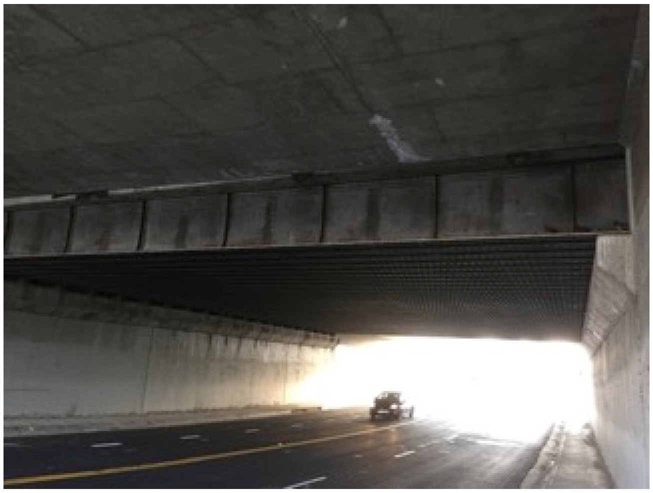
<tr>
<td>61) Fletcher Drive Undercrossing—View of the underside of the bridge structure carrying the railroad over Fletcher Drive
</td>
<td>62) Fletcher Drive Undercrossing—View of the underside of the bridge structure carrying the railroad over Fletcher Drive
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<td>63) SR 2 Overcrossing—View of the underside of the bridge structure carrying SR 2 over the railroad and its surroundings
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<td>64) SR 2 Overcrossing—Closer view of a typical section of the underside of the bridge structure carrying SR 2 over the railroad
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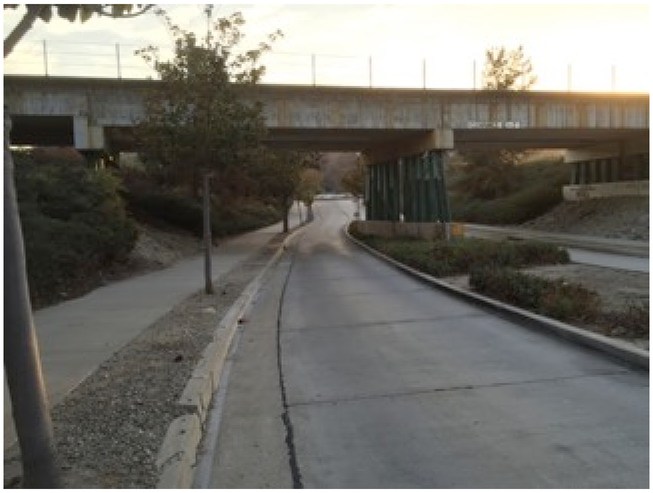
65) Metrolink Central Maintenance Facility Access Road Undercrossing—View of the bridge structure carrying the railroad over the Metrolink Central Maintenance Facility access road and its surroundings



66) Metrolink Central Maintenance Facility Access Road Undercrossing—View of the underside of the bridge structure carrying the railroad over the Metrolink Central Maintenance Facility access road

67) Metrolink Central Maintenance Facility Access Road Undercrossing—Closer view of one of the crevices in the bridge structure carrying the railroad over the Metrolink Central Maintenance Facility access road

68) I-5 Overcrossing at Los Angeles River—View of the bridge structures carrying I-5 over the railroad and the Los Angeles River

69) I-5 Overcrossing at Los Angeles River—View of the typical underside of the bridge structures carrying I-5 over the railroad and the Los Angeles River

70) Figueroa Street Overcrossing– View looking north at the bridge structure carrying Figueroa Street over the railroad and the Los Angeles River

71) Figueroa Street Overcrossing– View looking west at the bridge structure carrying Figueroa Street over the railroad and the Los Angeles River, with a section of the older bridge visible in the background

72) Figueroa Street Overcrossing– View of crevice habitat near one of the pier walls of the newly constructed section of this bridge structure

73) Downey Bridge—View of the bridge structure carrying the railroad over the Los Angeles River near Arroyo Seco

74) Downey Bridge—View of the underside of the bridge structure

75) SR 110 Bridges—View of the bridge structures carrying SR 110 over the railroad and the Los Angeles River

76) SR 110 Bridges—Typical view of the underside of the bridge structures with concrete and steel girders

77) SR 110 Bridges—View of one of the areas with crevice habitat on the underside of the SR 110 bridge structures

78) Metro Gold Line Overcrossing—View of the bridge structure carrying the railroad over the Los Angeles River

79) Metro Gold Line Overcrossing—Another view of the bridge structure carrying the Metro Gold Line over the Los Angeles River

80) Metro Gold Line Overcrossing—View of one of the areas containing crevice habitat near the abutments of the bridge structure

81) N Broadway Viaduct—View of the portion of the bridge structure that spans the Los Angeles River

82) N Broadway Viaduct—Closer view of the underside of the bridge section that spans the Los Angeles River, with an area spanning the railroad visible in the background

83) N Broadway Viaduct—View looking west from Baker Street at the bridge section that spans the railroad near the Metro yard

84) N Broadway Viaduct—View looking northeast at the bridge section that spans the railroad near the Metro yard, with the section spanning the Los Angeles River visible in the background

85) N Broadway Viaduct—Closer view of the underside of the bridge section that spans the railroad near the Metro yard

86) N Spring Street Overcrossing—View looking south at the bridge section that spans the Los Angeles River, with the eastern section of the railroad visible on the left

87) N Spring Street Overcrossing—View looking north at construction activity occurring at the bridge section that spans the Los Angeles River

88) N Spring Street Overcrossing—View of the night-roosting habitat at the western abutment area near Aurora Street; this area is being used as a construction storage yard

89) Main Street Bridge over the Los Angeles River—View looking northwest at the bridge structure

90) Main Street Bridge over the Los Angeles River—Typical view of the underside of the bridge structure

91) Main Street Bridge over the Los Angeles River—View of the concrete box culvert on the southeast side of the bridge structure

92) Mission Junction Railroad Bridge—View looking south down the channel toward the bridge structure carrying the railroad over the Los Angeles River

93) Cesar Chavez Avenue Overcrossing—View looking east at the portion of the bridge structure that spans the western railroad tracks and the Los Angeles River

94) Cesar Chavez Avenue Overcrossing—Closer view of crevice habitat similar to that observed throughout the bridge structure

95) US 101 Bridges—View of the bridge structures that carry US 101 over the railroad and the Los Angeles River, showing one of the sealed hinges

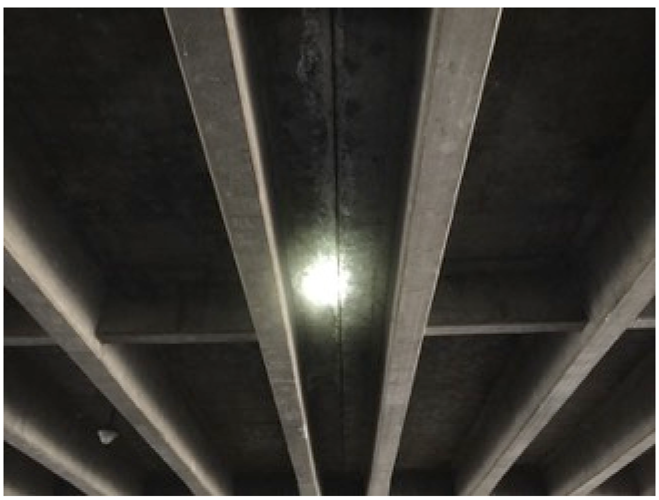
96) US 101 Bridges—View of one of the areas with suitable crevice habitat for bats in the western section of the US 101 bridges

97) US 101 Bridges—View of the underside of the portion of the US 101 bridge structures over the Los Angeles River

98) US 101 Bridges—View of the underside of the portion of the US 101 bridge structures over the Los Angeles River

99) Providencia Avenue Bridge over the Burbank Channel—View

100) Providencia Avenue Bridge over the Burbank Channel—View

101) I-5 over Alameda Avenue—View of the bridge underside, with steel girders and vertical crevices in the concrete abutment walls 	**102)** I-5 over Alameda Avenue—View of the vertical crevice in the concrete abutment wall where bat guano was found beneath the crevice 
103) I-5 over Allen Avenue—View of the longitudinal joint crevice with suitable day-roosting habitat and potential night-roosting habitat in girders 	**104)** Los Angeles River Concrete Pipe Culvert West of Flower Street at Fairmont Avenue—View looking northwest into culvert entrance 

105) Los Angeles River Concrete Box Culvert West of Flower Street at Fairmont Avenue—View looking northwest into the culvert entrance

106) Los Angeles River Concrete Box Culvert West of Flower Street at Fairmont Avenue—View of extensive guano and staining along the culvert walls

107) Los Angeles River concrete box culvert east of Flower Street at Fairmont Avenue—View looking northwest into the culvert entrance

108) Los Angeles River Concrete Box Culvert East of Flower Street at Fairmont Avenue—View of one of the concentrated guano accumulations inside the structure

109) I-5 Colorado Street Freeway Extension over Edenhurst Avenue—View of the bridge underside with longitudinal joint opening 	**110)** SR 2 over Delay Drive Overhead—View of the bridge underside and one of the longitudinal joints containing some day-roosting crevice habitat 
111) SR 2 over Fletcher Drive SR 2 On-Ramp—View of crevice habitat for day roosting in the bridge deck 	**112)** SR 2 over Fletcher Drive SR 2 On-Ramp—View of longitudinal joint with crevice habitat for day-roosting bats 

113) Figueroa Street Tunnels—View looking northeast at the easternmost of the four tunnels comprising this group of tunnels

114) Figueroa Street Tunnels—View looking southwest into one of the tunnels, where a seam is visible but no crevices were observed

115) Figueroa Street Tunnels—View looking southwest through one of the tunnels

116) Southern Pacific Railroad Bridge over Arroyo Seco—View looking northeast at the underside of the bridge structure

117) Avenue 19 over Arroyo Seco—View of the underside of the bridge structure and the closure pour that may provide night-roosting habitat

118) Avenue 19 over Arroyo Seco—View of the crevices in the concrete pier walls that are suitable for use as day-roosting habitat

119) San Fernando Road over Arroyo Seco—View of the underside of the bridge structure where no crevice habitat was observed

120) Southbound I-5 to Northbound SR 110 over Arroyo Seco—View of the undersides of the bridge structures, which were under construction at the time of the survey

121) I-5 over Arroyo Seco—View looking south at the underside of the bridge structure, with a longitudinal joint visible in the background

122) I-5 over Arroyo Seco—Representative view of crevices suitable for use by day-roosting bats present along the bridge deck

123) Southbound SR 110 to Northbound I-5 over Arroyo Seco—View looking northeast at the underside of the bridge structure

124) Southbound SR 110 to Northbound I-5 over Arroyo Seco—Closer view of the underside of the bridge structure, where suitable crevices for day-roosting are present

125) SR 110 Figueroa Street Off-Ramp Undercrossing—View looking south into the structure

126) Railroad over San Fernando Road—View of the underside of the bridge structure

127) Railroad over San Fernando Road—View of the underside of the bridge structure near one of the abutments

128) Los Angeles River Culvert; West Bank near Allesandro Street—View of the culvert entrance and accumulated sediment

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<tr>
<td>129) Los Angeles River Culverts (Various)—Representative view of concrete pipe culverts covered by steel doors present throughout the Los Angeles River
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<td>130) Los Angeles River West Bank near Queen Street—View looking west at the entrance to the culvert, which may be used by smaller bat species for roosting
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<td>131) Los Angeles River Quadruple Pipe Culvert—View looking southeast at a representative view of the high-quality foraging habitat in the vicinity
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<td>132) Los Angeles River Culvert; East Bank Southwest of Bowtie Parcel Interpretive Signs—View of the wire gate partially obstructing the entrance to the culvert
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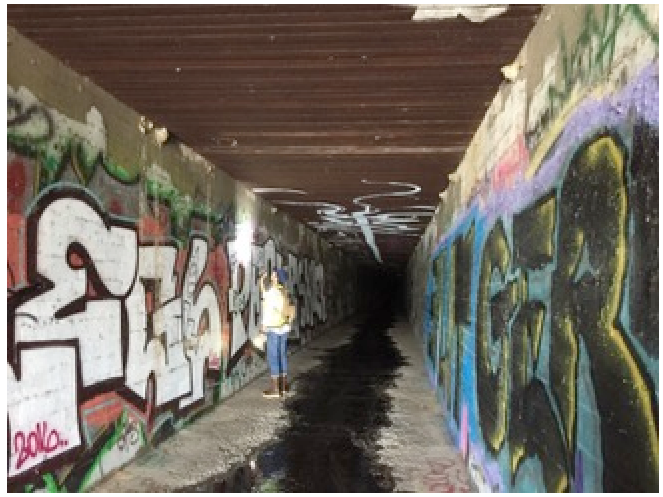
133) Los Angeles River Culvert; East Bank near Bowtie Parcel Interpretive Signs—View of the culvert entrance 	**134)** Los Angeles River Culvert; East Bank near Bowtie Parcel Interpretive Signs—View of the culvert interior 
135) Los Angeles River Culvert; East Bank near Bowtie Parcel Interpretive Signs—View of timber beams in the interior 	**136)** Los Angeles River Culvert; East Bank near Bowtie Parcel Interpretive Signs—View of a day-roosting bat 

137) Los Angeles River Culvert; East Bank near Knox Avenue—View of the culvert interior 	**138)** Los Angeles River Culvert; East Bank near Newell Street—View of the culvert interior 
139) Los Angeles River Culvert; East Bank near Newell Street—View of a bat day-roosting in a crevice on the culvert ceiling 	**140)** Los Angeles River Culvert; East Bank near Newell Street—View of guano beneath a cavity suitable for day- and/or night-roosting habitat 

141) Los Angeles River Culvert; East bank near Altman Street—View of the culvert entrance and adjacent foraging habitat 	**142)** Los Angeles River Culvert; East Bank near Altman Street—Representative view of the guano patches observed throughout the culvert 
143) Los Angeles River Culvert; East Bank near Riverdale Avenue—View of the culvert entrance 	**144)** Los Angeles River Culvert; East Bank near Duvall Street—View of the culvert entrance with a wire metal gate 

145) Los Angeles River Culvert; East Bank near Oros Street—View of the culvert interior

146) Los Angeles River Culvert; East Bank near Oros Street—Representative view of the guano found throughout the culvert

147) 1st Street Bridge over the Los Angeles River—View looking northwest from within channel

148) 1st Street Bridge over the Los Angeles River—View of the underside of the bridge structure

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