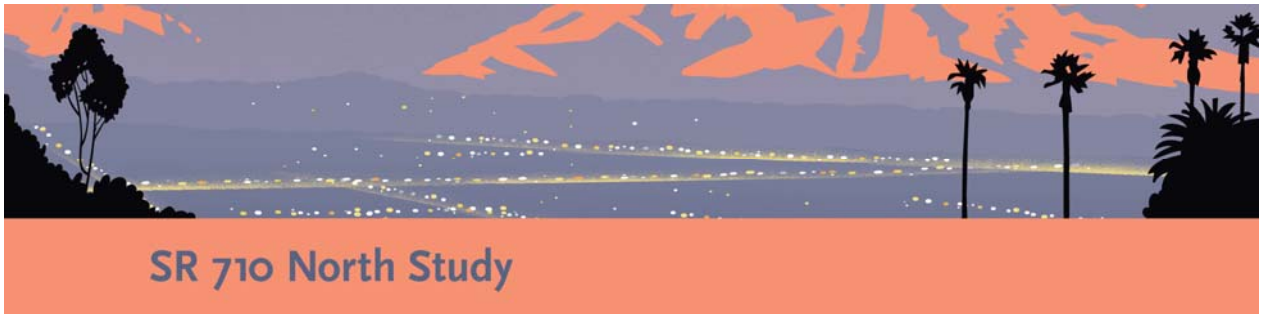


Cumulative Impacts Assessment

Prepared for

Caltrans
CALIFORNIA DEPARTMENT OF TRANSPORTATION

Metro
Los Angeles County
Metropolitan Transportation Authority

January 2015

This page intentionally left blank

CUMULATIVE IMPACTS ASSESSMENT

FOR

STATE ROUTE 710 NORTH STUDY

LOS ANGELES COUNTY, CALIFORNIA

CALIFORNIA DEPARTMENT OF TRANSPORTATION DISTRICT 7

E.A. 187900

EFIS 0700000191

07-LA-710 (SR 710)

For individuals with sensory disabilities, this document is available in alternative formats. Please call or write to Department of Transportation, Attn: Garrett Damrath, Environmental Planning, 100 South Main Street, Los Angeles, California 90012, or use the California Relay Service TTY number, 711, or 1-800-735-2922.

January 2015

This page intentionally left blank

Summary

The California Department of Transportation (Caltrans), in cooperation with the Los Angeles County Metropolitan Transportation Authority (Metro), proposes the State Route 710 North Study (SR 710 North Study) to improve mobility and relieve congestion in the areas between State Route 2 (SR 2) and Interstates 5, 10, 210, and 605 (I-5, I-10, I-210, and I-605, respectively) in east/northeast Los Angeles and San Gabriel Valley. The SR 710 North Study has five alternatives: (1) the No Build Alternative; (2) the Transportation System Management/Transportation Demand Management (TSM/TDM) Alternative; (3) the Bus Rapid Transit (BRT) Alternative; (4) the Light Rail Transit (LRT) Alternative; and (5) the Freeway Tunnel Alternative. Some of the improvements described in the TSM/TDM Alternative are also part of the BRT, LRT, and Freeway Tunnel Alternatives.

Cumulative impacts (both direct and indirect) were identified by considering the impacts of the SR 710 North Study and other current or proposed actions in the area to establish whether, in the aggregate, they could result in cumulative environmental impacts. The cumulative impacts analysis included a review of adopted plans and related projects that may, in concert with the proposed project, have a cumulative adverse effect on sensitive resources in the study area and in Los Angeles County. The reasonably foreseeable actions used in the cumulative impacts analysis were based on information provided by the cities within the SR 710 North Study area and the County of Los Angeles, which identified approved and pending developments proposed in the vicinity of the study area. These files were cross-checked against files maintained by Caltrans and the State of California Office of Planning and Research. Information on future transportation projects was provided by Caltrans, the Southern California Association of Governments (SCAG), Metro, the California High Speed Rail Authority, the Federal Railroad Administration, and the Alameda Corridor-East Construction Authority.

The SR 710 North Study Build Alternatives (Build Alternatives), when combined with other cumulative projects, could contribute to cumulative adverse impacts related to:

- Noise (temporary only), and
- Animal Species (nesting birds protected under the Migratory Bird Treaty Act).

The Build Alternatives would not contribute to cumulative adverse impacts related to:

- Agricultural Resources,
- Air Quality,
- Community Character and Cohesion,
- Community Facilities,
- Consistency with State, Regional, and/or Local Plans,
- Cultural Resources,
- Emergency Services,
- Energy,
- Environmental Justice,

- Geologic Hazards,
- Hazardous Waste,
- Hydrology/Floodplain,
- Invasive Species,
- Land Use,
- Natural Communities,
- Noise (permanent),
- Paleontological Resources,
- Parks and Recreation,
- Pedestrian/Bicycle Facilities,
- Plant Species,
- Relocations,
- Threatened and Endangered Species,
- Traffic/Transportation,
- Utilities,
- Visual,
- Water Quality, and
- Wetlands and Other Waters.

Contents

Section **Page**

Summary ..... **v**

Contents ..... **vii**

Acronyms and Abbreviations ..... **xi**

1. Project Description **1-1**
- 1.1 Introduction 1-1
- 1.2 Purpose and Need 1-1
  - 1.2.1 Purpose of the Project 1-1
  - 1.2.2 Need for the Project 1-1
- 1.3 Alternatives 1-5
  - 1.3.1 No Build Alternative 1-5
  - 1.3.2 Transportation System Management/Transportation Demand Management (TSM/TDM) Alternative 1-6
  - 1.3.3 Bus Rapid Transit (BRT) Alternative 1-14
  - 1.3.4 Light Rail Transit Alternative 1-18
  - 1.3.5 Freeway Tunnel Alternative 1-21

2. Regulatory Environment **2-1**

3. Methods **3-1**

4. Results **4-1**
- 4.1 Resources Excluded from Cumulative Impact Analysis 4-1
- 4.2 Resources Evaluated for Cumulative Impacts 4-1
  - 4.2.1 Land Use 4-1
  - 4.2.2 Growth 4-17
  - 4.2.3 Community Impact 4-20
  - 4.2.4 Utilities/Emergency Services 4-47
  - 4.2.5 Traffic and Transportation/Pedestrian and Bicycle Facilities 4-58
  - 4.2.6 Visual/Aesthetics 4-60
  - 4.2.7 Cultural Resources 4-74
  - 4.2.8 Hydrology and Floodplains 4-76
  - 4.2.9 Water Quality and Storm Water Runoff 4-82
  - 4.2.10 Geology/Soils/Seismic/Topography 4-98
  - 4.2.11 Paleontological Resources 4-100
  - 4.2.12 Hazardous Waste 4-107
  - 4.2.13 Air Quality 4-117
  - 4.2.14 Noise and Vibration 4-127
  - 4.2.15 Energy 4-134
  - 4.2.16 Natural Communities 4-136
  - 4.2.17 Wetlands and Other Waters 4-147
  - 4.2.18 Plant Species 4-152
  - 4.2.19 Animal Species 4-159
  - 4.2.20 Threatened and Endangered Species 4-168

4.2.21 Invasive Species 4-173

5. List of Preparers 5-1

6. References 6-1

6.1 Technical Studies Prepared for the State Route 710 North Study 6-1

6.2 Other References 6-2

Tables

Table 1.1: TSM/TDM Alternative Elements 1-11
Table 1.2: Local Street and Intersection Improvements of the TSM/TDM Alternative 1-12
Table 1.3: Transit Refinements of the TSM/TDM Alternative 1-13
Table 1.4: Active Transportation and Bus Enhancements of the TSM/TDM Alternative 1-14
Table 3.1: Summary Table 3-3
Table 4.1: Use of General Plan Designated Land Uses by the TSM/TDM Alternative 4-2
Table 4.2: Use of General Plan Designated Land Uses by the BRT Alternative 4-2
Table 4.3: Use of General Plan Designated Land Uses by the LRT Alternative 4-2
Table 4.4: Use of General Plan Designated Land Uses by the Freeway Tunnel Alternative Single-Bore Design Variation 4-3
Table 4.5: Use of General Plan Designated Land Uses by the Freeway Tunnel Alternative Dual-Bore Design Variation 4-3
Table 4.6: Reasonably Foreseeable Actions – Land Use 4-11
Table 4.7: Reasonably Foreseeable Actions – Growth 4-21
Table 4.8: Reasonably Foreseeable Actions – Community Impacts 4-41
Table 4.9: Reasonably Foreseeable Actions – Utilities/Emergency Services 4-53
Table 4.10: Reasonably Foreseeable Actions – Traffic and Transportation/Pedestrian/Bicycle Facilities 4-61
Table 4.11: Reasonably Foreseeable Actions – Visual Resources and Aesthetics 4-71
Table 4.12: Reasonably Foreseeable Actions – Cultural Resources 4-77
Table 4.13: Reasonably Foreseeable Actions – Hydrology and Floodplains 4-83
Table 4.14: Reasonably Foreseeable Actions – Water Quality and Storm Water Runoff 4-90
Table 4.15: Reasonably Foreseeable Actions – Geology/Soils/Seismic/Topography 4-101
Table 4.16: Reasonably Foreseeable Actions – Paleontological Resources 4-108
Table 4.17: Reasonably Foreseeable Actions – Hazardous Waste 4-113
Table 4.18: Reasonably Foreseeable Actions – Air Quality 4-121
Table 4.19: Reasonably Foreseeable Actions – Noise and Vibration 4-130
Table 4.20: Reasonably Foreseeable Actions – Energy 4-137
Table 4.21: Reasonably Foreseeable Actions – Natural Communities 4-145
Table 4.22: Reasonably Foreseeable Actions – Wetlands and Other Waters 4-150
Table 4.23: Reasonably Foreseeable Actions – Plant Species 4-155
Table 4.24: Reasonably Foreseeable Actions – Animal Species 4-163
Table 4.25: Reasonably Foreseeable Actions – Threatened and Endangered Species 4-171
Table 4.26: Reasonably Foreseeable Actions – Invasive Species 4-175

Figures

Figure 1-1: Project Location 1-3
Figure 1-2: No Build Alternative 1-7
Figure 1-3: TSM/TDM Alternative 1-9
Figure 1-4: BRT Alternative 1-15
Figure 1-5: LRT Alternative 1-19
Figure 1-6: Freeway Tunnel Alternative Single and Dual Bore 1-23
Figure 1-7: Freeway Tunnel Alternative Single Bore Cross Section 1-27
Figure 3-1: Cumulative Projects 3-13

This page intentionally left blank

Acronyms and Abbreviations

ac	acre/acres
ADA	Americans with Disabilities Act
ADL	aerially deposited lead
APE	Area of Potential Effect
ASR	Archaeological Survey Report
ATM	Active Traffic Management
Basin	South Coast Air Basin
BMPs	best management practices
BRT	Bus Rapid Transit
BSA	biological study area
Btu	British thermal unit
Cal State LA	California State University, Los Angeles
Cal-IPC	California Invasive Plant Council
Caltrans	California Department of Transportation
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFCs	chlorofluorocarbons
CFR	Code of Federal Regulations
CGP	Construction General Permit
CMS	changeable message signs
CNDDB	California Natural Diversity Database
CO	carbon monoxide
Corps	United States Army Corps of Engineers
COZEEP	Construction Zone Enhanced Enforcement Program
dB	decibel/decibels
dBA	A-weighted decibels
diesel PM	Diesel particulate matter plus diesel exhaust organic gases
ELAC	East Los Angeles College
EPA	United States Environmental Protection Agency
ESA	Environmentally Sensitive Area
FHWA	Federal Highway Administration
ft	foot/feet
FTA	Federal Transit Administration
FTIP	Federal Transportation Improvement Program
FY	Fiscal Year

GSRD	gross solid removal device
HA	Hydrological Area
HAS	Hydrologic Subarea
HOT	High-Occupancy Toll
HPSR	Historic Property Survey Report
HRER	Historical Resources Evaluation Report
HU	Hydrologic Unit
HUC	Hydrologic Unit Code
I-10	Interstate 10
I-105	Interstate 105
I-110	Interstate 110
I-210	Interstate 210
I-405	Interstate 405
I-5	Interstate 5
I-605	Interstate 605
I-710	Interstate 710
IEN	Information Exchange Network
ISA	Initial Site Assessment
ITS	Intelligent Transportation Systems
LADWP	Los Angeles Department of Water and Power
LARWQCB	Los Angeles Regional Water Quality Control Board
L_{max}	maximum instantaneous noise level
LOS	level of service
LRT	Light Rail Transit
LRTP	Long Range Transportation Plan
Ma	million years ago
MBTA	Migratory Bird Treaty Act
Metro	Los Angeles County Metropolitan Transportation Authority
mi	mile/miles
mph	miles per hour
MSA	Metropolitan Statistical Area
MSAT	Mobile Source Air Toxics
MSE	mechanically stabilized earth
MTBE	methyl tertiary-butyl ether
NAC	Noise Abatement Criteria
NADR	*Noise Abatement Decision Report*
National Register	National Register of Historic Places
NEPA	National Environmental Policy Act

NES	Natural Environment Study
NOA	naturally occurring asbestos
NPDES	National Pollutant Discharge Elimination System
NSR	Noise Study Report
O&M	operations and maintenance
O_3	ozone
PCBs	polychlorinated biphenyls
PIR/PER	Paleontological Identification and Evaluation Report
PM_{10}	particulate matter less than 10 microns in size
$PM_{2.5}$	particulate matter less than 2.5 microns in size
PMP	Paleontological Mitigation Plan
project	SR 710 North Study Project
Protocol	Caltrans Transportation Project-Level Carbon Monoxide Protocol
PS&E	Plans, Specifications, and Estimates
RCB	reinforced concrete box
RCC	reinforced concrete channel
RCP	Regional Comprehensive Plan
ROW	right of way
RSA	Resource Study Area
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCS	Sustainable Communities Strategy
SER	Standard Environmental Reference
SFER	Summary Floodplain Encroachment Report
SIP	State Implementation Plan
SO_2	sulfur dioxide
sq mi	square mile/miles
SR 110	State Route 110
SR 118	State Route 118
SR 134	State Route 134
SR 170	State Route 170
SR 19	State Route 19
SR 2	State Route 2
SR 22	State Route 22

SR 57	State Route 57
SR 60	State Route 60
SR 710	State Route 710
SR 91	State Route 91
SSP	Standard Special Provisions
SWPPP	Storm Water Pollution Prevention Plan
TAP	Transit Access Pass
TCE	temporary construction easement
TCWG	Transportation Conformity Working Group
TDM	Transportation Demand Management
TDS	total dissolved solids
TMP	Transportation Management Plan
TSM	Transportation System Management
TSSP	Traffic Signal Synchronization Program
Uniform Act	Uniform Relocation Assistance and Real Property Acquisition Policies Act
US-101	United States Route 101
VHT	vehicle hours traveled
VIA	Visual Impact Assessment
VMT	vehicle miles traveled
VOCs	volatile organic compounds
WDRs	Waste Discharge Requirements
YMCA	Young Men's Christian Association

1. Project Description

1.1 Introduction

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

1.2 Purpose and Need

1.2.1 Purpose of the Project

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

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

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

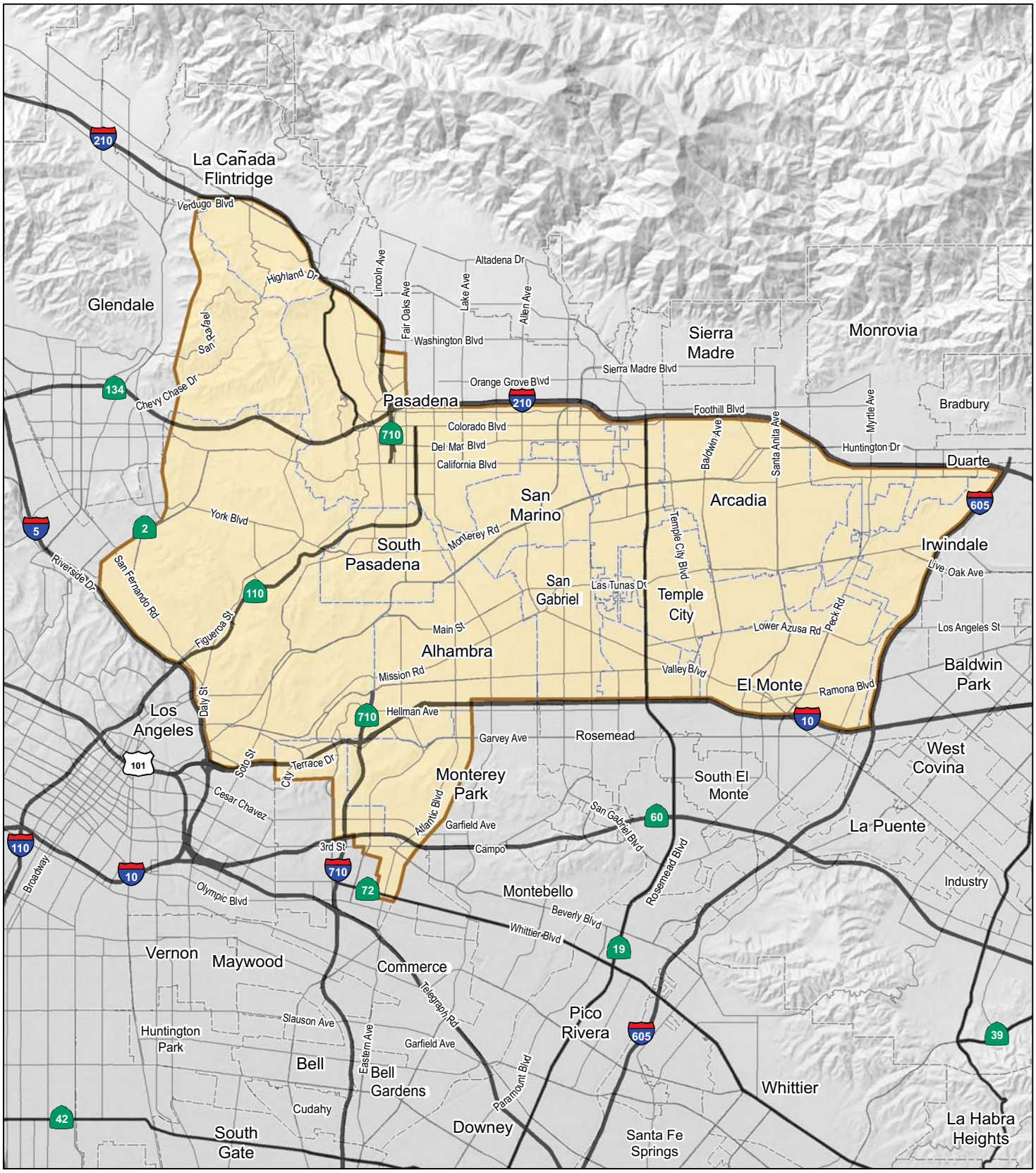
1.2.2 Need for the Project

The study area is centrally located within the extended urbanized area of Southern California. With few exceptions, the area from Santa Clarita in the north to San Clemente in the south (a distance of approximately 90 miles [mi]) is continuously urbanized. Physical features such as the San Gabriel Mountains and Angeles National Forest on the north, and the Puente Hills and Cleveland National Forest on the south, have concentrated urban activity between the Pacific Ocean and these physical constraints. This urbanized area functions as a single social and economic region that is identified by the Census Bureau as the Los Angeles-Long Beach-Santa Ana Metropolitan Statistical Area (MSA).

There are seven major east-west freeway routes:

1. State Route 118 (SR 118)
2. United States Route 101 (US-101)/State Route 134 (SR 134)/I-210
3. I-10

This page intentionally left blank



LEGEND

SR 710 North Study Area

FIGURE 1-1

N

0 1.25 2.5
MILES

SOURCE: ESRI (2008); LSA (2013)

I:\CHM1105\G\P&N\Project Location.cdr (10/27/14)

SR 710 North Study
Project Location

07-LA-710 (SR 710)
EA 187900
EFIS 0700000191

This page intentionally left blank

4. State Route 60 (SR 60)
5. Interstate 105 (I-105)
6. State Route 91 (SR 91)
7. State Route 22 (SR 22)

There are seven major north-south freeway routes:

1. Interstate 405 (I-405)
2. US-101/State Route 170 (SR 170)
3. I-5
4. Interstate 110 (I-110)/State Route 110 (SR 110)
5. Interstate 710 (I-710)
6. I-605
7. State Route 57 (SR 57)

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

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

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

1.3 Alternatives

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

1.3.1 No Build Alternative

The No Build Alternative includes projects/planned improvements through 2035 that are contained in the Federal Transportation Improvement Program (FTIP), as listed in the Southern California

Association of Governments (SCAG) 2012 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), Measure R, and the funded portion of Metro's 2009 Long Range Transportation Plan (LRTP). The No Build Alternative does not include any planned improvements to the SR 710 Corridor. Figure 1-2 illustrates the projects in the No Build Alternative.

1.3.2 Transportation System Management/Transportation Demand Management (TSM/TDM) Alternative

The TSM/TDM Alternative consists of strategies and improvements to increase efficiency and capacity for all modes in the transportation system with lower capital cost investments and/or lower potential impacts. The TSM/TDM Alternative is designed to maximize the efficiency of the existing transportation system by improving capacity and reducing the effects of bottlenecks and chokepoints. Components of the TSM/TDM Alternative are shown on Figure 1-3. TSM strategies increase the efficiency of existing facilities (i.e., TSM strategies are actions that increase the number of vehicle trips which a facility can carry without increasing the number of through lanes).

1.3.2.1 Transportation System Management

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

- **ITS Improvements:** ITS improvements include traffic signal upgrades, synchronization and transit prioritization, arterial changeable message signs (CMS), and arterial video and speed data collection systems. The TSM/TDM Alternative includes signal optimization on corridors with signal coordination hardware already installed by Metro's Traffic Signal Synchronization Program (TSSP). These corridors include Del Mar Avenue, Rosemead Boulevard, Temple City Boulevard, Santa Anita Avenue, Fair Oaks Avenue, Fremont Avenue, and Peck Road. The only remaining major north-south corridor in the San Gabriel Valley in which TSSP has not been implemented is Garfield Avenue; therefore, TSSP on this corridor is included in the TSM/TDM Alternative. The locations are shown in Table 1.1. The following provide a further explanation of the ITS elements listed above:
  - Traffic signal upgrades include turn arrows, vehicle and/or bicycle detection, pedestrian countdown timers, incorporation into regional management traffic center for real-time monitoring of traffic and updating of signal timing.
  - Synchronization is accomplished through signal coordination to optimize travel times and reduce delay.
  - Transit signal prioritization includes adjusting signal times for transit vehicles to optimize travel times for public transit riders.
  - Arterial CMS are used to alert travelers about unusual road conditions, special event traffic, accident detours, and other incidents.
  - Video and speed data collection includes cameras and other vehicle detection systems that are connected to a central monitoring location, allowing for faster detection and response to traffic incidents and other unusual traffic conditions.

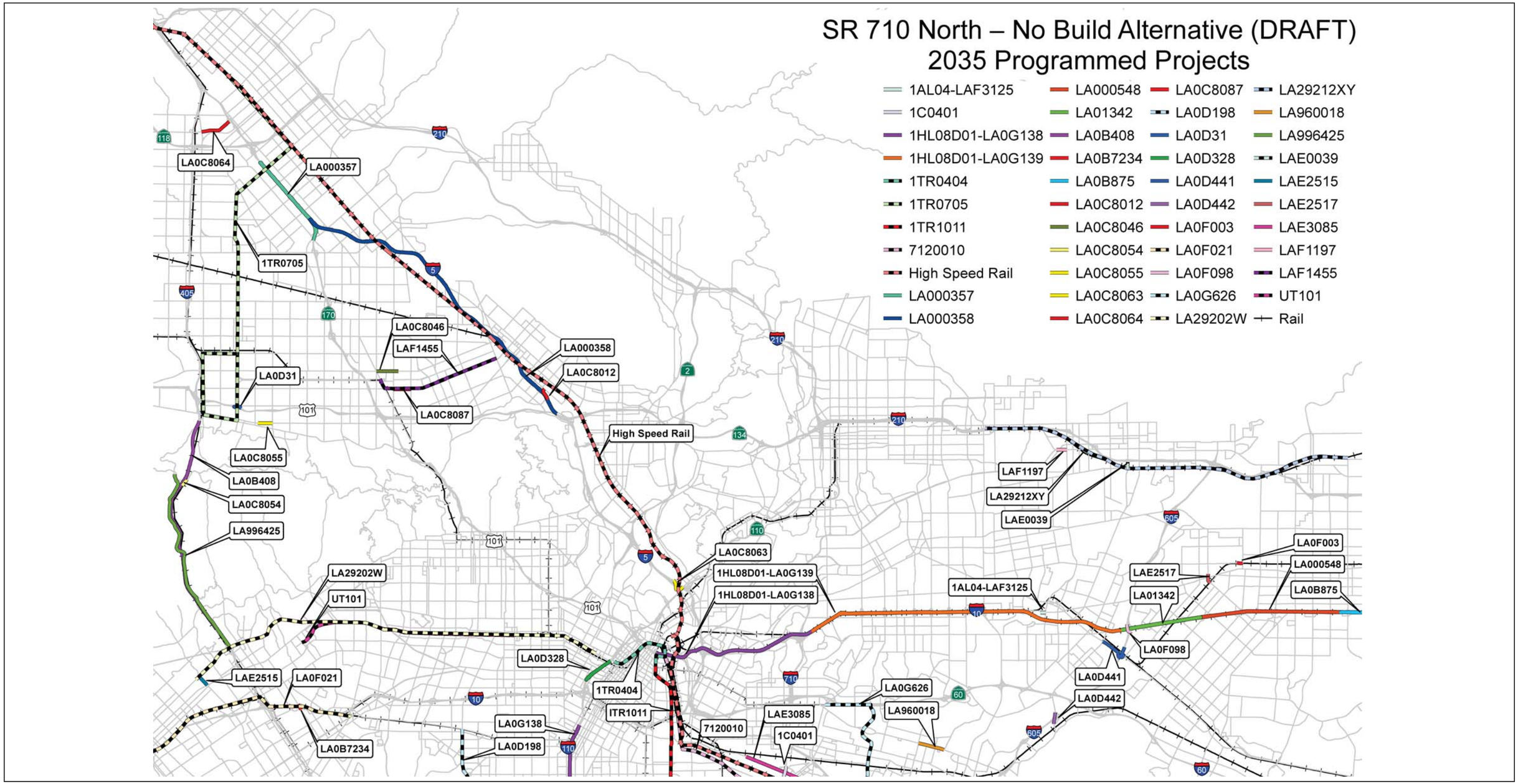


FIGURE 1-2

NOT TO SCALE

SOURCE: CH2M HILL (2013)

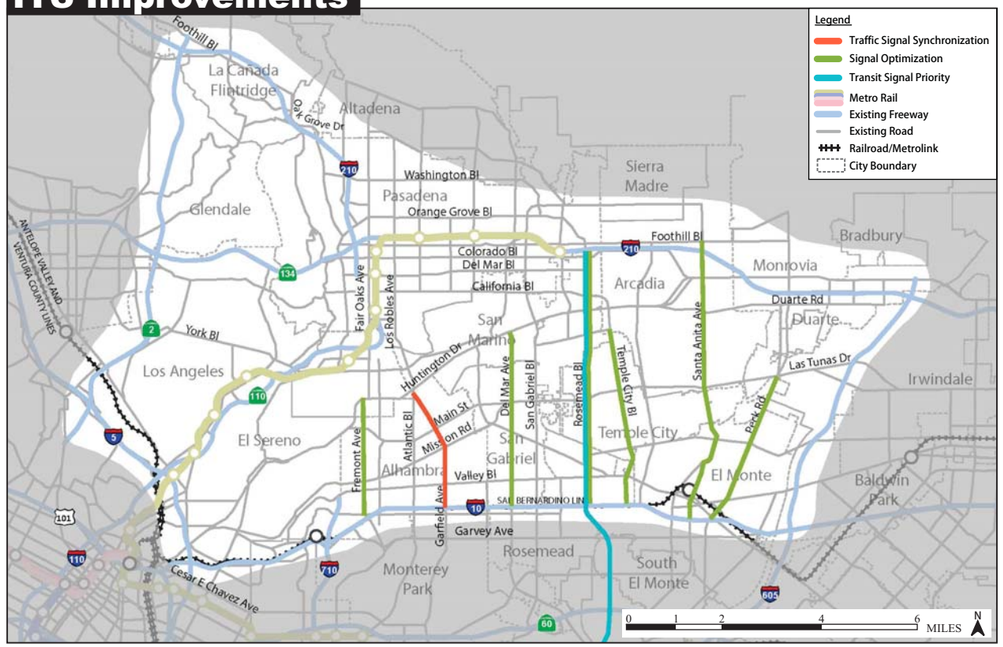
I:\CHM1105\G\No Build Alt.cdr (10/27/14)

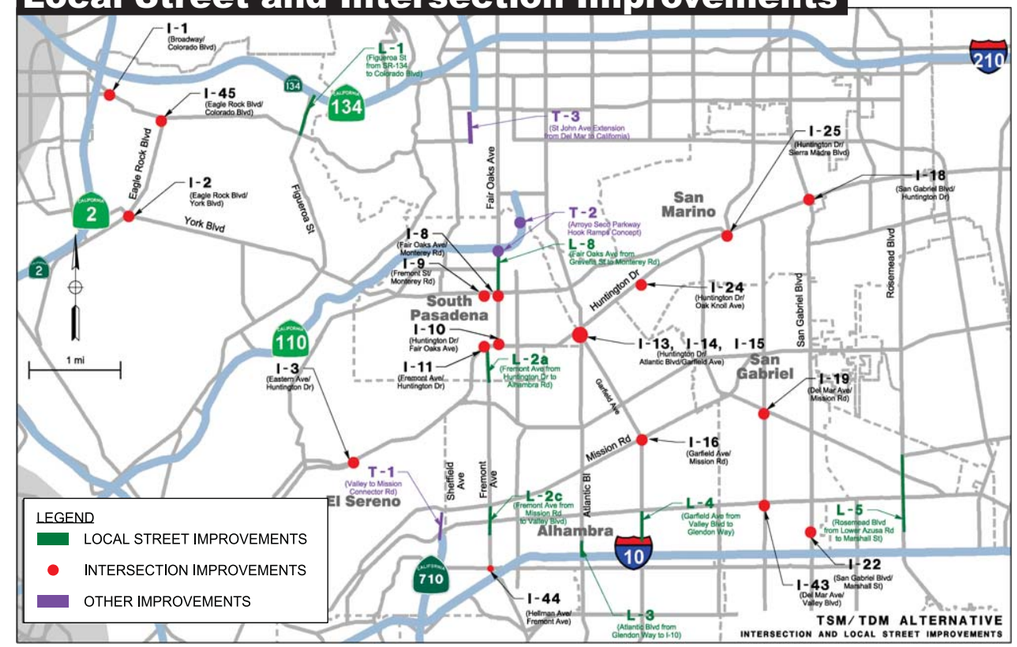
SR 710 North Study

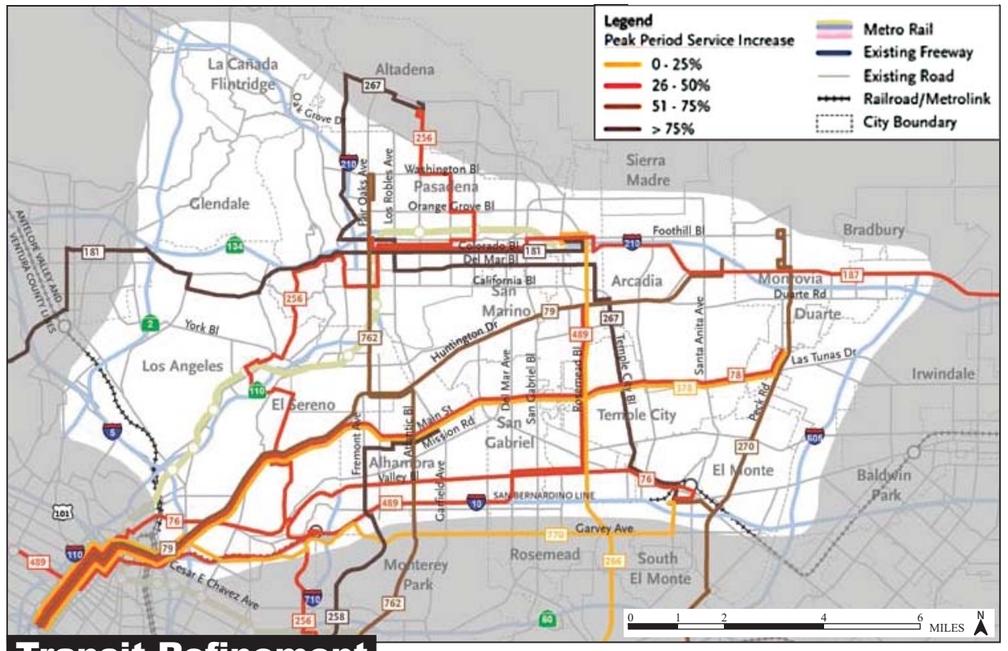
No Build Alternative

07-LA-710 (SR 710)
EA 187900
EFIS 0700000191

This page intentionally left blank







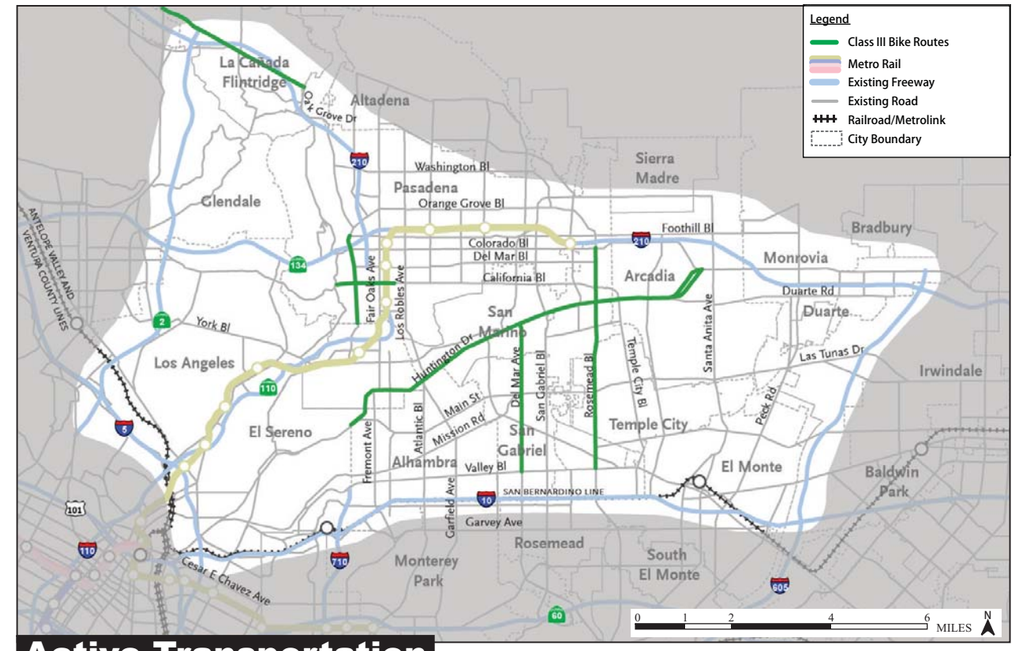


FIGURE 1-3

SR 710 North Study

TSM/TDM Alternative

07-LA-710 (SR 710)
EA 187900
EFIS 0700000191

SOURCE: CH2M HILL (2013)
I:\CHM1105\G\TSM_TDM Alt.cdr (10/27/14)

This page intentionally left blank

TABLE 1.1:
TSM/TDM Alternative Elements

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

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

- **Local Street and Intersection Improvements:** The local street and intersection improvements are within the Cities of Los Angeles, Pasadena, South Pasadena, Alhambra, San Gabriel, Rosemead, and San Marino. Table 1.2 outlines the location of the proposed improvements to local streets, intersections, and freeway ramps as well as two new local roadways.
- **Active Traffic Management:** ATM technology and strategies are also included in the TSM/TDM Alternative. The major elements of ATM are arterial speed data collection and CMS. Data on arterial speeds would be collected and distributed through Los Angeles County's Information Exchange Network (IEN). Many technologies are available for speed data collection or the data could be purchased from a third-party provider. Travel time data collected through this effort could be provided to navigation system providers for distribution to the traveling public. In addition, arterial CMS or "trailblazer" message signs would be installed at key locations to make travel time and other traffic data available to the public.

1.3.2.2 Transportation Demand Management

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

TABLE 1.2:
Local Street and Intersection Improvements of the TSM/TDM Alternative

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

I-10 = Interstate 10
SR 110 = State Route 110
SR 134 = State Route 134
TDM = Transportation Demand Management
TSM = Transportation System Management

- **Expanded Bus Service and Bus Service Improvements:** Transit service improvements included in the TSM/TDM Alternative are summarized in Tables 1.3 and 1.4 and illustrated on Figure 1-3. The transit service improvements enhance bus headways between 10 and 30 minutes during the peak hour and 15 to 60 minutes during the off-peak period. Bus headways are the amount of time between consecutive bus trips (traveling in the same direction) on the bus route. Some of the bus service enhancements almost double existing bus service.
- **Bicycle Facility Improvements:** The bicycle facility improvements include on-street Class III bicycle facilities that support access to transit facilities through the study area and expansion of bicycle parking facilities at existing Metro Gold Line stations. Proposed bicycle facility improvements are outlined in Table 1.4.

TABLE 1.3:
Transit Refinements of the TSM/TDM Alternative

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

[1] This route would not be included as part of the BRT Alternative because the BRT Alternative would replace this service.
BRT = Bus Rapid Transit
Express = Express Bus
Foothill = Foothill Transit
Metro = Los Angeles County Metropolitan Transportation Authority
Rapid = Bus Rapid Transit
TDM = Transportation Demand Management
TSM = Transportation System Management

TABLE 1.4:
Active Transportation and Bus Enhancements of the TSM/TDM Alternative

ID No.	Description	Location
Bus Service Improvements		
Bus-1	Additional bus service	See Table 1.3 and Figure 1-3
Bus-2	Bus stop enhancements	Along routes listed in Table 1.3
Bicycle Facility Improvements		
Bike-1	Rosemead Boulevard bike route (Class III)	Colorado Boulevard to Valley Boulevard (through Los Angeles County, Temple City, Rosemead)
Bike-2	Del Mar Avenue bike route (Class III)	Huntington Drive to Valley Boulevard (through San Marino, San Gabriel)
Bike-3	Huntington Drive bike route (Class III)	Mission Road to Santa Anita Avenue (through the City of Los Angeles, South Pasadena, San Marino, Alhambra, Los Angeles County, Arcadia)
Bike-4	Foothill Boulevard bike route (Class III)	In La Cañada Flintridge
Bike-5	Orange Grove bike route (Class III)	Walnut Street to Columbia Street (in Pasadena)
Bike-6	California Boulevard bike route (Class III)	Grand Avenue to Marengo Avenue (in Pasadena)
Bike-7	Add bike parking at transit stations	Metro Gold Line stations
Bike-8	Improve bicycle detection at existing intersections	Along bike routes in study area

Metro = Los Angeles County Metropolitan Transportation Authority
TDM = Transportation Demand Management
TSM = Transportation System Management

1.3.3 Bus Rapid Transit (BRT) Alternative

The BRT Alternative would provide high-speed, high-frequency bus service through a combination of new, dedicated, and existing bus lanes, and mixed-flow traffic lanes to key destinations between East Los Angeles and Pasadena. The proposed route length is approximately 12 mi. Figure 1-4 illustrates the BRT Alternative.

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

Buses are expected to operate every 10 minutes during peak hours and every 20 minutes during off-peak hours. The BRT service would generally replace, within the study area, the existing Metro Route 762 service. The 12 mi route would begin at Atlantic Boulevard and Whittier Boulevard to the south, follow Atlantic Boulevard, Huntington Drive, Fair Oaks Avenue, Del Mar Boulevard, and end with a terminal loop in Pasadena to the north. Buses operating in the corridor would be given transit signal priority from a baseline transit signal priority project that will be implemented separately by Metro.

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

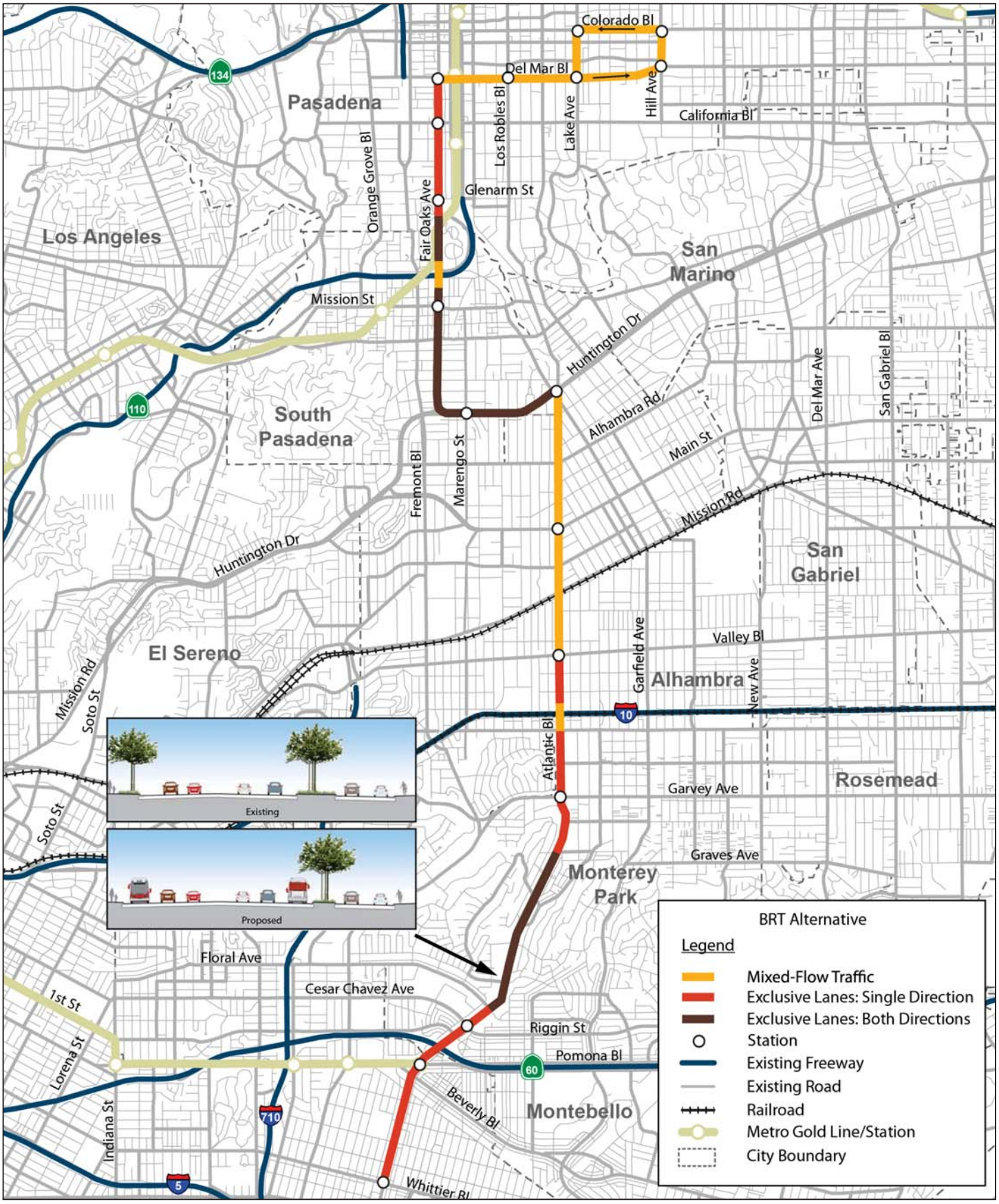


FIGURE 1-4

N

0 .5 1.0
MILES

SOURCE: CH2M HILL (2013)

I:\CHM1105\G\BRT Alternative.cdr (10/27/14)

SR 710 North Study

BRT Alternative

07-LA-710 (SR 710)
EA 187900
EFIS 0700000191

This page intentionally left blank

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

- Atlantic Boulevard at Whittier Boulevard
- Atlantic Boulevard between Pomona Boulevard and Beverly Boulevard
- Atlantic Boulevard at Cesar Chavez Avenue/Riggin Street
- Atlantic Boulevard at Garvey Avenue
- Atlantic Boulevard at Valley Boulevard
- Atlantic Boulevard at Main Street
- Huntington Drive at Garfield Avenue
- Huntington Drive at Marengo Avenue
- Fair Oaks Avenue at Mission Street
- Fair Oaks Avenue at Glenarm Street
- Fair Oaks Avenue at California Boulevard
- Fair Oaks Avenue at Del Mar Boulevard
- Del Mar Boulevard at Los Robles Avenue
- Del Mar Boulevard at Lake Avenue
- Del Mar Boulevard at Hill Avenue (single direction only)
- Colorado Boulevard at Hill Avenue (single direction only)
- Colorado Boulevard at Lake Avenue (single direction only)

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

The TSM/TDM Alternative improvements would also be constructed as part of the BRT Alternative, except as noted below. These improvements would provide the additional enhancements to

maximize the efficiency of the existing transportation system by improving capacity and reducing the effects of bottlenecks and chokepoints. Local Street Improvements L-8 (Fair Oaks Avenue from Grevelia Street to Monterey Road) and the reversible lane component of L-3 (Atlantic Boulevard from Glendon Way to I-10) would not be constructed with the BRT Alternative.

1.3.4 Light Rail Transit Alternative

The Light Rail Transit (LRT) Alternative would include passenger rail operated along a dedicated guideway, similar to other Metro light rail lines. The LRT alignment is approximately 7.5 mi long, with 3 mi of aerial segments and 4.5 mi of bored tunnel segments. Figure 1-5 illustrates the LRT Alternative.

The LRT Alternative would begin at an aerial station on Mednik Avenue adjacent to the existing East Los Angeles Civic Center Station on the Metro Gold Line. The alignment would remain elevated as it travels north on Mednik Avenue, west on Floral Drive, north across Corporate Center Drive, and then along the west side of I-710, primarily in Caltrans ROW, to a station adjacent to the California State University, Los Angeles (Cal State LA). The alignment would descend into a tunnel south of Valley Boulevard and travel northeast to Fremont Avenue, north under Fremont Avenue, and easterly to Fair Oaks Avenue. The alignment would then cross under SR 110 and end at an underground station beneath Raymond Avenue adjacent to the existing Fillmore Station on the Metro Gold Line.

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

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

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

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

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

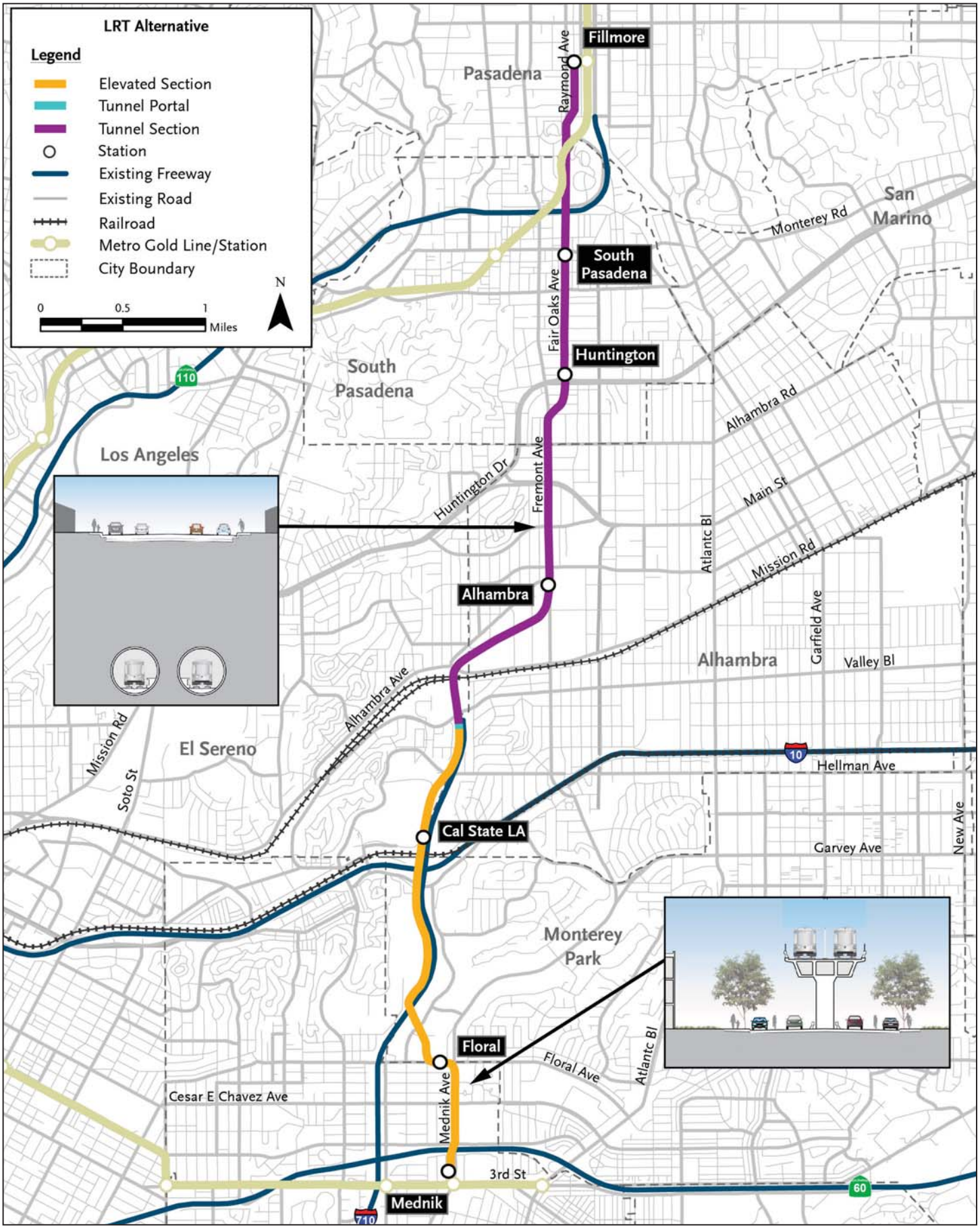


FIGURE 1-5

SR 710 North Study

LRT Alternative

07-LA-710 (SR 710)
EA 187900
EFIS 0700000191

N

0 .5 1
MILES

SOURCE: AECOM (2013)

I:\CHM1105\G\LRT Alternative.cdr (10/27/14)

This page intentionally left blank

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

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

1.3.5 Freeway Tunnel Alternative

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

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

1.3.5.1 Design Variations

The Freeway Tunnel Alternative includes two design variations. These variations relate to the number of tunnels constructed. The dual-bore design variation includes two tunnels that independently convey northbound and southbound vehicles. The single-bore design variation includes one tunnel that carries both northbound and southbound vehicles. Figure 1-6 illustrates the dual-bore and single-bore tunnel design variations for the Freeway Tunnel Alternative. Each of these design variations is described below.

This page intentionally left blank

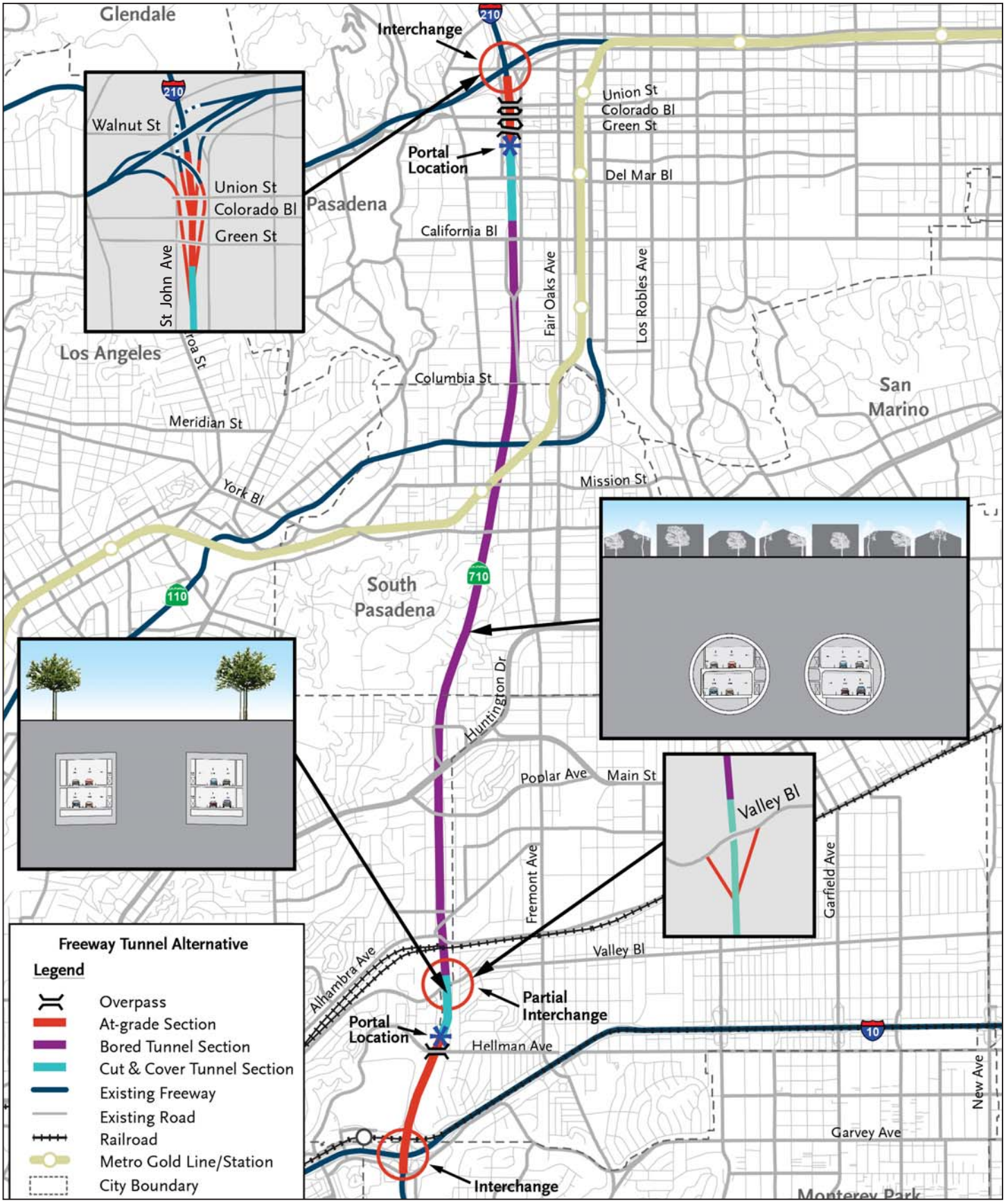


FIGURE 1-6

N

0 .38 .75
MILES

SOURCE: CH2M HILL (2013)

SR 710 North Study
Freeway Tunnel Alternative
Single and Dual Bore
07-LA-710 (SR 710)
EA 187900
EFIS 0700000191

I:\CHM1105\G\Freeway Tunnel Alt Single&Dual Bore.cdr (10/27/14)

This page intentionally left blank

- **Dual-Bore Tunnel:** The dual-bore tunnel design variation is approximately 6.3 mi long, with 4.2 mi of bored tunnel, 0.7 mi of cut-and-cover tunnel, and 1.4 mi of at-grade segments. The dual-bore tunnel design variation would consist of two side-by-side tunnels (the east tunnel would convey northbound traffic, and the west tunnel would convey southbound traffic). Each tunnel would have two levels with traffic traveling in the same direction. Each tunnel would consist of two lanes of traffic on each level, traveling in one direction, for a total of four lanes in each tunnel. The eastern tunnel would be constructed for northbound traffic, and the western tunnel would be constructed for southbound traffic. Each bored tunnel would have an outside diameter of approximately 58.5 ft and would be located approximately 120 to 250 ft below the ground surface. Vehicle cross passages would be provided throughout this tunnel variation that would connect one tunnel to the other tunnel for use in an emergency situation. Figure 1-6 illustrates the dual-bore tunnel variation of the Freeway Tunnel Alternative.
  - Short segments of cut-and-cover tunnels would be located at the south and north termini to provide access via portals to the bored tunnels. The portal at the southern terminus would be located south of Valley Boulevard. The portal at the northern terminus would be located north of Del Mar Boulevard. No intermediate interchanges are planned for the tunnel.
- **Single-Bore Tunnel:** The single-bore tunnel design variation is also approximately 6.3 mi long, with 4.2 mi of bored tunnel, 0.7 mi of cut-and-cover tunnel, and 1.4 mi of at-grade segments. The single-bore tunnel design variation would consist of one tunnel with two levels. Each level would have two lanes of traffic traveling in one direction. The northbound traffic would traverse the upper level, and the southbound traffic would traverse the lower level. The single-bore tunnel would provide a total of four lanes. The single-bore tunnel would also have an outside diameter of approximately 58.5 ft and would be located approximately 120 to 250 ft below the ground surface. The single-bore tunnel would be in the same location as the northbound tunnel in the dual-bore tunnel design variation. Figure 1-7 illustrates the single-bore tunnel variation cross section of the Freeway Tunnel Alternative.

1.3.5.2 Operational Variations

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

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

This page intentionally left blank

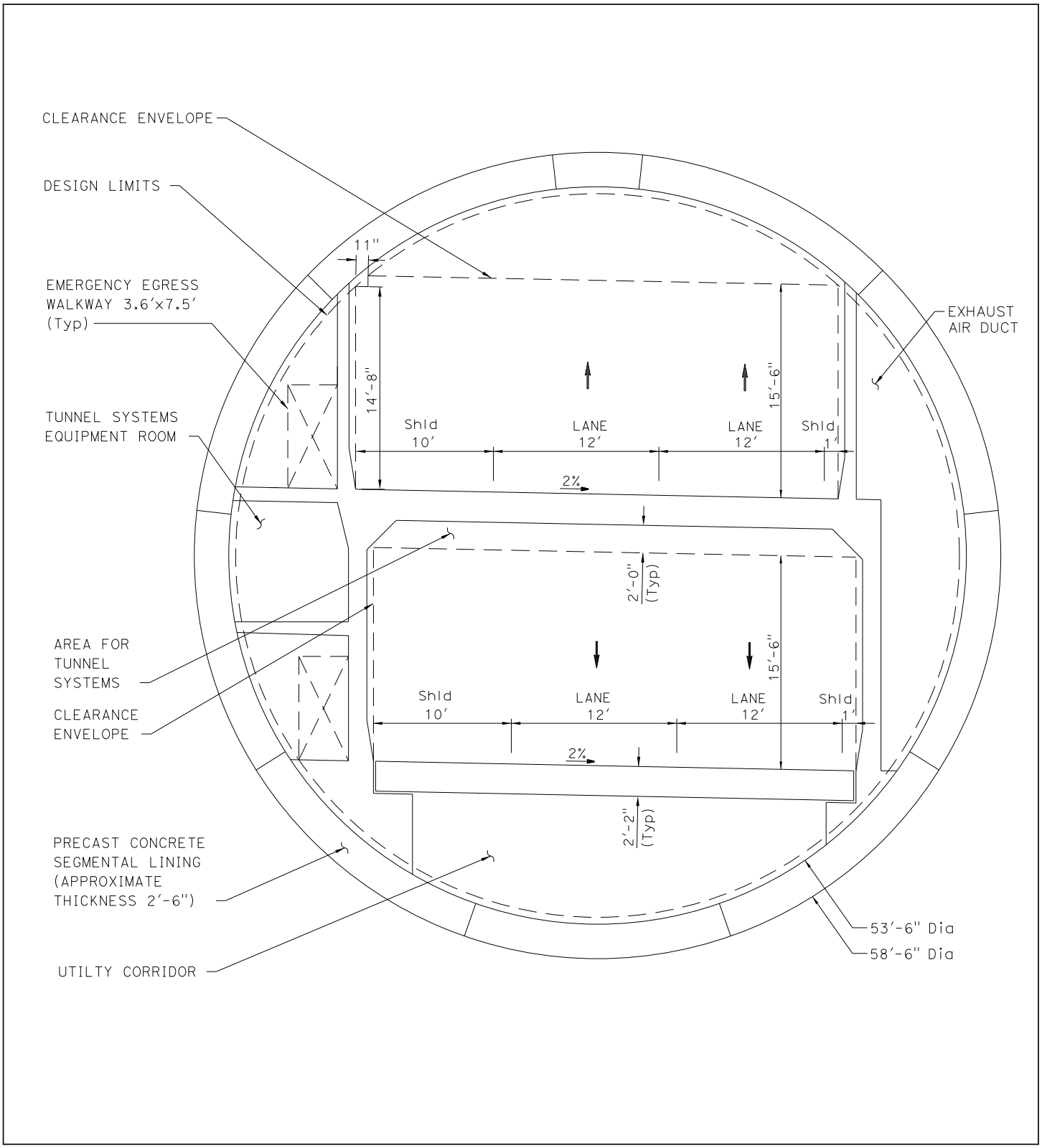


FIGURE 1-7

SR 710 North Study
Freeway Tunnel Alternative
Single Bore Cross Section
07-LA-710 (SR 710)
EA 187900
EFIS 0700000191

SOURCE: CH2M HILL (2014)

I:\CHM1105\G\Single Bore Cross Section.cdr (10/27/14)

This page intentionally left blank

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

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

This page intentionally left blank

2. Regulatory Environment

Cumulative impacts are the combination of potential impacts of this project and those impacts that result from past, present, and reasonably foreseeable future actions. A cumulative impact assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor, but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the study area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive types of agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

California Environmental Quality Act (CEQA) Guidelines, Section 15130, describe when a cumulative impact analysis is warranted and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts, under CEQA, can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts, under the National Environmental Policy Act (NEPA), can be found in 40 Code of Federal Regulations (CFR), Section 1508.7 of the Council on Environmental Quality (CEQ) Regulations.

This page intentionally left blank

DRAFT

3. Methods

The cumulative impacts analysis of the State Route 710 North Study (SR 710 North Study) was developed by following the eight-step process as set forth in the Guidelines for Preparers of Cumulative Impact Assessment (2005), posted on the California Department of Transportation (Caltrans) Standard Environmental Reference (SER) website (http://www.dot.ca.gov/ser/guidance.htm#cumulative). The eight-step process is as follows:

1. Identify the resources to consider in the cumulative impacts analysis by gathering input from knowledgeable individuals and reliable information sources. This process is initiated during project scoping and continues throughout the National Environmental Policy Act (NEPA)/ California Environmental Quality Act (CEQA) analysis.
2. Define the geographic boundary or Resource Study Area (RSA) for each resource to be addressed in the cumulative impacts analysis.
3. Describe the current health and historical context of each resource.
4. Identify the direct and indirect impacts of the proposed project that might contribute to a cumulative impact on the identified resources.
5. Identify a set of other current and reasonably foreseeable future actions or projects and their associated environmental impacts to include in the cumulative impacts analysis.
6. Assess cumulative impacts.
7. Report the results of the cumulative impacts analysis.
8. Assess the need for mitigation and/or recommendations for actions by other agencies to address a cumulative impact.

As specified in the Caltrans guidance, if the proposed project would not result in a direct or indirect impact to a resource, it would not contribute to a cumulative impact on that resource. This cumulative impacts assessment includes resources that would be substantially impacted by the proposed project as well as resources that are currently in poor or declining health or that would be at risk even if proposed project impacts were not substantial.

The reasonably foreseeable actions used in this cumulative impacts assessment were based on information obtained from the websites of the cities within the study area and the County of Los Angeles, which identified approved and pending developments proposed in the proximity of the study area. These files were cross-checked against files maintained by the State of California, Office of Planning and Research. Information on future transportation projects was provided by Caltrans, the Southern California Association of Governments (SCAG), the Los Angeles County Metropolitan Transportation Authority (Metro), the California High Speed Rail Authority, the Federal Railroad Administration, and the Alameda Corridor-East Construction Authority. The reasonably foreseeable actions are listed in Table 3.1 and shown on Figure 3-1. Table 3.1 may not be an exhaustive list of every planned project within the study area cities/communities, but it contains projects that have the possibility of contributing to a cumulative effect (due to size, location, etc.).

This page intentionally left blank

TABLE 3.1:
Summary Table

Project ID No.	Project Title	Lead Agency	Project Description	Project Status	Relevant Cumulative Environmental Factors
1	I-710 South Corridor Project	Caltrans	The project would improve I-710 in Los Angeles County between Ocean Boulevard and SR 60. Major features include widening I-710 up to 10 general-purpose lanes (five lanes in each direction), modernizing and reconfiguring I-405, SR 91, and a portion of the I-5 interchanges with I-710, modernizing and reconfiguring most local arterial interchanges along I-710, and providing a separated four-lane freight corridor to be used by conventional or zero-emission trucks.	A DEIR/DEIS was circulated in summer 2012. An RDEIR/SDEIS is being completed and will be released for public review and comment in 2016. This focused RDEIR/SDEIS updated the draft environmental document for the No Build and Build Alternatives. Anticipated start of construction is 2020. Source: http://www.metro.net/projects/i-710-corridor-project/, accessed May 16, 2014.	Community Impacts Hydrology/Floodplain Air Quality Source: I-710 Corridor Project Draft EIR/EIS (June 2012).
2	I-5 Corridor Improvement Project (I-605 to I-710)	Caltrans	The project would widen I-5 from I-605 to I-710 (a total of 8 mi). An alternative may include modifications to the I-605 and I-710 interchanges.	A DEIR/DEIS) will be prepared. Project approval is anticipated in May 2017, with construction anticipated to begin in Winter2025. Source: http://www.dot.ca.gov/dist07/travel/projects/I-5/, accessed May 16, 2014.	Although the environmental document is not available for this project, it is anticipated that this project would not have adverse impacts.
3	I-5 Improvement Project between SR 118 to SR 170	Caltrans	The project is constructing an HOV lane in each direction on I-5 between the Hollywood Freeway (SR 170) and SR 118, a distance of 6.8 mi (3.4 mi in each direction). The project is also widening four undercrossings, replacing sections of pavement, and building a direct HOV connector at the I-5/SR 170 interchange. A direct HOV connector allows for freeway-to-freeway transfers without exiting the carpool lane.	Work began in August 2010 and completion is anticipated in late 2014. Source: http://thesource.metro.net/2013/09/15/updates-on-i-5-hov-improvement-project-between-sr-118-and-sr-170/, accessed September 19, 2013.	This project would not have substantial adverse impacts. Source: Initial Study Environmental Assessment Negative Declaration/Finding of No Significant Impact I-5 HOV 134 to 118 Lane Improvement Project (December 2000).
4	I-5 North Improvement Projects from SR 134 to SR 170	Caltrans	The project will construct four segments of improvements on I-5 between SR 134 and SR 170 as follows: 1. **Western Avenue Interchange:** Realignment of the northbound I-5 Western Avenue on- and off-ramps. 2. **SR 134 to Magnolia Boulevard:** Addition of one HOV lane in each direction. 3. **Magnolia Boulevard to Buena Vista Street:** Addition of HOV lanes, Empire Avenue interchange modification, railroad realignment and relocation, Burbank Boulevard bridge reconstruction, and on- and off-ramp modifications. 4. **SR 170 to Buena Vista Street:** Addition of one HOV lane in each direction and pavement replacement.	1. **Western Avenue Interchange:** Completed March 2012. 2. **SR 134 to Magnolia Boulevard:** In construction with completion anticipated in late 2016. 3. **Magnolia Boulevard to Buena Vista Street:** Construction started mid-2014 with completion anticipated in 2017. 4. **SR 170 to Buena Vista Street:** In construction with completion anticipated in mid-2014. Source: http://i-5info.com/ventura-freeway-sr-134-to-magnolia-boulevard/, accessed May 16, 2014. Source: http://i-5info.com/magnolia-boulevard-to-buena-vista-street/, accessed May 16, 2014. Source: http://i-5info.com/hollywood-freeway-sr-170-to-buena-vista-street/, accessed May 16, 2014. Source: http://i-5info.com/wp/wp-content/uploads/2011/05/SR134-SR170-MapPoster10-18-12FINAL.jpg, accessed September 19, 2013.	This project would not have substantial adverse impacts. Source: Initial Study/Environmental Assessment Negative Declaration/Finding of No Significant Impact I-5 HOV 134 to 118 Lane Improvement Project (December 2000).
5	I-5/Western Avenue Interchange Improvements	Caltrans	The two-lane northbound Western Avenue off-ramps will be widened to four lanes at Flower Street. Cosmic Way (south of the northbound off-ramp) will be converted to a cul-de-sac, eliminating through traffic.	Construction was completed in summer 2012.	Although an environmental document is not available for this project, it is anticipated that this project would not have substantial adverse impacts.
6	San Bernardino Freeway (I-10)/ San Gabriel River Freeway (I-605) Direct Connector Project	Caltrans	A fly-over connector will provide a direct connection between southbound I-605 and eastbound I-10 and eliminate weaving at this connector, providing for improved goods movement and enhanced safety and mobility throughout the region. Source: http://www.dot.ca.gov/dist07/travel/projects/details.php?id=27http://www.dot.ca.gov/dist07/travel/projects/details.php?id=27, accessed May 28, 2014.	Construction began in fall 2012 and has an anticipated completion of fall 2015. An IS was prepared in October 2008, and an MND/FONSI was issued in January 2009. Source: http://www.dot.ca.gov/dist07/resources/envdocs/, accessed May 29, 2014.	According to the MND/FONSI (January 2009), this project would not have substantial adverse impacts. Source: http://www.dot.ca.gov/dist07/resources/envdocs/docs/10-605_connector_MND_FONSI_040309.pdfhttp://www.dot.ca.gov/dist07/resources/envdocs/docs/10-605_connector_MND_FONSI_040309.pdf, accessed May 29, 2014.

TABLE 3.1:
Summary Table

Project ID No.	Project Title	Lead Agency	Project Description	Project Status	Relevant Cumulative Environmental Factors
7	San Bernardino Freeway (I-10) add One HOV Lane from I-605 to SR 57/71 and I-210	Caltrans	The project would construct one HOV lane in each direction on I-10 between I-605 and the SR 57/SR 71/I-210 interchange. The segment between Puente Avenue and SR 57 will be constructed in two segments: Puente Avenue to Citrus Avenue, and Citrus Avenue to SR 57.	An IS/EA MND was prepared for this project in October 2002. Construction began in October 2009 and has an anticipated completion date of fall 2013. Construction of the Baldwin Park Boulevard bridge and freeway median barrier work has been completed. Bridge work on Athol Street is complete. The Bess Avenue pedestrian bridge overcrossing is currently being replaced to accommodate the freeway widening. Sound wall and retaining wall work is continuing, along with freeway lane construction. Source: http://www.dot.ca.gov/dist07/travel/projects/details.php?id=16, accessed September 17, 2013.	This project would not have substantial adverse impacts. Source: I-10 HOV Lane Project EIR (November 2011).
8	I-10 HOT Lanes	Caltrans	This project is located on I-10 and proposes conversion of HOV lanes on I-10 to HOT lanes from Alameda Street to I-605 in Los Angeles County. The preferred alternative includes conversion of the existing HOV lane to an HOT lane, installation of signs, toll infrastructure, and restriping of the existing lanes to add an additional HOT lane.	Tolling began on the I-10 on February 23, 2013. Source: http://www.metro.net/projects/expresslanes/, accessed September 17, 2013.	Noise Source: The Interstate 10 (San Bernardino Freeway / El Monte Busway) High Occupancy Toll Lanes Project (February 2010).
9	The I-110 (Harbor Freeway)/Transitway HOT Lanes Project (182nd Street to Adams Boulevard) and on I-105 from Crenshaw Boulevard to Compton Avenue	Caltrans	The project would build a flyover structure from the northbound I-110 HOV off-ramp directly to Figueroa Street and on I-110 from 182nd Street/Artesia Transit Center to Adams Boulevard.	A Final EIR/EA FONSI (April 2010) was prepared for this project. Construction began in 2010 and was completed in 2012. Source: http://www.metro.net/projects_studies/expresslanes/images/notice_2012_1112.pdf.	This project would not result in substantial adverse impacts. Source: The Interstate 10 (San Bernardino Freeway / El Monte Busway) High Occupancy Toll Lanes Project Draft EIR/EA (February 2010).
10	I-110 Widening and Rehabilitation Project	Caltrans	The project limits extend from a 0.5 mi south of Washington Boulevard to north of Wilshire Boulevard, and include West 6th and 8th Streets and Olympic, Pico, and Venice Boulevards. The project widened lanes in both directions, widened bridge structures and ramps, realigned and reconstructed ramps, added merge and auxiliary lanes and a concrete median barrier, and improved the I-110/I-10 interchange connector. Source: http://www.dot.ca.gov/dist07/Publications/Inside7/story.php?id=703, accessed September 20, 2013.	Completed in 2012.	Although the environmental document is not available for this project, it is anticipated that this project would not result in substantial adverse impacts.
11	San Gabriel Trench Grade Separation Project	Alameda Corridor-East Construction Authority	The Alameda Corridor-East Construction Authority proposes to eliminate four at-grade railroad crossings along the UPRR in the City of San Gabriel. These improved crossings would occur at Ramona Street, Mission Drive, Del Mar Avenue, and San Gabriel Boulevard. Currently the 2.2 mi stretch of railroad includes four at-grade crossings with no grade separations between the railroad and vehicles or pedestrians. The proposed project would lower the existing railroad from its current at-grade condition into a trench. Although the actual trench would be located within the City of San Gabriel, construction activities and some limited track work would take place in the Cities of Alhambra and Rosemead, and the County of Los Angeles. Source: http://www.ceqanet.ca.gov/DocDescription.asp?DocPK=648346.	The San Gabriel Trench construction contract was awarded in July 2012. Early construction activities and utility relocations began in July 2013. Anticipated completion date is Winter 2017. Source:http://www.theaceproject.org/construction%20alerts/SGT/Start%20of%20construction%20of%20trenchphupdates.pdf, accessed May 27, 2014. Source: http://www.theaceproject.org/sangabrieltrench.htm.	Community Impacts Utilities Cultural Resources Paleontological Resources Air Quality Source: San Gabriel Trench Grade Separation Project EIR/FONSI (November 2010).

TABLE 3.1:
Summary Table

Project ID No.	Project Title	Lead Agency	Project Description	Project Status	Relevant Cumulative Environmental Factors
12	Rosemead Boulevard Safety Enhancement & Beautification Project	Temple City	The project is a safety enhancement and beautification project that would establish consistency along the entire length of Rosemead Boulevard (approximately 2 mi) from Callita Street (north) to the south side of the UPRR railroad tracks (south) in Temple City, CA. The project would remove and replace concrete sidewalks and construct new sidewalks, curbs, and gutters (incidental under-sidewalk drain extensions); install new and reconfigure raised, irrigated, and landscaped roadway medians; re-slope and reconfigure (as well as minor removing/relocating and replacing) driveways and curbs to meet ADA requirements. Source: http://www.ceqanet.ca.gov/DocDescription.asp?DocPK= 658604.	Construction began March 2013 and was completed in spring of 2014. Source: http://thesource.metro.net/tag/rosemead-blvd, accessed May 16, 2014. /. An IS/MND was prepared in January 2012. Source: http://www.templecity.us/Rosemead%20Blvd/ Rosemead%20Blvd,%20IS-MND.pdf, accessed May 16, 2014. Source: http://rosemeadblvd.com/blog/, accessed September 17, 2013.	Paleontological Resources Source: Rosemead Boulevard Safety Enhancement and Beautification Project IS/MND (January 2012).
13	Washington Boulevard Improvement Project	City of Commerce	Widen and reconstruct Washington Boulevard (from two lanes to three lanes in each direction) from the western City boundary at Vernon (350 ft west of Indiana Street) to I-5 at Telegraph Road. The project will also increase turn radius and medians, upgrade traffic signals and street lighting, and improve sidewalks.	Plans and Specifications are 95 percent complete. Construction is anticipated to start in late summer 2014, with a 12- to 18-month construction duration. Source: City of Commerce – e-mail correspondence with Alex Hamilton, November 7, 2013.	Although the environmental document is not available for this project, it is anticipated that this project would not result in substantial adverse impacts.
14	San Fernando Road Widening Between Elm Street and Eagle Rock Boulevard	City of Los Angeles	The project would widen San Fernando Road between Elm Street and Eagle Rock Boulevard to install one additional northbound lane. The intersection of San Fernando Road, Eagle Rock Boulevard, Verdugo Road, and Cypress Avenue would be reconfigured. Sidewalks throughout the project would be expanded to a width of 10 ft. Improvements are also proposed for San Fernando Road at the SR 2. A new southbound San Fernando Road to the northbound freeway on-ramp would be constructed by cutting into the adjacent slope and constructing a retaining wall ~100 ft in length and up to 10 ft in height. This new on-ramp would join the existing northbound on-ramp. The off-ramp from the southbound SR 2 would be widened. The east side of San Fernando Road, between this off-ramp and Roswell Street to the north, would also be widened. Source: http://www.ceqanet.ca.gov/DocDescription.asp?DocPK= 638029.	IS/ND (November 2009). Construction was scheduled to begin in November 2011 and last approximately 1 year.	Paleontological Resources Source: San Fernando Road Widening Between Elm Street and Eagle Rock Boulevard IS/ND (November 2009).
15	Riverside Drive Bridge and Grade Separation Replacement Project	City of Los Angeles	The City of Los Angeles proposes to replace the existing Riverside Drive Bridge over the Los Angeles River and Riverside Drive Viaduct/Grade Separation Structure with an integrated two-lane, standard-curvature bridge and grade separation structure. Source: http://eng.lacity.org/docs/dpw/agendas/2006/200604/ 20060426/ce/20060426_ag_br_ce_1_tr.pdf, accessed September 20, 2013.	An IS/ND was completed in January 2006. Construction is ongoing, with project completion expected on April 1, 2015. Source: www.dot.ca.gov/hq/LocalPrograms/CWA/documents/cycle.../ hrcsa.xlsx, accessed September 20, 2013.	This project would not result in substantial adverse impacts. Source: Riverside Drive Bridge/Grade Separation Replacement IS/ND (January 2006).
16	Valley Boulevard/I-605 Project	City of Industry	Reconfiguration of Valley Boulevard on- and off-ramps to I-605 to improve mobility, circulation, and to relieve the current congestion at Valley Boulevard. Includes: right turn from Valley Boulevard onto the existing southbound on-ramp, construct dual westbound to southbound lanes to southbound on-ramp and reconstruct entire southbound on-ramp, improvements at Valley/Temple/northbound 605 off-ramp intersection, and widen eastbound Valley Boulevard to three lanes in advance of the southbound ramps.	Status not available.	Although the environmental document is not available for this project, it is anticipated that this project would not result in substantial adverse impacts.

TABLE 3.1:
Summary Table

Project ID No.	Project Title	Lead Agency	Project Description	Project Status	Relevant Cumulative Environmental Factors
			Source: http://www.scag.ca.gov/FTIP/pdf/draft/2013/D2013-FTIP-StateLA.pdf, accessed September 20, 2013.		
17	Regional Connector Transit Corridor	Metro	The Metro Regional Connector Project extends from the Metro Gold Line Little Tokyo/Arts District Station to the 7th Street/Metro Center Station in downtown Los Angeles, allowing passengers to transfer to the Blue, Expo, Red, and Purple Lines, bypassing Union Station. Source: http://www.metro.net/projects/connector/.	A DEIR was prepared in September 2010 and a FEIR was completed in January 2012. RFP for Design Build under review – forecast opening 2020. Source: http://media.metro.net/projects_studies/connector/images/deis-deir/Cover.pdf. Source: http://www.metro.net/projects/connector/connector-final-eiseir/, accessed May 16, 2014.	Community Impacts Utilities Traffic/Transportation Paleontological Resources Air Quality Source: Regional Connector Transit Corridor Draft EIS/EIR (September 2010).
18	Eastside Transit Corridor Phase 2 – Metro Gold Line Eastside Extension	Metro	The project would connect with and extend the Gold Line Eastside Extension light rail line, which runs between Union Station in downtown Los Angeles and Pomona and Atlantic Boulevards in East Los Angeles, to communities farther east. The project's goals include improving mobility in the study area and planning for future growth in a sustainable manner. Metro is leading this study effort in conjunction with the FTA.	DEIR/DEIS document is anticipated to be released for public review in summer of 2014. The project will be constructed when the project studies and engineering are completed and the funding is available. Current Metro funding scenarios show that the majority of local Measure R money could be available starting in 2028. Source: http://www.metro.net/projects/eastside_phase2/, accessed May 16, 2014.	Land Use Community Impacts Utilities Visual Hydrology Paleontological Resources Hazardous Waste Source: Eastside Transit Corridor Phase 2 Alternatives Analysis Report (October 2009).
19	Metro Gold Line Foothill Extension	Metro	The proposed extension consists of two phases. The first phase will continue from Sierra Madre Villa in Pasadena east for over 11 mi, with stops in Arcadia, Duarte, Irwindale, and Monrovia, and two stops in Azusa.	The FEIR for the first phase (Sierra Madre Villa to Azusa) was certified in 2007. Construction is underway on the Pasadena to Azusa Extension and is scheduled to be completed in September 2015. A final EIR was certified in March 2013 for the Azusa to Montclair segment. Source: http://www.foothillextension.org/construction_phases/azusa_to_montclair/metro-gold-line-foothill-extension-azusa-to-montclair-draft-environmental-impact-report-1/, accessed May 16, 2014. Source: http://www.foothillextension.org/construction_phases/construction-updates/, accessed September 20, 2013.	Community Impacts (acquisitions) Traffic/Transportation Paleontological Resources Air Quality Source: Metro Gold Line Foothill Extension – Pasadena to Azusa Final Environmental Impact Report (February 2007). Source: Metro Gold Line Foothill Extension - Azusa to Montclair Final Environmental Impact Report (February 2013).
20	Wilshire Boulevard Bus Rapid Transit Project – Phases I and II	Metro	The project would consist of a 12.5 mi corridor with a 7.7 mi peak-period bus lane on Wilshire Boulevard within the City and County of Los Angeles from Valencia Street to the City of Santa Monica. Phase I includes street widening, curb lane repaving/reconstruction, improved traffic signal timing, and bus signal priority. Phase II includes enhanced shelters and landscaping, street repair/reconstruction, concrete bus pads, and park-and-ride facilities.	The first segment of the bus lanes between South Park View Street and Western Avenue is scheduled to open June 2013. All remaining segments of the project are estimated to be completed by November 2014. A FONSI was issued in August 2011. Source: http://media.metro.net/projects_studies/wilshire/images/Finding_No_Significant_Impact.pdf, accessed May 27, 2014. Source: http://www.metro.net/projects/wilshire/, accessed September 20, 2013.	Traffic/Transportation Source: Wilshire Bus Rapid Transit Project Draft EIR/EA (June 2010).

TABLE 3.1:
Summary Table

Project ID No.	Project Title	Lead Agency	Project Description	Project Status	Relevant Cumulative Environmental Factors
21	California High Speed Rail Project	California High Speed Rail Authority and Federal Railroad Administration	The project would develop an 800 mi statewide system of high-speed trains from Southern to Northern California; potential crossing of I-710 corridor between Washington Boulevard and Bandini Boulevard and just north of Washington Boulevard.	A Supplemental Alternatives Analysis Report was completed for the Palmdale to Los Angeles section in April 2012. Community Open Houses for the Palmdale to Los Angeles section took place in Spring 2014. A Supplemental Alternatives Analysis Report was completed for the Los Angele to Anaheim section in July 2010. A Preliminary Alternatives Analysis was completed for the Los Angeles to San Diego section in March 2011. Also underway in Southern California is continued work on the Book End projects. Developed as a joint effort among California High Speed Rail Authority, SCAG, Metro, Metrolink, SANDAG, Anaheim, RCTC, and SANBAG, the Book End projects represent early investments that clear the way for high-speed rail by completing required local infrastructure projects early in order to minimize local impacts during construction of the high-speed rail system. High-speed rail service connecting the Bay Area and the Los Angeles Basin is anticipated by 2029. Source: http://www.hsr.ca.gov/docs/newsroom/fact%20sheets/ Statewide%20Rail%20Modernization%20Plan.pdf, accessed May, 2014. Source: http://www.hsr.ca.gov/docs/brdmeetings/2013/brdmtg item3_status_rpt_southern_cal_project_sections.pdf, accessed November 7, 2013. Source: http://www.hsr.ca.gov/docs/programs/statewide_rail/ proj_sections/Palmdale_LA/Palmdale_to_LA_Central_ Hollywood_Neighborhood_Council_presentation_4_23_12.pdf, April 23, 2012. Source: High Speed Rail Website, http://www.hsr.ca.gov/, accessed July 2013. Source: http://www.hsr.ca.gov/Programs/ Statewide_Rail_ Modernization/Project_Sections/palmdale_losangeles.html, accessed May 27, 2014. Source: http://www.hsr.ca.gov/docs/programs/statewide_rail/ proj_sections/LA_Anaheim/Supplemental_Alternatives_ Analysis_Report_July_2010_7_17_10.pdf, accessed May 27, 2014.	Traffic/Transportation Source: California High-Speed Train Final Program EIR/EIS (August 2005).
22	Gold Line Transit Plaza	City of Arcadia	This project involves the design and construction of a transit plaza adjacent to the Gold Line Arcadia Station. The transit plaza will include hardscape, softscape, street furniture (e.g., benches, trash receptacles, and lighting fixtures), way-finding signage, and public art features.	Construction closures for the Transit Plaza began in September 2014. Metro's Gold Line is anticipated to open in 2015 in this area. Source: City of Arcadia website - http://www.ci.arcadia.ca.us/docs/ final_adopted_cip_equipment_budget_fy13-18.pdf. Source: http://arcadiasbest.com/2012/07/gold-line-station-design/, accessed July 2013); http://thesource.metro.net/tag/arcadia/, accessed May 27, 2014.	Community Impacts Traffic/Transportation Paleontological Resources Source: Metro Gold Line Foothill Extension – Pasadena to Azusa Final Environmental Impact Report (February 2007). Source: Metro Gold Line Foothill Extension - Azusa to Montclair Final Environmental Impact Report (February 2013).

TABLE 3.1:
Summary Table

Project ID No.	Project Title	Lead Agency	Project Description	Project Status	Relevant Cumulative Environmental Factors
23	Station Square Transit Village	City of Monrovia	The project will provide a transportation facility for satellite parking for the Sierra Madre Villa Gold Line Station, park-and-ride for commuters, and a Foothill Transit store. The Center will have three bus bays and at least four shelters. The shelters will all have benches with a seating capacity of at least 10 people in each shelter. The area will have lighting for safety and security, trash receptacles, drinking fountains, and information kiosks. Additional traffic signals and a right-hand, bus-only turn lane will also be provided.	Gold Line Operations Facility on Evergreen Avenue between California and Shamrock Avenues: 10/2012 to 1/2015. Grade Crossings: • **California Avenue:** Work began on March 9, 2013, on improvements at this grade crossing. California Avenue will be closed through September 2013 to complete this work. California Avenue is forecast to reopen by mid-January 2014. • **Mayflower Avenue:** Work was completed in late November 2013. • **Myrtle Avenue:** Work will begin on the Myrtle Avenue crossing following the re-opening of California Avenue, in mid-January 2014. Myrtle Avenue is forecast to be fully closed to through traffic for 5 months (through June 2014). A detour route will be in place during the closure. • **Mountain Avenue:** Utility relocation work began in July 2013 and will occur on an intermittent basis through early 2014. Once completed, a full closure of Mountain Avenue is planned. The closure will begin following Myrtle Avenue re-opening to through traffic, and is forecast to begin in June 2014 and be completed in November 2014. • **Magnolia Avenue:** Work on the crossing at Magnolia Avenue is forecast to begin in June 2014 and last through August 2014. • **Monrovia (Center Platform):** Construction is underway on the Monrovia Station. Work began in February 2013 and will continue until May 2015. Source: http://www.foothillextension.org/cities-stations/monrovia/, accessed May 16, 2014.	Traffic/Transportation Paleontological Resources Source: Metro Gold Line Foothill Extension – Pasadena to Azusa Final Environmental Impact Report (February 2007). Source: Metro Gold Line Foothill Extension - Azusa to Montclair Final Environmental Impact Report (February 2013).
24	Alhambra Bicycle Master Plan	City of Alhambra	Development of a network of comprehensive system of bike paths, lanes, and routes while integrating this system with homes, jobs, public transit, recreational resources, and adjacent communities. The project would also implement a bicycle parking policy.	A series of prioritized bikeway projects will be implemented over the next 10 years. A Draft Master Plan was published in February 2013. Source: Alhambra Bicycle Master Plan (February 2013) and Administrative Draft Plan (November 14, 2012). Source: http://www.cityofalhambra.org/imagesfile/file/201311/bikeplan_03_13.pdf, accessed May 16, 2014.	Land Use Traffic Source: Findings of Fact Regarding the Final Program Environmental Impact Report for County of Los Angeles Bicycle Master Plan.
25	Lincoln Avenue Specific Plan	City of Pasadena	The Lincoln Avenue Specific Plan and zone change proposes to change land uses as well as establish new development standards within the Lincoln Avenue corridors. The Specific Plan proposes to gradually convert existing industrial and auto-related land uses to a neighborhood-serving retail/commercial district. Build out of the Lincoln Avenue Specific Plan would allow up to an additional 500,000 sf of commercial/office/retail uses and 91 additional residential units. Mixed-use opportunities (commercial/residential) would also be introduced along the corridor. Additionally, two Opportunity Sites are identified in the Specific Plan that are underutilized and have the potential for redevelopment. Source: http://www.ceqanet.ca.gov/DocDescription.asp?DocPK=660685.	Specific Plan adopted in October 2013 and will guide future development in the Lincoln Avenue Corridor. Source: http://cityofpasadena.net/Lincoln_Avenue_Specific_Plan.aspx, accessed May 16, 2014.	Land Use Utilities Traffic/Transportation Visual Paleontological Resources Air Quality Source: Lincoln Avenue Specific Plan Environmental Impact Report (March 2013) http://cityofpasadena.net/Lincoln_Avenue_Specific_Plan.aspx.

TABLE 3.1:
Summary Table

Project ID No.	Project Title	Lead Agency	Project Description	Project Status	Relevant Cumulative Environmental Factors
26	Crown City Medical Center	City of Pasadena	The project allows for the development of a 112,252 sf, five-story medical office and retail building over a six-level parking garage (one level at-grade and five subterranean levels). Excavation for the parking garage would be to an approximate depth of approximately 56 ft and would require a total of 80,000 cy of export. The project will provide 476 parking spaces. Access to and from the parking structure would be from Converse Alley. Source: http://www.ceqanet.ca.gov/DocDescription.asp?DocPK= 665413.	A DEIR was completed in November 2012. Public hearing to consider approval of the proposed land use approvals and the SEIR, and consider adoption of a Statement of Overriding Considerations, April 24, 2013. Source: http://www.ceqanet.ca.gov/DocDescription.asp?DocPK= 665413, accessed May 27, 2014.	Traffic/Transportation Visual Paleontological Resources Source: Crown City Medical Center Subsequent Draft EIR (executive summary) (October 2012).
27	16 East California Project	City of Pasadena	The proposed project includes demolition of the three existing on-site structures (totaling approximately 12,635 sf) and surface parking areas in order to develop a four-story, 113,200 gross square foot office building with 255 parking spaces provided within a two-level subterranean parking garage. Source: http://www.ceqanet.ca.gov/DocDescription.asp?DocPK= 630765.	Demolition of three existing buildings for construction of a four-story, 100,000 sf office building occurred in 2008. Information regarding the start of construction is not available. Source: personal conversation – City of Pasadena Planning Desk, June 27, 2014	Although the environmental document is not available for this project, the following impacts are expected to occur: Visual Paleontological Resources
28	Magellan Gateway Project	City of El Monte	The Magellan Gateway Project (formerly Temple Palms Business Park) proposes the construction of 502,020 sf of light industrial, commercial, and warehousing facilities on a vacant 26.8 ac site. The proposed business park would consist of a total of five buildings ranging in size from 54,800 sf to 164,330 sf, in a business park setting. All five buildings would be arranged to take access from a central driveway traversing the project site in an east-west orientation and a secondary driveway located at the northeast corner of the project boundary. Building heights would range between 35 to 40 ft to the top of the parapet. Source: http://www.ceqanet.ca.gov/DocDescription.asp?DocPK= 651589.	A NOD for Magellan Gateway Project (formerly Temple Palms Business Park), an Addendum to the EIR No. 1, was issued in February 2014. Source: http://www.ceqanet.ca.gov/NODdescription.asp?DocPK= 678717, accessed May 27, 2014.	Traffic/Transportation Hydrology/Floodplain Air Quality Source: Temple Palms Business Park Environmental Impact Report (May 2011).
29	El Monte Walmart	City of El Monte	The project proposes 182, 429 sf of new retail/commercial uses within an approximately 15.41 ac site, located in the northwestern portion of the City of El Monte near the intersection of Valley Boulevard and Arden Drive. The project includes the proposed El Monte Walmart and all facilities proposed within the project site, on-and off-site supporting improvements, and associated discretionary actions. Source: http://www.ceqanet.ca.gov/ProjDocList.asp?ProjectPK= 630100, Accessed May 27, 2014.	A Notice of Preparation was published in March 2014. Source: http://www.ceqanet.ca.gov/ProjDocList.asp?ProjectPK= 630100, Accessed May 27, 2014. Construction is anticipated to begin in late 2014. Source: http://www.sgvtribune.com/business/20130910/residents-voice-comments-concerns-over-proposed-walmart-in-el-monte, accessed May 28, 2014.	Traffic/Circulation
30	Olive Pit Mining and Reclamation Operations and Long-Term Reuse Project	City of Irwindale	The City of Irwindale owns and maintains an inactive mining site referred to as the "Olive Pit." The City's long-term goal for the property is to use a portion of the site for development and the remainder for long-term use as a storm water retention area. The City intends to enter into a License and Mining Agreement with United Rock Products to extract the all economically recoverable mineral resources from the Olive Pit, and reclamation of the eastern 32 ac by filling to street level for future development. The remainder of the property will be reclaimed for storm water retention. Source: http://www.ceqanet.ca.gov/DocDescription.asp?DocPK= 679402, accessed May 28, 2014.	A Notice of Preparation was published in March 2014. Construction is anticipated to begin Summer 2015 and be completed in 2020.	Air Quality Drainage/Absorption Traffic/Circulation

TABLE 3.1:
Summary Table

Project ID No.	Project Title	Lead Agency	Project Description	Project Status	Relevant Cumulative Environmental Factors
31	Huntington Memorial Hospital Master Development Plan Amendment	City of Pasadena	Huntington Memorial Hospital, which is located at 100 West California Boulevard, is a 29.11 ac site. The hospital is proposing to amend its Master Development Plan with rehabilitation and development that will occur in phases over the next 20 years, as well as reconfiguration of the Plan's boundary area. Source: http://www.ceqanet.ca.gov/DocDescription.asp?DocPK= 654053.	An IS was prepared in July 2011. An EIR is in preparation.	Land Use Traffic Visual Paleontological Resources Air Quality Source: Huntington Memorial Hospital Master Development Plan Amendment and Zone Change Initial Study (July 2011).
32	Devil's Gate Reservoir Sediment Removal and Management Project	Los Angeles County Flood Control District	This project will remove sediment from Devil's Gate Reservoir to restore capacity, protect the dam and its valves, and reduce the risk of flooding in the communities located downstream along the Arroyo Seco. This effort will include removal of approximately 2.9 million cubic yards of existing excess sediment in the reservoir in addition to any additional sediment that accumulates during construction. The purpose of the proposed annual management is to reduce buildup of sediment in the reservoir management area and eliminate or substantially reduce the occurrence of another large-scale sediment removal project in the future. Source: http://www.ceqanet.ca.gov/DocDescription.asp?DocPK= 675267, accessed June 4, 2014.	Sediment removal activities are expected to occur over the course of approximately 5 years beginning Summer 2015. Reservoir management is expected to start after 2020. A Notice of Preparation was published in September 2011, and a DEIR was published in October 2013. Source: http://dpw.lacounty.gov/wrd/Projects/DevilGate/DEIR/ Devils_Gate_DEIR_2013_10_23_Executive_Summary.pdf - Accessed June 19, 2014.	Air Quality Traffic/Circulation
33	Garfield Reservoir Replacement Project	City of South Pasadena	The City of South Pasadena proposes the construction of a replacement for the Garfield Reservoir. The Garfield Reservoir is a 6.25-million-gallon reservoir that is constructed of concrete and covered by a metal roof supported on a wood frame. A replacement reservoir is needed to bring the Garfield Reservoir up to current seismic standards. The proposed project includes demolition of the existing Garfield Reservoir and pump station and construction of two replacement reservoirs, a pump station, inlet/outlet vault, rechlorination room, and a Water Distribution support yard on the project site. The proposed project also includes the replacement of a storm drain within an existing easement through the adjacent Blair High School athletic field. Source: http://www.ceqanet.ca.gov/NODdescription.asp?DocPK= 676082, accessed May 28, 2014.	An MND was completed in November 2011 and an NOD issued in October 2013. Construction of the proposed project is expected to begin in fall 2013 and is expected to last for 18 months.	Although no environmental document was available for this project, it is anticipated that no substantial impacts would occur.
34	Arroyo Seco Pedestrian and Bicycle Trail	City of South Pasadena	Construction of a pedestrian and bicycle trail (approximately 0.65 mi), which will be an extension of the existing Arroyo Seco Bike Trail located in the City of Los Angeles. The proposed trail is planned to begin at the western limit of the City of South Pasadena, run north through the City's Nature Park and the Arroyo Seco Golf Course, continue north along Lohman Lane, and terminate at Stoney Drive. The project will require the removal of a 20 ft wide section from the driving range of the golf course, the replacement of driving range facilities, and an encroachment into the golf course parking lot. Proposed trail elements include landscaping, irrigation, benches, trash cans, drinking fountains, educational displays, information and directional signage to amenities and other trails, and an enhanced pedestrian and bicycle entry gate at the golf course entrance. Source: http://www.ceqanet.ca.gov/DocDescription.asp?DocPK= 674681, accessed May 28, 2014.	An MND was completed in September 2013. Construction is anticipated to begin in March 2016 and be completed by October 2016.	Although no environmental document was available for this project, it is anticipated that no substantial impacts would occur.

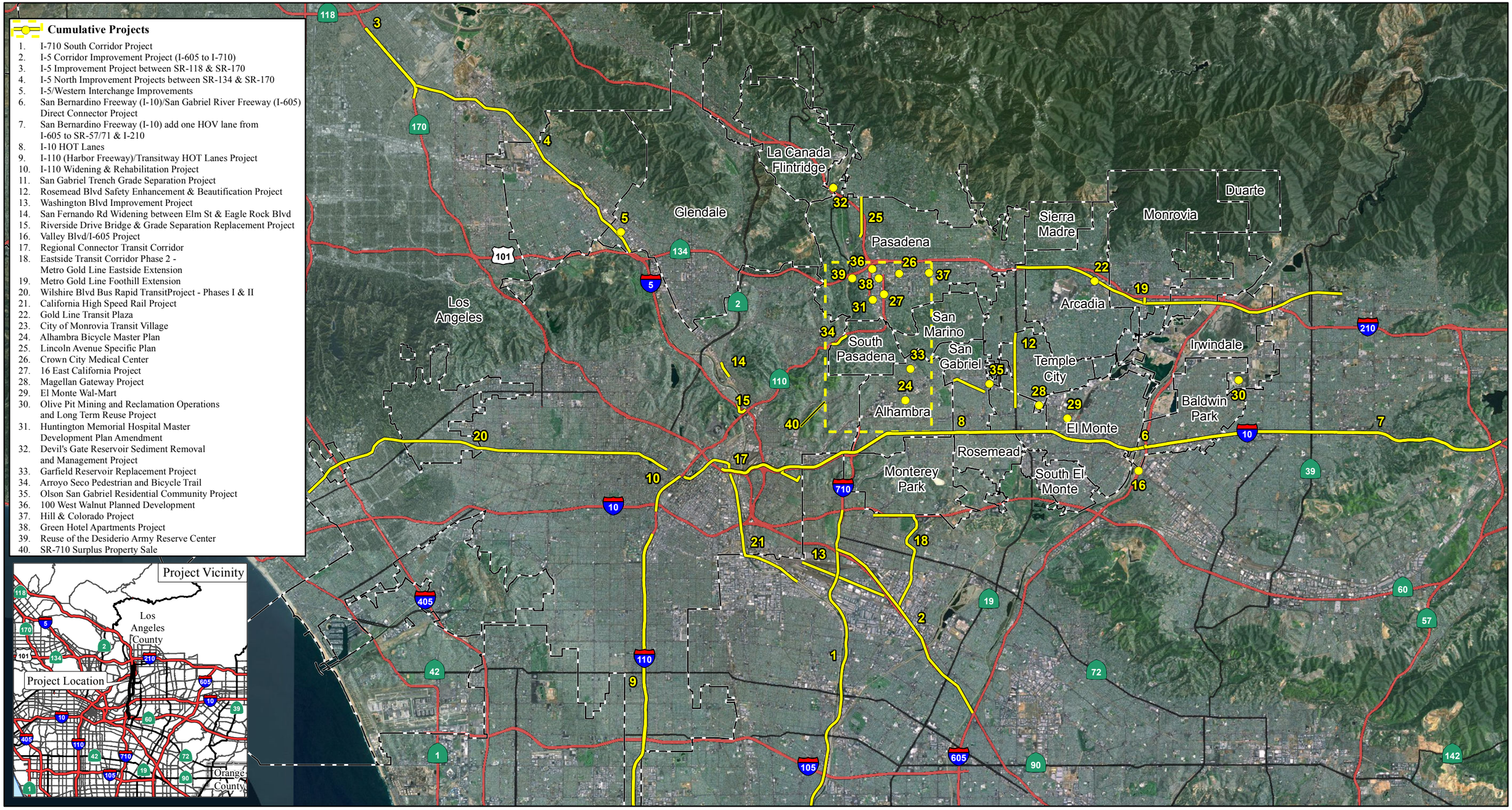
TABLE 3.1:
Summary Table

Project ID No.	Project Title	Lead Agency	Project Description	Project Status	Relevant Cumulative Environmental Factors
35	Olson San Gabriel Residential Community Project	City of San Gabriel	The proposed project consists of 88 new condominium residential units on 5.4 ac and demolition of a portion of a 170,000 sf warehouse building that overlaps the Cities of San Gabriel and Rosemead. The entire property occupies 9.18 ac and spans both sides of the Rubio Wash, a Los Angeles County flood control channel, and is just south of the UPRR line. The existing warehousing use in Rosemead will continue and is being processed as Categorical Exemption (Class I - Existing Facilities), but the EIR will examine the cumulative effects of both discretionary actions. The portion of the building located west of the Rubio Wash in the City of San Gabriel will be demolished, and the remaining 77,000 sf building located in Rosemead will be converted to a freestanding warehouse building. Source: http://www.ceqanet.ca.gov/ProjDocList.asp?ProjectPK= 628538, accessed May 28, 2014.	A Notice of Preparation was published in December 2013. A DEIR was prepared in March 2014, and a FEIR was prepared in May 2014. The project was approved by the City Council in June 2014. Construction is anticipated to begin in late 2014 and be completed by early 2017. Sources: Draft EIR-April 2014. Personal conversation – LSA Associates, Inc.	Archaeologic-Historic Land Use
36	100 West Walnut Planned Development	City of Pasadena	The proposed 100 West Walnut development is a mixed-use development that would complement the existing office buildings on site with the proposed development of 620,000 sf of office uses, of which up to 30,000 sf could be used for ancillary retail uses, 10,000 sf for restaurant uses, and 475 residential units. The proposed development would be located on the paved parking area on site, and parking for this project would be provided via a multilevel subterranean parking structure offering a minimum of 3,760 parking spaces, which includes replacement spaces lost with the removal of the existing surface parking areas at the project site. All proposed development would occur within the portion of the project site located north of Holly Street. Source: http://www.ceqanet.ca.gov/DocDescription.asp?DocPK= 672184, accessed May 28 2014.	A Notice of Preparation and an IS were prepared in July 2013. Construction is anticipated to begin in 2016 and be completed by 2020.	Aesthetic/Visual Air Quality Archaeologic-Historic Drainage/Absorption Traffic/Circulation Land Use Utilities/Emergency Services
37	Hill and Colorado Project	City of Pasadena	The proposed project involves the establishment of a Planned Development District for two sites on opposite sides of Colorado Boulevard in the City of Pasadena. The proposed project involves the establishment of a Planned Development District that delineates development standards relative to building setbacks, heights, form, mass, scale, and other design considerations for future development at the site. Based on the proposed development standards, which can be considered to constitute a "development envelope," the project proponent proposes a potential development concept that would provide approximately 438,685 sf of building space at the project site for uses currently allowed under the existing zoning, specifically hotel development and commercial/retail uses. Source: http://www.ceqanet.ca.gov/DocDescription.asp?DocPK= 675165, accessed May 28, 2014.	A Notice of Preparation and an IS were prepared in October 2013.	Aesthetic/Visual Air Quality Archaeologic-Historic Drainage/Absorption Traffic/Circulation Land Use Utilities/Emergency Services

TABLE 3.1:
Summary Table

Project ID No.	Project Title	Lead Agency	Project Description	Project Status	Relevant Cumulative Environmental Factors
38	Green Hotel Apartments Project	City of Pasadena	The proposed project involves construction of a six-story mixed-use building with 64 residential units and 5,000 sf of commercial space on an existing surface parking lot at 86 South Fair Oaks Avenue in Pasadena. The project site is 32,362 sf, and the proposed mixed-use building would be 76,980 sf in size and 75 ft high. Source: http://www.ceqanet.ca.gov/DocDescription.asp?DocPK= 677874, accessed May 28, 2014.	A DEIR was circulated in January 2014. Construction is anticipated to begin in August 2014 and be completed by December 2016.	Traffic/Circulation Land Use
39	Reuse of the Desiderio Army Reserve Center	City of Pasadena	The 5.1 ac site was formerly the grounds and recreation area of the Vista del Arroyo Hotel and Resort complex, which was built in 1903. The proposed project includes two primary components: a 3.87 ac city park and nine single-family detached bungalow homes in a courtyard formation. The southeast portion of the site would be developed into nine bungalow homes by Habitat for Humanity, encompassing a total of 1.29 ac. Source: http://www.ceqanet.ca.gov/DocDescription.asp?DocPK= 680110, accessed May 27, 2014.	A Notice of Preparation was published in September 2013 and a DEIR was circulated in April 2014. Construction is anticipated to begin in late 2014 and be completed by 2016.	Archaeological/Historical Transportation
40	SR 710 Surplus Property Sale	Caltrans	Caltrans proposes to sell surplus properties originally acquired for a surface freeway project on SR 710 in the Cities of Los Angeles, Pasadena, and South Pasadena in Los Angeles County. Some of the properties are listed in or eligible for the National Register of Historic Places, the California Register of Historic Resources, and/or designated locally significant.	An NOP was issued on June 27, 2014. An EIR will be prepared.	At this time, an NOP has been issued. Without an environmental document, it is speculative to disclose the cumulative environmental factors related to this project.

ac = acre/acres
ADA = Americans with Disabilities Act
Caltrans = California Department of Transportation
cy = cubic yard/yards
DEIR/DEIS = Draft Environmental Impact Report/Draft Environmental Impact Statement
EIR/EA = Environmental Impact Report/Environmental Assessment
EIS/EIR = Environmental Impact Statement/Environmental Impact Report
FEIR = Final Environmental Impact Report
ft = foot/feet
FTA = Federal Transit Administration
FONSI = Findings of No Significant Impact
HOV = high-occupancy vehicle
HOT = high-occupancy toll
I-10 = Interstate 10
I-105 = Interstate 105
I-110 = Interstate 110
I-170 = Interstate 170
I-210 = Interstate 210
I-405 = Interstate 405
I-5 = Interstate 5
I-605 = Interstate 605
I-710 = Interstate 710
IS = Initial Study
IS/EA = Initial Study/Environmental Assessment
IS/ND = Initial Study/Negative Declaration
Metro = Los Angeles County Metropolitan Transportation Authority
mi = mile/miles
MND = Mitigated Negative Declaration
NOD = Notice of Determination
NOP = Notice of Preparation
RCTC = Riverside County Transportation Commission
RDEIR/SDEIS = Revised Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement
RFP = Request for Proposal
SANBAG = San Bernardino Associated Governments
SANDAG = San Diego Association of Governments
SCAG = Southern California Association of Governments
SEIR = Supplemental Environmental Impact Report
sf = square foot/feet
SR 118 = State Route 118
SR 134 = State Route 134
SR 170 = State Route 170
SR 2 = State Route 2
SR 57/71 = State Route 57/State Route 71
SR 60 = State Route 60
SR 91 = State Route 91
SR 710 = State Route 710
UPRR = Union Pacific Railroad



LEGEND

Cities within Project Area

FIGURE 3-1

0 1.5 3
Miles

SOURCE: US-CA-LosAngeles-S (05/25/2010)

I:\CHM1105\GIS\MXD\Cumulative\CumulativeProjects.mxd (10/29/2014)

SR 710 North Study

Cumulative Projects

07-LA-710 (SR 710)
EA 187900
EFIS 0700000191

This page intentionally left blank

4. Results

4.1 Resources Excluded from Cumulative Impact Analysis

The State Route 710 North Study (SR 710 North Study) involves improving efficiency of the existing regional freeway and transit networks, reducing congestion on local arterials adversely affected due to accommodating regional traffic volumes, and minimizing environmental impacts related to mobile sources. Based on the scope of the SR 710 North Study, the affected environment of the study area, and the technical studies prepared for the proposed project, the following resources would not be substantially impacted by the project and are not at risk:

- **Farmlands and Timberlands:** There are no timberlands or prime, unique, or soils of local significance for farmlands within the study area. Therefore, there are no recognized environmental concerns related to farmlands and timberlands for any of the SR 710 North Study Build Alternatives.

4.2 Resources Evaluated for Cumulative Impacts

4.2.1 Land Use

The information in this section is based on the *Community Impact Assessment* (2014) prepared for the SR 710 North Study.

4.2.1.1 Resource Study Area

Because land use impacts would occur in the area where the Build Alternatives would be operating, the study area for the SR 710 North Study is used as the Resource Study Area (RSA) for the purpose of the land use cumulative impacts analysis. The study area is bounded by Interstate 210 (I-210) on the north, Interstate 605 (I-605) on the east, Interstate 10 (I-10) on the south, and Interstate 5 (I-5) and State Route 2 (SR 2) on the west. The study area includes portions of the cities and communities of Alhambra, Arcadia, Commerce, Duarte, El Monte, Glendale, Irwindale, La Cañada Flintridge, Los Angeles, Monrovia, Montebello, Monterey Park, Pasadena, Rosemead, San Gabriel, San Marino, Sierra Madre, South Pasadena, and Temple City.

4.2.1.2 Health and Historical Context

The study area for the SR 710 North Study consists of a mixture of residential, commercial, industrial, open space, transportation, and agricultural land uses. Areas of mixed commercial and industrial are mainly located along the major freeways in the cities/communities of Pasadena, Lincoln Heights, El Sereno, El Monte, and Irwindale. Overall, the study area cities are older, substantially urbanized communities where existing development and land use patterns have been in place for many years.

According to the local General Plans, substantial new growth in the area is no longer occurring, or projected to occur, with the exception of redevelopment projects in selected areas. Three generalizations about the study area cities emerge from the General Plans. First, most of the cities seek a more transit-oriented transportation system. Second, most cities would prefer an integrated

system of walking, bicycling, and equestrian trails. Lastly, an efficient roadway system is a common goal amongst the study area cities.

4.2.1.3 Project Impacts

Future and Existing Land Uses

Tables 4.1 through 4.5 identify the impacts to particular land use designations by each Build Alternative within the RSA.

TABLE 4.1:
Use of General Plan Designated Land Uses by the TSM/TDM Alternative

City or Neighborhood	General Plan Designated Land Uses (acres[1])					
	Commercial/ Office	Mixed Urban	Multifamily Residential	Public Facility	Single-Family Residential	Grand Total
Alhambra	0.02	-	-	-	-	0.02
Eagle Rock	-	-	-	0.01	-	0.01
Pasadena	-	0.39	0.01	-	-	0.40
Rosemead	-	0.002	-	-	-	0.002
San Gabriel	0.02	-	-	0.03	0.001	0.05
South Pasadena	0.05	-	0.01	-	-	0.06
Grand Total	**0.10**	**0.40**	**0.02**	**0.04**	**0.001**	**0.55**

Source: *Community Impact Assessment* (2014).
[1] Values are rounded to two decimal places except where three decimal places were necessary to provide a value; therefore, the grand totals are rounded as well.
TSM/TDM = Transportation System Management/Transportation Demand Management

TABLE 4.2:
Use of General Plan Designated Land Uses by the BRT Alternative

City or Community	General Plan Designated Land Uses (acres[1])			
	Commercial/Office	Mixed Urban	Multifamily Residential	Grand Total
Alhambra	0.04	0.06	0.03	0.14
East Los Angeles	0.03	-	-	0.03
Monterey Park	0.02	0.04	-	0.07
Pasadena	-	0.01	-	0.01
South Pasadena	0.08	-	0.01	0.08
Grand Total	**0.16**	**0.11**	**0.04**	**0.32**

Source: *Community Impact Assessment* (2014).
[1] Values are rounded to two decimal places; therefore, the grand totals are rounded as well.
BRT = Bus Rapid Transit

TABLE 4.3:
Use of General Plan Designated Land Uses by the LRT Alternative

City, Neighborhood, or Community	General Plan Designated Land Uses (acres[1])					
	Commercial/ Office	Mixed Commercial and Industrial	Mixed Urban	Multifamily Residential	Public Facilities	Grand Total
Alhambra	2.83	-	0.01	-	-	2.83
East Los Angeles	-	2.15	-	0.01	0.01	2.17
El Sereno	-	-	-	-	3.02	3.02
Monterey Park	0.65	1.59	-	-	0.69	2.93
Pasadena	-	-	2.00	-	-	2.00
South Pasadena	5.03	-	-	0.01	-	5.04
Grand Total	**8.51**	**3.74**	**2.01**	**0.02**	**3.73**	**18.00**

Source: *Community Impact Assessment* (2014).
[1] Values are rounded to two decimal places; therefore, the grand totals are rounded as well.
LRT = Light Rail Transit

TABLE 4.4:
Use of General Plan Designated Land Uses by the Freeway Tunnel Alternative Single-Bore Design Variation

City or Neighborhood	General Plan Designated Land Uses (acres)			
	Commercial/Office	Mixed Urban	Public Facility	Grand Total
Alhambra	-	0.27	-	0.27
El Sereno	0.11	-	1.05	1.16
Grand Total	**0.11**	**0.27**	**1.05**	**1.43**

Source: *Community Impact Assessment* (2014).

TABLE 4.5:
Use of General Plan Designated Land Uses by the Freeway Tunnel Alternative Dual-Bore Design Variation

City or Neighborhood	General Plan Designated Land Uses (acres)			
	Commercial/Office	Mixed Urban	Public Facility	Grand Total
Alhambra	-	0.27	-	0.27
El Sereno	0.11	-	1.05[1]	1.16
Grand Total	**0.11**	**0.27**	**1.05**	**1.43**

Source: *Community Impact Assessment* (2014).
[1] Partial acquisition of 0.6 acre on Assessor's Parcel Number (APN) 5223034908 would not result in land use impacts because the City of Los Angeles General Plan does not designate any land uses on the portion of this parcel that would be acquired.

TSM/TDM Alternative

As shown in Table 4.1, the Transportation System Management/Transportation Demand Management (TSM/TDM) Alternative would permanently convert approximately 0.55 acre (ac) of General Plan designated commercial/office, mixed-urban, multifamily residential, public facility, and single-family residential uses to transportation uses. The TSM/TDM Alternative would result in inconsistencies with the circulation/transportation elements of three local jurisdictions' General Plans (Cities of Alhambra and Los Angeles, and County of Los Angeles), the program goal of one Specific Plan (Valley Boulevard Corridor), and an objective of one community plan (Northeast Los Angeles). Please refer to the "Consistency with State, Regional, and Local Plans" subsections below for more detail on these inconsistencies. If the TSM/TDM Alternative is selected for implementation, those inconsistencies would exist until the applicable local General Plan or Specific Plan is amended to reflect the transportation improvements in the TSM/TDM Alternative.

BRT Alternative

As shown in Table 4.2, the Bus Rapid Transit (BRT) Alternative would permanently convert approximately 0.32 ac of General Plan designated, commercial/office, mixed urban, and multifamily residential uses to transportation uses. The BRT Alternative would result in inconsistencies with the circulation/transportation elements of three local jurisdictions' General Plans (Cities of Alhambra and Monterey Park, and County of Los Angeles) and the program goal of one Specific Plan (Valley Boulevard Corridor). Please refer to the "Consistency with State, Regional, and Local Plans" subsections below for more detail on these inconsistencies. If the BRT Alternative is selected for implementation, those inconsistencies would exist until the applicable

local General Plan or Specific Plan is amended to reflect the transportation improvements in the BRT Alternative.

LRT Alternative

As shown in Table 4.3, the Light Rail Transit (LRT) Alternative would permanently convert approximately 18 ac of General Plan designated commercial/office, mixed commercial/industrial, mixed urban, multifamily residential, and public facilities uses to transportation uses. The LRT Alternative would result in inconsistencies with the circulation/transportation elements of four local jurisdictions' General Plans (Cities of Alhambra, Los Angeles, and Monterey Park, and County of Los Angeles), the program goals of one Specific Plan (Valley Boulevard Corridor) and one community plan (Northeast Los Angeles). Please refer to the "Consistency with State, Regional, and Local Plans" subsections below for more detail on these inconsistencies. If the LRT Alternative is selected for implementation, those inconsistencies would exist until the applicable local General Plan, Specific Plan, or community plan is amended to reflect the transportation improvements in the LRT Alternative.

Freeway Tunnel Alternative

As shown in Table 4.4, the single-bore design variation of the Freeway Tunnel Alternative would permanently convert approximately 1.43 ac of land designated in the General Plan for commercial/office, mixed urban, and public facilities uses to transportation uses.

As shown in Table 4.5, the dual-bore design variation of the Freeway Tunnel Alternative would permanently convert approximately 1.43 ac of land designated in the General Plan for commercial/office, mixed urban, and public facilities uses to transportation uses.

Both the single-bore and dual-bore design variations of the Freeway Tunnel Alternative would result in inconsistencies with the circulation/transportation element of two local jurisdiction's General Plans (Alhambra and South Pasadena), the program goal of one Specific Plan (Valley Boulevard Corridor), and one community plan (Northeast Los Angeles). Please refer to the "Consistency with State, Regional, and Local Plans" subsections below for more detail on these inconsistencies. If the Freeway Tunnel Alternative is selected for implementation, those inconsistencies would exist until the local General Plan, Specific Plan, or community plan is amended by the local jurisdiction to reflect the transportation improvements in the Freeway Tunnel Alternative.

Consistency with State, Regional, and Local Plans

The TSM/TDM, BRT, and LRT Alternatives would be generally consistent with the goals, objectives, and policies in the local jurisdictions' General Plans and Specific Plans. However, as stated previously in Section 4.2.1.3, the TSM/TDM, BRT, LRT, and Freeway Tunnel Alternatives would result in inconsistencies with certain local jurisdictions' General Plans, Specific Plans, and community plans.

TSM/TDM Alternative: The Southern California Association of Governments (SCAG) 2012 RTP/SCS and 2013 FTIP include a tunnel extension of SR 710 North with four toll lanes in each direction. The TSM/TDM Alternative is not consistent with the scope of the design concept for the project in the 2012 RTP/SCS and 2013 FTIP. Therefore, should the TSM/TDM Alternative be selected, the RTP and FTIP would have to be amended. Although the TSM/TDM Alternative is not included in the scope of

the 2012 RTP/SCS and 2013 FTIP, this alternative is consistent with all relevant RTP/SCS regional transportation goals.

The TSM/TDM Alternative would result in inconsistencies with three local jurisdictions' General Plans (Cities of Alhambra and Los Angeles, and County of Los Angeles), one Specific Plan (Valley Boulevard Corridor), and an objective of one community plan (Northeast Los Angeles). These inconsistencies are as follows:

- City of Alhambra General Plan Circulation Element
  - *Objective 4.1.1:* The TSM/TDM Alternative would not maintain Level of Service D as the minimum desired operating level at all study intersections.
  - *Objective 4.2.1:* The TSM/TDM Alternative would not maintain Level of Service D as the minimum operating level desired at all study intersections.
  - *Policy 4.4.1:* The TSM/TDM Alternative would not encourage the completion of the Long Beach Freeway (Interstate 710 [I-710]) extension.
- City of Los Angeles General Plan Transportation Element
  - *Policy 2.33:* The TSM/TDM Alternative would not complete I-710 between El Sereno and Pasadena, which is shown on Map A5 of the City of Los Angeles General Plan Transportation Element, and would construct a new connector road between Valley Boulevard and Mission Road, which is not shown on Map A5 of this element.
- Los Angeles County General Plan Transportation Policy
  - *Policy 51:* The TSM/TDM Alternative would not promote the completion of gaps or missing segments in partially completed freeways.
  - *Policy 52:* The TSM/TDM Alternative would not provide for more efficient multimodal use of the current freeway system.
- Valley Boulevard Corridor Specific Plan
  - *Program Goal: The* TSM/TDM Alternative would result in level of service (LOS) deterioration to unacceptable levels at one study intersection in the Valley Boulevard Corridor Specific Plan area during the a.m. peak hour (Marengo Avenue/Valley Boulevard) in 2035 as compared to the No Build Alternative.
  - *Program Goal:* The TSM/TDM Alternative would not support the extension of I-710 and would not pursue operational and capacity improvements for I-710.
- Northeast Los Angeles Community Plan
  - *Objective 10-1:* The TSM/TDM Alternative would not comply with citywide performance standards for acceptable levels of service and ensure that necessary road access and street improvements are provided to accommodate traffic generated by all new development because the TSM/TDM Alternative would not maintain LOS D at all study intersections.

- **BRT Alternative:** The BRT Alternative would result in the same inconsistencies as the TSM/TDM Alternative, with the exception of the City of Los Angeles and in addition to the following:

- City of Alhambra General Plan Circulation Element
  - *Objective 4.1.1:* The BRT Alternative would not maintain level of service (LOS) D as the minimum desired operating level of all City streets because it would result in LOS deterioration to unacceptable levels at three study intersections in the City of Alhambra during the a.m. peak hour and at six study intersections during the p.m. peak hour in 2035 as compared to existing conditions.
  - *Objective 4.2.1:* The BRT Alternative would not maintain LOS D as the minimum operating level desired at all arterial highway intersections for the reasons listed above under Objective 4.1.1.
- City of Monterey Park General Plan Circulation Element
  - *Policy 1.2:* The BRT Alternative would not participate actively in efforts to lobby elected officials and State and federal legislatures for completion of the I-710.

- **LRT Alternative:** The LRT Alternative would result in the same inconsistencies with the local jurisdictions' General Plans and Specific Plans identified under the TSM/TDM and BRT Alternatives .
- **Freeway Tunnel Alternative:** The SCAG 2012 RTP/SCS and 2013 FTIP both include a tunnel extension of SR 710 North with four toll lanes in each direction. The tolled-operational variations of the dual-bore Freeway Tunnel Alternative design variation are consistent with the design concept and scope of the project description in the 2012 RTP and 2013 FTIP. Therefore, the tolled, dual-bore Freeway Tunnel Alternative design variation is in conformance with the SIP. Should the single-bore design variation and the non-tolled operational variations of the dual-bore design variation of the Freeway Tunnel Alternative be selected, the RTP and FTIP would have to be amended. Although only the tolled operational variations of the dual-bore Freeway Tunnel Alternative design variation are in the scope of the 2012 RTP/SCS and 2013 FTIP, each of the operational and design variations included in the Freeway Tunnel Alternative is consistent with all relevant RTP/SCS regional transportation goals. The Freeway Tunnel Alternative would also be generally consistent with the goals, objectives, and policies in the local jurisdictions' General Plans and Specific Plans. In addition to the inconsistencies with the same local jurisdictions' General Plans and Specific Plans listed above for the other Build Alternatives, the Freeway Tunnel Alternative would result in the following inconsistency with the South Pasadena General Plan:
  - South Pasadena General Plan Circulation and Accessibility Element
    - **No 710 Extension Policy:** The Freeway Tunnel Alternative would not be consistent with this policy because the City has consistently and unanimously opposed a second freeway for over 45 years and this position is reinforced by Proposition G-G, passed by the voters of South Pasadena in November 1986, and Resolution 6473 passed May 21, 1997.

If any of the Build Alternatives are selected for implementation, the land use inconsistencies described above would exist until the applicable local General Plan or Specific Plan is amended by the local jurisdictions to reflect the transportation improvements in the Build Alternatives.

Parks and Recreation

The following parks and recreational facilities would be temporarily and/or permanently affected by the Build Alternatives. Of the resources listed below, only Cascades Park triggers the requirement for protection under Section 4(f).

- **TSM/TDM Alternative:** The TSM/TDM Alternative would have temporary and permanent impacts on the following parks and recreation resources:
  - City of Alhambra
    - *Gateway Plaza Park:* Short- and long-term noise impacts; short-term traffic/access impacts
  - Eagle Rock
    - *Richard Alatorre Park:* Short- and long-term noise impacts; short-term air quality impacts; short-term traffic/access impacts
    - *Eagle Rock Recreation Center:* Short- and long-term noise impacts; short-term air quality impacts; short-term traffic/access impacts
  - El Sereno
    - *El Sereno Arroyo Playground:* Short- and long-term noise impacts; short-term air quality impacts; short-term traffic/access impacts
  - City of Pasadena
    - *Allendale Park:* Short-term air quality impacts; short-term traffic/access impacts
    - *Singer Park:* Short- and long-term noise impacts; short-term air quality impacts; short-term traffic/access impacts
  - San Marino
    - *San Marino Recreation Department:* Short- and long-term noise impacts; short-term traffic/access impacts
  - South Pasadena
    - *War Memorial Park:* Short- and long-term noise impacts; short-term air quality impacts; short-term traffic/access impacts
- **BRT Alternative:** The BRT Alternative would have temporary and permanent impacts on the following parks and recreation resources:
  - East Los Angeles
    - *Atlantic Avenue Park:* Short- and long term noise impacts; short-term air quality impacts; short-term traffic/access impacts
  - Monterey Park
    - *Cascades Park:* The BRT Alternative would use approximately 0.02 ac of land from Cascades Park for use as a temporary construction easement (TCE). Permanent acquisition of 0.011 ac of land from two areas in Cascades Park (the areas in Cascades Park proposed for acquisition under the BRT Alternative currently consist of sidewalks

with grass/turf on each side and would not adversely affect park use); short- and long-term noise impacts; short-term air quality impacts; short-term traffic/access impacts. The temporary occupancy of approximately 0.02 ac and the permanent incorporation of approximately 0.011 ac of land from Cascades Park would not adversely affect the qualities or activities that give the property protection under Section 4(f).

- Pasadena
  - *Central Park:* Short-term noise impacts; short-term air quality impacts; short-term traffic/access impacts
- South Pasadena
  - *War Memorial Park:* Short- and long-term noise impacts; short-term air quality impacts; short-term traffic/access impacts
  - *Young Men's Christian Association (YMCA):* Short- and long-term noise impacts; short-term air quality impacts; short-term traffic/access impacts
  - The BRT Alternative would also include all the improvements in the TSM/TDM Alternative with the exception of Local Street Improvement L-8 (Fair Oaks Avenue from Grevelia Street to Monterey Road) and the reversible lane component of Local Street Improvement L-3 (Atlantic Boulevard from Glendon Way to I-10). Therefore, the BRT Alternative would also result in similar short-and long-term air quality effects, noise level increases, and traffic/access effects on the same parks and recreational resources as the TSM/TDM Alternative.
  - In summary, with the inclusion of the TSM/TDM Alternative improvements described above, the BRT Alternative would result in short-term air quality effects at 10 parks and recreational resources, short- and long-term noise level increases at 10 and 9 parks and recreational resources, respectively, and short-term traffic/access effects at 11 parks and recreational resources. None of the short- and/or long-term impacts related to parks and recreational resources anticipated to occur during construction of the BRT Alternative would be adverse.

- **LRT Alternative:** The LRT Alternative would have temporary and permanent impacts on the following parks and recreation resources:
  - East Los Angeles
    - *Belvedere Community Regional Park:* Short- and long-term noise impacts; short-term air quality impacts; short-term traffic/access impacts
  - El Sereno
    - *El Sereno Arroyo Playground:* Short- term noise impacts; short-term traffic/access impacts
  - Los Angeles
    - *Casa Maravilla Service Center:* Short-term air quality impacts
    - The LRT Alternative would also include all the improvements in the TSM/TDM Alternative with the exception of Other Road Improvement T-1 (Valley Boulevard to Mission Road Connector Road). Therefore, the LRT Alternative would also result in

similar short-term air quality effects, noise level increases, and traffic/access effects on most of the term noise level increases, and traffic/access effects on the El Sereno Arroyo Playground would occur for a longer duration under the LRT Alternative. In summary, with the inclusion of the TSM/TDM Alternative improvements described above, the LRT Alternative would result in short-term air quality effects at 8 parks and recreational resources, short- and long-term noise level increases at 7 and 6 parks and recreational resources, respectively, and short-term traffic/access effects at 8 parks and recreational resources. None of the short- and/or long-term impacts related to parks and recreational resources anticipated to occur during construction of the LRT Alternative would be adverse.

- **Freeway Tunnel Alternative:** The Freeway Tunnel Alternative would have temporary and permanent impacts on the following parks and recreation resources:
  - El Sereno
    - *El Sereno Arroyo Playground:* Short-term noise impacts; short-term air quality impacts, short-term traffic/access impacts
  - Pasadena
    - *Singer Park:* Short-term noise impacts; short-term air quality impacts; short-term traffic/access impacts
    - The Freeway Tunnel Alternative would also include all the improvements in the TSM/TDM Alternative with the exception of Other Road Improvements T-1 (Valley Boulevard to Mission Road Connector Road) and T-3 (St. John Avenue Extension between Del Mar Boulevard and California Boulevard). Therefore, the Freeway Tunnel Alternative would also result in similar short-term air quality effects, short- and long-term noise level increases, and traffic/access effects on most of the same parks and recreational resources as the TSM/TDM Alternative; however, the short-term air quality effects, noise level increases, and traffic/access effects on Singer Park and El Sereno Arroyo Playground would occur for a longer duration under the Freeway Tunnel Alternative.
    - In summary, with the inclusion of the TSM/TDM Alternative improvements described above, the Freeway Tunnel Alternative would result in short-term air quality effects at 6 parks and recreational resources, short- and long-term noise level increases at 6 and 4 parks and recreational resources, respectively, and short-term traffic/access effects at 7 parks and recreational resources. None of the short- and/or long-term impacts related to parks and recreational resources anticipated to occur during construction of the Freeway Tunnel Alternative would be adverse.

Under all Build Alternatives, increases in noise during construction at park and recreational facilities listed below would be temporary in nature and would cease upon completion of the project. In addition, permanent noise impacts range from below 1 decibel (dB) to 3 dB. Because such a noise level increase is barely perceptible to the human ear, the Build Alternatives would not affect the ability of these parks to serve the community.

4.2.1.4 Reasonably Foreseeable Actions

Reasonably foreseeable actions would occur in the areas that are planned for development or redevelopment. The reasonably foreseeable actions are listed in Table 3.1 and shown on Figure 3-1. Table 4.6 shows projects with particular relevance to impacts on land use.

4.2.1.5 Cumulative Impact

Future and Existing Land Uses

As shown below in Table 4.6, 7 of the 10 relevant cumulative projects would require land use changes. As discussed previously in Section 4.2.1.3 (Project Impacts), all of the Build Alternatives would permanently convert General Plan designated commercial/office, parks/open space, mixed commercial/industrial, mixed urban, multifamily residential, and public facilities uses to transportation uses, with the LRT Alternative converting the most (18 ac). The Los Angeles County Metropolitan Transportation Authority (Metro) and the California Department of Transportation (Caltrans) do not have land use planning authority and have no authority to require local jurisdictions to amend their General Plan Circulation Elements. However, because it is generally desirable that local land use plans be consistent with existing conditions and adopted transportation plans, Metro and Caltrans will request the applicable local jurisdictions to amend their General Plans and/or other local land use plans to reflect the improvements if a Build Alternative is selected as the Preferred Alternative. According to the *Huntington Memorial Hospital Master Development Plan Amendment and Zone Change Initial Study,* Olson San Gabriel Residential Community, and 100 West Walnut environmental documents, an amendment and zone change will be processed to incorporate these projects. Although environmental documents are not available for the Eastside Transit Corridor Project, Alhambra Bicycle Master Plan, Lincoln Avenue Specific Plan, and the Hill and Colorado Project, implementation of avoidance, minimization, and/or mitigation measures would be required to comply with CEQA and/or NEPA. While land use amendments and zoning changes would occur as part of the SR 710 North Study and cumulative projects, none of the Build Alternatives would convert a substantial amount of land to transportation uses.

Therefore, the Build Alternatives would not contribute to cumulative land use impacts.

Consistency with State, Regional, and Local Plans

As discussed in Section 4.2.1.3, the Build Alternatives would result in inconsistencies between the project improvements and several local jurisdictions' General Plans. If a Build Alternative is selected for implementation, those inconsistencies would exist until the applicable local General Plan and/or other land use plan is amended to reflect the transportation improvements in that Build Alternative. Additionally, as stated above, 7 of the 10 cumulative projects would require land use changes that would result in inconsistencies with local General Plans. As with the SR 710 North Study, these projects will require that the local jurisdictions amend their General Plans to reflect these changes.

With regard to State and regional plans, only the SR 710 North Study Tunnel Alternative is consistent with the SCAG 2012 RTP/SCS. However, the other cumulative transportation projects listed in Table 4.6 are also included in, and are therefore consistent with, the SCAG 2012 RTP/SCS. The land development projects listed in Table 4.6 are consistent with the advisory and voluntary 2008 Regional Comprehensive Plan (RCP) policies and applicable 2012 RTP/SCS goals.

TABLE 4.6:
Reasonably Foreseeable Actions – Land Use

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
I-10 HOT Lanes	○	8	TSM/TDM (intersects) BRT (intersects) LRT (intersects) Freeway Tunnel (intersects)	This project would require the acquisition of approximately 0.08 ac of the freeway frontage road, Ramona Boulevard, in the City of Alhambra but would not require a change in land use designation or zoning. This project is also consistent with the goals, objectives, and policies of all surrounding communities' General Plans, which generally call for improved traffic conditions on the I-10. This project would not have an impact on parks and recreational facilities.
San Gabriel Trench Grade Separation Project	○	11	TSM/TDM (intersects improvement I-19)	This project would be consistent with the City of San Gabriel General Plan land use designation and associated policies, and would result in a less than significant impact under CEQA. This project would be consistent with the goals and policies of the City of San Gabriel General Plan and the City of Alhambra General Plan. This project would also be consistent with the goals of the Regional Comprehensive Plan and Guide and the RTP. This project would not have an impact on parks and recreational facilities.
Rosemead Boulevard Safety Enhancement & Beautification Project	○	12	TSM/TDM (intersects improvement I-20)	This project is a safety enhancement and beautification project for an existing ROW, does not propose any land use changes, and would not result in a land use that would create operational emissions. The proposed project is consistent with the City of Rosemead's General Plan; therefore, no impact would occur. This project would not have an impact on parks and recreational facilities.
Eastside Transit Corridor Phase 2 – Metro Gold Line Eastside Extension	●	18	BRT (intersects) LRT (0.5 mi)	The SR 60 LRT Alternative would support existing development and proposed land use plans but would require a total of 1,686,129 sf of mostly commercial/industrial and vacant land uses with a small amount of residential land use. The Washington Boulevard LRT Alternative would require acquisition of 1,278,190 sf of commercial/industrial land use. The SR 60 LRT Alternative may have potential impacts to Whittier Narrows Recreation Center.
Alhambra Bicycle Master Plan	●	24	TSM/TDM (approximately 0.75 mi from various improvements) BRT (intersects) Freeway Tunnel (0.5 mi)	This project may result in the loss of parking at some locations. However, this would not constitute and adverse impact to parking in the City of Alhambra. This project would not have an impact on parks and recreational facilities.
Lincoln Avenue Specific Plan	●	25	Freeway Tunnel (100 ft)	Implementation of this project would gradually convert existing industrial and auto-related land uses to a neighborhood-serving district. The project proposes to amend various elements within the adopted City of Pasadena General Plan to reflect the land use changes, change in proposed zoning designations, and to ensure internal consistency within the General Plan. Project implementation would not conflict with an applicable land use plan, policy, or regulation. The Specific Plan would positively impact the residential areas located north of Claremont Street, which are identified in the Green Space, Recreation and Parks Master Plan as a "green

TABLE 4.6:
Reasonably Foreseeable Actions – Land Use

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
				space gap," by providing an enhanced pedestrian corridor that would result in better connections to the existing parks located east of I-210.
Crown City Medical Center	○	26	Freeway Tunnel (0.25 mi)	The project allows for the development of a 112,252 sf, five-story medical office and retail building over a six-level parking garage (i.e., one level at-grade and five subterranean levels). This project is consistent with the goals and objectives of the Pasadena General Plan and Central District Specific Plan. This project would not have an impact on parks and recreational facilities.
16 East California Project	○	27	BRT (1,000 ft) LRT (460 ft) Freeway Tunnel (0.4 mi)	This project includes the replacement of existing buildings with a new larger facility. Therefore, it is anticipated that this project would not have a land use impact. This project would not have an impact on parks and recreational facilities.
Magellan Gateway Project	○	28	TSM/TDM (0.75 mi)	All proposed land uses for this project (including the proposed shopping center and specialty retail uses) would comply with the City of El Monte's existing General Plan 1991 and zoning designations for the project site. This project would not have an impact on parks and recreational facilities.
Huntington Memorial Hospital Master Development Plan	●	31	BRT (750 ft) LRT (900 ft) Freeway Tunnel (200 ft)	The General Plan Land Use designation for the project site is Specific Plan (South Fair Oaks Specific Plan). The corresponding zoning designation is PS (Public and Semi-Public) with the exception of the parcel located at 620-624 South Pasadena Avenue, which is zoned CO (Commercial Office) and which the project proposes to rezone to PS and incorporate into the Master Plan boundary. With the approval of proposed amendment to the Huntington Memorial Hospital Master Development Plan and zone change, the project would not conflict with applicable land use plans, policies, and regulations and land use standards, so impacts would be less than significant under CEQA. This project would not have an impact on parks and recreational facilities.
Garfield Reservoir Replacement Project	○	33	TSM/TDM (0.25 mi) BRT (800 ft)	This project would involve the replacement of an existing reservoir to bring it up to current seismic standards. Therefore, it is anticipated that this project would not have a land use impact. This project would not have an impact on parks and recreational facilities.
Arroyo Seco Pedestrian and Bicycle Trail	○	34	Freeway Tunnel (0.5 mi)	This project would involve the extension of an existing pedestrian/bicycle trail and would only affect the Arroyo Seco Golf Course. Therefore, it is anticipated that this project would not have a land use impact. Although this project would have an impact on a recreational resource, it would not disrupt the use of this resource and would be adding a recreational element for use by pedestrians/ bicyclists. Therefore, any impact to this recreational facility would be considered less than adverse.

TABLE 4.6:
Reasonably Foreseeable Actions – Land Use

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Olson San Gabriel Residential Community Project	●	35	TSM/TDM (0.5 mi)	According to the Draft EIR, this project is not consistent with existing General Plan land use or zoning designations. A General Plan Amendment and Zone Change are required so the project will be consistent with the land use designations of the General Plan and the City's zoning map. These impacts are less than significant under CEQA, and no mitigation is required.
100 West Walnut Planned Development	●	36	TSM/TDM (0.5 mi) BRT (0.25 mi) Freeway Tunnel (immediately adjacent)	This project is a mixed-use commercial and residential development with subterranean parking that would replace existing surface parking areas. However, the City of Pasadena is currently in the process of updating the General Plan's Land Use and Mobility Element. Included within this update is a Draft Land Use Diagram (October 2012), which designates the project site as Medium Mixed Use. Therefore, this project would not have an adverse impact on land use. This project would introduce new residents to the site, thereby potentially increasing the demand for City park and recreation facilities and programs. However, this impact is not anticipated to require any extraordinary mitigation measures; therefore, it is considered less than significant under CEQA.
Hill and Colorado Project	●	37	BRT (intersects) Freeway Tunnel (0.75 mi)	This proposed project would establish new height limits, allowing up to 90 ft for portions of the north parcel and 48 ft for portions of the south parcel. This proposed height limit would conflict with the existing East Colorado Specific Plan height limits. As such, this project has the potential to conflict with the City's planning documents. However, it is anticipated that with an amendment to the East Colorado Specific Plan, the project's impacts would be considered less than significant under CEQA. This project would have a less than significant impact under CEQA on parks and recreation facilities.
Green Hotel Apartments Project	○	38	TSM/TDM (0.25 mi) BRT (intersects) LRT (0.5 mi) Freeway Tunnel (0.25 mi)	Because mixed-use projects are allowable uses in the Central District Specific Plan, this project would not have a less than significant impact land use impact under CEQA. Implementation of the project would not lead to substantial population growth that would warrant the construction of additional park space or the physical deterioration of any recreational facilities with the payment of the park impact fees.

TABLE 4.6:
Reasonably Foreseeable Actions – Land Use

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Reuse of the Desiderio Army Reserve Center	○	39	BRT (0.5 mi) Freeway Tunnel (0.25 mi)	This project would redevelop the site to be consistent with the surrounding area by adding housing and a park. The project would increase connectivity by encouraging public access to the site. Therefore, no impact is identified for this issue.

[1] See Table 3.1 for the list of references for each project.
[2] The hollow bullet (○) indicates projects that would either have no impact to land use, or would not have an impact after typical avoidance, minimization and/or mitigation measures are incorporated.
[3] The solid bullet (●) indicates projects that either still have an adverse impact after mitigation or require extraordinary mitigation measures and therefore are included in the analysis for this subject area.

ac = acre/acres
BRT = Bus Rapid Transit
CEQA = California Environmental Quality Act
EIR = Environmental Impact Report
ft = foot/feet
HOT = High-Occupancy Toll
I-10 = Interstate 10
I-210 = Interstate 210
LRT = Light Rail Transit
Metro = Los Angeles County Metropolitan Transportation Authority
mi = mile/miles
ROW = right of way
RTP = Regional Transportation Plan
sf = square foot/feet
SR 60 = State Route 60
TDM = Transportation Demand Management
TSM = Transportation System Management

Even if an alternative inconsistent with the SCAG RTP/SCS is selected for implementation, the SR 710 North Study would not contribute to a cumulative impact related to State or regional plans since the other cumulative projects are consistent.

Because local General Plans and Specific Plans will be amended to reflect the appropriate land use, no cumulative impact to State, regional, and/or local plans will occur.

Parks and Recreation

As shown in Section 4.2.1.3, under all Build Alternatives, temporary and permanent increases in noise, as well as short-term traffic/access and air quality impacts would occur at some study area parks. The BRT Alternative would also require acquisition of a nominal amount of land from Cascades Park in Monterey Park. Additionally, the Eastside Transit Corridor Phase 2 Project's State Route 60 (SR 60) LRT Alternative may have potential impacts to Whittier Narrows Recreation Center. In the event either the BRT Alternative for the SR 710 North Study or the LRT Alternative for the Eastside Transit Corridor Phase 2 Projects is selected as the Preferred Alternative, measures will be necessary under CEQA/NEPA to mitigate for these impacts. There would be no impacts to park and recreation facilities as a result of the remaining cumulative projects; therefore, there is no cumulative effect to parks and recreation facilities in the RSA.

4.2.1.6 Avoidance, Minimization, and/or Mitigation Measures

The following measures were identified in the *Community Impact Assessment* (2014) to avoid, minimize, and/or mitigate land use, noise, access, and property acquisition impacts of the Build Alternatives:

- **Land Use:** The Build Alternatives would result in inconsistencies with local jurisdictions' General Plans and/or other local land use plans. If a Build Alternative is selected for implementation, the Metro (for the TSM/TDM, BRT, and LRT Alternatives) and Caltrans (for the Freeway Tunnel Alternative) will request the applicable local jurisdictions to amend their General Plans and/or other local land use plans after the acquisition of land for the selected alternative to reflect the improvements in that Build Alternative.
- **Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and Federal Transportation Improvement Program (FTIP) (applies to the Transportation Systems Management/Transportation Demand Management [TSM/TDM], Bus Rapid Transit [BRT], and Light Rail Transit [LRT] Alternatives):** If the TSM/TDM Alternative, BRT Alternative, or LRT Alternative is selected for implementation, Metro will coordinate with SCAG on needed amendments to the next cycle of the RTP/SCS and FTIP to reflect the selected project and to delete the projects (RTP ID 18790 and FTIP ID 18790) which describe a tunnel extension of SR 710 North with four toll lanes in each direction from those transportation plans.
- **Short-Term Air Quality Impacts:** Measures addressing short-term air quality impacts during construction provided later in Section 4.2.13, Air Quality, would avoid and/or minimize the potential short-term air quality impacts during construction on parks, recreation resources, and bikeways. Those measures include compliance with Caltrans Standard Specifications Sections 10 and 18 (Dust Control), the South Coast Air Quality Management District (SCAQMD) rules for control of air emissions (equipment and dust) during construction, and Caltrans Standard Specifications Section 39.3.06 for asphalt concrete plant emissions; development and

implementation of a Construction Emissions Mitigation Plan; and compliance with local jurisdictions' requirements for emission controls during construction.

- **Short-Term Noise Impacts:** Measures addressing short-term noise impacts during construction provided later in Section 4.2.14, Noise, would substantially reduce the potential short-term noise impacts during construction on parks, recreation resources, and bikeways. Those measures require compliance with Caltrans Standard Specifications Section 14-08.02, "Noise Control," and Standard Special Provisions (SSP) S5-310, and with local jurisdictions' Noise Ordinances.
- **Short-Term Access Impacts:** A measure requiring the preparation and implementation of a TMP to address those impacts is provided later in Section 4.2.5, Traffic and Transportation/Pedestrian and Bicycle Facilities. The purpose of the TMP is to maintain traffic safety during construction, including safety for construction workers, pedestrians, bicyclists, and vehicular traffic; effectively maintain an acceptable level of traffic flow throughout the transportation system during construction; minimize traffic delays and facilitate reduction of overall duration of construction activities; and minimize detours and impacts to vehicular traffic, including emergency services providers, school bus and transit operators, pedestrians, and bicyclists. The TMP would substantially reduce the potential short-term traffic and access during construction on parks, recreation resources, and bikeways.
- **Compliance with the Public Park Preservation Act (California Public Resources Code Sections 5400–5409) (applies to the Bus Rapid Transit [BRT] Alternative only):** As part of the right of way (ROW) acquisition process for the BRT Alternative, the Metro Division of Right of Way personnel will coordinate with the City of Monterey Park to provide compensation for the permanent acquisition of land from Cascades Park as required under the Public Park Preservation Act. In the event that funds from FHWA are used for improvements in the BRT Alternative, Caltrans will participate in the negotiations with the City of Monterey Park and the process for the acquisition of land from Cascades Park.
- **Temporary Construction Easements (applies to the Bus Rapid Transit [BRT] Alternative):** The Resident Engineer will require the Construction Contractor to return land in Cascades Park that would be occupied for TCEs to a condition that is at least as good as that which existed prior to the project at the completion of the construction of the BRT Alternative in this area. At a minimum, as part of the construction of the BRT Alternative, the Construction Contractor will replace the existing sidewalks within the boundary of Cascades Park and relandscape grass/turf areas in the TCEs disturbed by the project construction. Metro will require the Construction Contractor to review the plans for the proposed replacement sidewalks and grass/turf landscaping with the City of Monterey Park prior to installation of those improvements. If any trees are removed from the TCEs, those trees will be replaced elsewhere in Cascades Park after consultation with the City of Monterey Park. The replacement trees, grass, and turf will be similar to the existing plant materials in Cascades Park.
  - Metro will require the Construction Contractor to fence and properly secure all active construction areas in and adjacent to Cascades Park within the limits of construction to protect the safety of park patrons during construction.
  - When the sidewalks in Cascades Park at Atlantic Boulevard are temporarily closed during construction, Metro will require the Construction Contractor to develop and clearly sign

pedestrian detours prior to the intersections of Atlantic Boulevard and El Portal Place to avoid making pedestrians backtrack to get to a safe crossing.

  - In the event that funds from FHWA are used for improvements in the BRT Alternative, Caltrans will work in conjunction with Metro to ensure that the provisions of this measure that are related to returning land in Cascades Park used as a TCE to a condition at least as good as that which existed prior to the project are satisfied**.**

- **Permanent Incorporation of Land (applies to the BRT Alternative):** Metro will include the replacement of the sidewalks affected by the permanent incorporation of land in Cascades Park in the adjacent areas of Cascades Park as part of final design. These are expected to be areas within the TCEs. If any shrubs and/or trees are removed from the areas that will be permanently incorporated, the Construction Contractor will replace those trees elsewhere in Cascades Park after consultation with the City of Monterey Park. The replacement shrubs and trees will be similar to the existing plant materials in Cascades Park. In the event that funds from FHWA are used for improvements in the BRT Alternative, Caltrans will work in conjunction with Metro to ensure that the provisions of this measure related to replacing sidewalks and shrubs/trees in Cascades Park are satisfied.

4.2.2 Growth

The information in this section is based on the *Community Impact Assessment* (2014) prepared for the SR 710 North Study.

4.2.2.1 Resource Study Area

Since growth occurs on a regional level, Los Angeles County is used as the RSA for the purpose of the growth cumulative impacts analysis.

4.2.2.2 Health and Historical Context

At the regional level, much of Los Angeles County is built out and urbanized, especially in the study area. However, SCAG anticipates population, housing, and employment growth to occur through 2035. At the local level (within the study area), SCAG anticipates most of the cities and communities are forecast to experience increases in population, ranging from 0.9 percent in Sierra Madre to 42.9 percent in Irwindale. The lower percentages typically reflect cities and communities that are largely built out with relatively little land available for development, including residential uses. The higher percentages typically represent either greater availability of land for development or are reflective of small actual increases in the number of persons in an area where the total 2008 population is relatively small. The populations in all the study area cities and communities are forecast to increase by 2035 based on adopted demographic projections for those areas.

All but one of the study area cities and communities are forecast to experience increases in the numbers of households from 2008 to 2035. No increase in households is forecast in San Marino, and Commerce and South Pasadena are both forecast to experience only a 2.9 percent increase in households between 2008 and 2035. The remaining cities and communities are forecast to experience moderate to substantial increases in the number of households (ranging from 4.2 percent in La Cañada Flintridge to 36 percent in the unincorporated communities in Los Angeles County) over the same period. Similar to the population forecasts, the lower forecasts of households typically reflect cities and communities that are largely built out with relatively little land available

for development. The larger percentages typically represent either greater availability of land for development or are reflective of small actual increases in the number of households in an area where the total number of households is relatively small. For example, the 25 percent increase in households in Irwindale reflects a forecast increase of only 100 households between 2008 (400 households) and 2035 (500 households).

Lastly, all but two of the study area cities and communities are forecast to experience increases in the number of employees from 2008 to 2035. Employment in Irwindale and South El Monte is forecast to decline by 8.2 percent and 1.9 percent, respectively, which is reflective of the addition of housing and the reduction of nonresidential uses in those cities over the forecast period. The forecast increases in employment in the remaining cities and communities from 2008 to 2035 range from 1 percent in Commerce to 34.2 percent in the unincorporated communities in Los Angeles County. Similar to the population and household forecasts, the lower employment forecasts typically reflect cities and communities that are largely built out with relatively little land available for development. The larger percentages typically represent either greater availability of land for development or are reflective of small actual increases in the number of persons in an area where the total population is relatively small.

In summary, the study area cities and communities are forecast to experience various rates of growth in population, households, and employment between 2008 and 2035.

4.2.2.3 Project Impacts

All four Build Alternatives would potentially change accessibility in the study area cities and communities by improving the efficiency of the existing regional freeway and transit networks and reducing congestion on local arterials. These changes in accessibility would benefit the traveling public in and around the study area cities and communities. It should be noted that although the Build Alternatives would improve accessibility in the area, they would not provide access to areas where there is currently no access. Improvements in this corridor in the future were anticipated in the RTP and the FTIP and, therefore, are considered to have been planned in conjunction with the forecast changes in demographic characteristics in the study area. Although the Build Alternatives would improve mobility and accessibility in the study area cities, the project improvements would not add new access to and/or from the area that would result in growth pressures in areas where such access does not presently exist.

The Build Alternatives are expected to accommodate existing, approved, and planned growth in the area, but are not expected to influence the amount, timing, or location of growth in the area as described below for each Build Alternative. The study area includes cities and communities that are largely built out as well as cities and communities with vacant land and/or opportunities for infill development. Opportunities for growth in areas that are largely built out are typically very limited and, as a result, would not be expected to be substantially affected by any potential growth pressure associated with the proposed transportation improvements.

Visibility of a project is also a factor when analyzing growth in an area. Visibility of a project may draw people and other businesses to an area, thus resulting in growth in the vicinity. However, because the SR 710 North Study Build Alternatives would be located in an already highly developed area, any visible features are not anticipated to induce growth.

TSM/TDM Alternative

The TSM/TDM Alternative contains relatively modest and focused improvements that are intended to improve circulation at specific intersections or street segments but which would not be expected to increase system efficiency to a level that would substantially increase the overall capacity of the transportation system or the attractiveness of certain areas for development. Additionally, this alternative would not create highly visible features. Therefore, it is unlikely the TSM/TDM Alternative improvements themselves would be sufficient to attract new development to an area not already proposed for development or to modify the type, location, or timing of development in those areas; therefore, the TSM/TDM Alternative would not result in growth-related impacts.

BRT Alternative

While providing an efficient alternative for the traveling public with substantial increases in transit services and the provision of dedicated bus stations along the route of the bus lanes, the improvements in the BRT Alternative are not expected to substantially influence growth in the study area. This is because the transit service improvements in the BRT Alternative are focused on increasing the number of bus routes and the frequency of service on bus routes throughout the study area. In addition, the BRT Alternative would not create highly visible features. As a result, it is unlikely the BRT improvements themselves would be sufficient to attract new development to an area not already proposed for development or to modify the type, location, or timing of development in those areas; therefore, the BRT Alternative would not result in growth-related impacts.

LRT Alternative

While the areas around light rail stations would be visible and can be attractive locations for development because they enjoy improved access to the regional public transportation system, the proposed stations are located in areas that are generally already developed. Although the presence of those stations could result in some pressure for alternative land uses or increased densities in the areas around the stations, this type of development would largely depend on a number of factors other than the presence of the LRT Alternative stations, including the local and regional economic conditions, local support for those types of land uses in the areas around the stations, and the existing General Plan and zoning designations. As a result, it is unlikely the presence of the light rail stations themselves and the availability of both light rail service and increased bus services would be sufficient to attract new development to an area not already proposed for development or to modify the type, location, or timing of development in those areas. Therefore, the LRT Alternative would not result in growth-related impacts.

Freeway Tunnel Alternative

The majority of the Freeway Tunnel Alternative alignment (i.e., from just south of Green Street south to Hellman Avenue in Alhambra) would be in a tunnel and would not be visible from the surface. As a result, that segment of the alignment would not provide opportunities for improved visibility for land uses in the adjacent areas. The at-grade segments of the northern and southern ends of the project segment of SR 710 would connect with existing I-210/State Route 134 (SR 134) on the north and I-710 on the south. The areas around those two interchanges are largely developed with a variety of existing land uses. As a result, there are no obvious opportunities in those areas to develop new land uses that would benefit from visibility associated with the existing and proposed freeway facilities in those areas. There would be no interchanges with local streets

except at the existing partial interchange between I-710 and Valley Boulevard. The Freeway Tunnel Alternative would not result in visibility from adjacent land uses along the majority of the alignment (the tunnel segment), there would be no new interchanges with local arterials that would provide increased visibility for adjacent land uses, and there would be no substantial increase in visibility of adjacent land uses in the vicinity of the existing interchanges. As a result, the Freeway Tunnel Alternative would not provide sufficient visibility or access to attract new development to an area not already proposed for development or to modify the amount, type, location, or timing of development in those areas; therefore, the Freeway Tunnel Alternative would not result in growth-related impacts.

4.2.2.4 Reasonably Foreseeable Actions

The reasonably foreseeable actions would occur in the areas that are planned for development or redevelopment. The reasonably foreseeable actions are listed in Table 3.1 and shown on Figure 3-1. Table 4.7 shows projects with particular relevance to impacts on growth.

4.2.2.5 Cumulative Impact

As described above in Section 4.2.2.3 (Project Impacts) and below in Table 4.7, the Build Alternatives and/or the cumulative projects are expected to accommodate existing, approved, and planned growth in the area, but are not expected to influence the amount, timing, or location of growth in the area. Therefore, there would not be a cumulative growth-inducing effect.

4.2.2.6 Avoidance, Minimization, and/or Mitigation Measures

Because neither the SR 710 North Study nor any of the cumulative projects are anticipated to be growth inducing, no avoidance, minimization, and/or mitigation measures are necessary.

4.2.3 Community Impact

The information in this section is based on the *Community Impact Assessment* (2014) prepared for the SR 710 North Study.

4.2.3.1 Resource Study Area

The study area is used as the RSA for the purpose of the community impact cumulative analysis. The study area is bounded by I-210 on the north, I-605 on the east, I-10 on the south, and I-5 and SR 2 on the west. The study area includes portions of the cities and communities of Alhambra, Arcadia, Commerce, Duarte, El Monte, Glendale, Irwindale, La Cañada Flintridge, Los Angeles, Monrovia, Montebello, Monterey Park, Pasadena, Rosemead, San Gabriel, San Marino, Sierra Madre, South Pasadena, and Temple City.

4.2.3.2 Health and Historical Context

The County of Los Angeles was established on February 18, 1850, as one of the 27 original counties of California. The name is derived from the area known as Los Angeles, which was already a large community at the time and was made the designated “seat” of the County government. Soon after, the City of Los Angeles Police Department was formed, and the first public school system was established in the area. In 1852, a five-member Board of Supervisors was created, and the County

TABLE 4.7:
Reasonably Foreseeable Actions – Growth

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
I-710 South Corridor Project	○	1	All (within RSA)	The I-710 Build Alternatives are expected to accommodate existing, approved, and planned growth in the area, but are not expected to influence the amount, timing, or location of growth in the area. The increase in capacity on I-710 under the Build Alternatives is not expected to influence demand for growth at the Ports nor would growth of port cargo handling capacity at the Ports substantially increase travel demand on I-710. However, by adding highway system capacity to the goods movement infrastructure in Southern California, all of the Build Alternatives will have a beneficial effect in accommodating the forecast growth in the movement of cargo containers via truck within the I-710 Corridor.
I-5 Corridor Improvement Project (I-605 to I-710)	○	2	All (within RSA)	This project is expected to accommodate existing, approved, and planned growth in the area, but is not expected to influence the amount, timing, or location of growth in the area because the project is located in an area that is mostly built out, with limited opportunities for infill development.
I-5 Improvement Project between SR 118 to SR 170	○	3	All (within RSA)	This project will not affect the location, distribution, density, or growth rate of the human population of an area because the project is located in an area that is mostly built out, with limited opportunities for infill development.
I-5 North Improvement Projects from SR 134 to SR 170	○	4	All (within RSA)	This project will not affect the location, distribution, density, or growth rate of the human population of an area because the project is located in an area that is mostly built out, with limited opportunities for infill development.
I-5/Western Avenue Interchange Improvements	○	5	All (within RSA)	This project was completed in 2012 and included a minor improvement to an existing interchange. Therefore, it would not influence the amount, timing, or location of growth in the area.
San Bernardino Freeway (I-10)/San Gabriel River Freeway (I-605) Direct Connector Project	○	6	All (within RSA)	This project is currently under construction and will include minor improvements to an existing interchange; therefore, it would not influence the amount, timing, or location of growth in the area.
San Bernardino Freeway (I-10) add One HOV Lane from I-605 to SR 57/71 and I-210	○	7	All (within RSA)	The area surrounding I-10 within the project corridor is urbanized and largely built out. Geographic and planning constraints limit the potential for growth to occur within this area. Limited available open space remaining along the east end of the project corridor is either unavailable or too steep for new development. Hence, with the exception of the Cal Poly Pomona campus, most future growth in the area next to I-10 is expected to be associated with urban infill projects.
I-10 HOT Lanes	○	8	All (within RSA)	This project does not change accessibility and it would not result in growth inducement because it does not remove an impediment to growth and is not a precedent setting action. This project does not remove an impediment to growth because the project would not provide an entirely new public facility. Rather, it includes the conversion and addition of HOT lanes along an existing freeway corridor. The more effective use of freeway capacity is a response to congested conditions that have arisen from past development trends. Future growth, as approved in the context of adopted regional and local plans, requires such management approaches to attempt to maintain acceptable LOS on the transportation

TABLE 4.7:
Reasonably Foreseeable Actions – Growth

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
				system. This project is not a precedent setting action because land use plans for the area include plans for future growth, and the project will facilitate the improved mobility for future conditions.
The I-110 (Harbor Freeway)/Transitway HOT Lanes Project (182nd Street to Adams Boulevard) and on I-105 from Crenshaw Boulevard to Compton Avenue	○	9	All (within RSA)	Most project improvements associated with this project's build alternative would take place within existing ROW, with minimal exceptions. No new areas of development would be opened and no existing access patterns would be altered. The project is located in a highly developed area of Los Angeles County and only aims to redistribute the existing traffic volumes rather than substantially adding capacity. Therefore, growth-related impacts as a result of the project would be minimal to none.
I-110 Widening and Rehabilitation Project	○	10	All (within RSA)	This project is expected to accommodate existing, approved, and planned growth in the area, but is not expected to influence the amount, timing, or location of growth in the area.
San Gabriel Trench Grade Separation Project	○	11	All (within RSA)	This project would include the construction of a depressed trench and does not include housing. Therefore, there would be no potential increase in the resident population.
Rosemead Boulevard Safety Enhancement & Beautification	○	12	All (within RSA)	The proposed project would not generate any new population in the City as it is improvement of an existing roadway constructed entirely within an existing ROW.
Washington Boulevard Improvement Project	○	13	All (within RSA)	This project is expected to accommodate existing, approved, and planned growth in the area, but is not expected to influence the amount, timing, or location of growth in the area.
San Fernando Road Widening Between Elm Street and Eagle Rock Boulevard	○	14	All (within RSA)	The proposed project is a street-widening project intended to relieve existing and future traffic congestion. This project would not induce growth, either directly or indirectly.
Riverside Drive Bridge and Grade Separation Replacement	○	15	All (within RSA)	The project would not have growth-inducing impacts and would not remove constraints to growth because it would not add traffic capacity and would not result in the extension of roads or development of other population-serving infrastructure.
Valley Boulevard/I-605 Project	○	16	All (within RSA)	As this project involves the reconfiguration of an existing interchange, it is expected to accommodate existing, approved, and planned growth in the area, but is not expected to influence the amount, timing, or location of growth in the area.
Regional Connector Transit Corridor	○	17	All (within RSA)	This project would not include any housing and therefore would not directly induce growth. This project would likely complement patterns of growth along the transit corridor, most notably in the proposed station areas. The most likely outcome would be an acceleration and/or redistribution of currently planned growth near the eastern end of the alignment.
Eastside Transit Corridor Phase 2 – Metro Gold Line Eastside Extension	○	18	All (within RSA)	This project is expected to accommodate existing, approved, and planned growth in the area, but is not expected to influence the amount, timing, or location of growth in the area.
Metro Gold Line Foothill Extension	○	19	All (within RSA)	The proposed project is designed to accommodate existing and projected transit demand, and is not intended to induce population growth in the region.

TABLE 4.7:
Reasonably Foreseeable Actions – Growth

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Wilshire Boulevard Bus Rapid Transit Project – Phases I and II	○	20	All (within RSA)	This project is a transportation enhancement project aimed at improving the efficiency of an existing transit system; it is not a major new development project. Also, this project involves minimal construction activities and is not anticipated to create a substantial number of permanent jobs. This project would, therefore, not spur new regional growth in terms of population or employment and would not result in significant growth-inducing impacts under CEQA.
California High Speed Rail Project	○	21	All (within RSA)	It is anticipated that this project would not induce growth substantially beyond what is projected in city and county General Plans. It is also anticipated that this project would encourage more compact, efficient land use in the region and would generate higher density infill development around high speed rail stations. These impacts would not only be consistent with regional land use policies and growth management plans, but would assist communities in realizing the goals of these plans.
Gold Line Transit Plaza	○	22	All (within RSA)	The proposed project is a station improvement project designed to accommodate existing and projected transit demand as a result of the Metro Gold Line Project and is not expected to induce population growth in the region.
Station Square Transit Village	○	23	All (within RSA)	The proposed project is a station improvement project designed to accommodate existing and projected transit demand as a result of the Metro Gold Line Project, and is not expected to induce population growth in the region.
Alhambra Bicycle Master Plan	○	24	All (within RSA)	This project would not increase population, housing, or employment opportunities. Short-term, construction employment opportunities would be filled by the existing Los Angeles County labor market. On this basis, this project is not considered growth inducing.
Lincoln Avenue Specific Plan	○	25	All (within RSA)	This project does not include changes to land use regulations that would induce growth. Approval of the Specific Plan would not remove an existing regulatory obstacle to growth but would redefine the nature of future growth in the area. Therefore, the project is not considered to be growth inducing with respect to removal of obstacles to growth within the project site. The intent of the Specific Plan is to encourage redevelopment of old industrial uses and underutilized parcels to accommodate local business growth along the corridor and provide a more diverse range of retail and neighborhood-oriented commercial uses. Therefore, while the proposed project would have an indirect growth-inducing effect, this would be accommodated by the surrounding neighborhood's current land uses and its ability to absorb local business growth.
Crown City Medical Center	○	26	All (within RSA)	This project is consistent with the growth anticipated and accommodated by the City of Pasadena's General Plan. This project is located in a developed urban area with an established roadway network. Thus, development of the proposed project would not require extending or improving infrastructure in a manner that would facilitate off-site growth. Because this project is consistent with the uses and growth anticipated in the General Plan, this project would not induce substantial population growth.

TABLE 4.7:
Reasonably Foreseeable Actions – Growth

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
16 East California Project	○	27	All (within RSA)	This project would be replacing existing structures that would serve a similar function to existing conditions. Therefore, it is not anticipated to induce population growth in the region.
Magellan Gateway Project	○	28	All (within RSA)	Overall, project implementation would not be considered growth inducing inasmuch as it would not foster substantial unanticipated economic expansion and growth opportunities. The project would not remove an existing impediment to growth and would not develop or encroach into an isolated or adjacent area of open space. The proposed project would not foster a substantial unanticipated population growth in the project area. Development within the project area would not require substantial development of unplanned and unforeseen support uses and services.
El Monte Walmart	○	29	All (within RSA)	This project is consistent with the growth anticipated and accommodated by the City of El Monte's General Plan. Additionally, the project is located in a developed urban area with an established roadway network. Thus, development of the proposed project would not require extending or improving infrastructure in a manner that would facilitate off-site growth. Because this project is consistent with the uses and growth anticipated in the General Plan, this project would not induce substantial population growth.
Olive Pit Mining and Reclamation Operations and Long-Term Reuse Project	○	30	All (within RSA)	This project is consistent with the growth anticipated and accommodated by the City of Irwindale's General Plan. Additionally, the project is located in a developed urban area with an established roadway network. Thus, development of the proposed project would not require extending or improving infrastructure in a manner that would facilitate off-site growth. Because this project is consistent with the uses and growth anticipated in the General Plan, this project would not induce substantial population growth.
Huntington Memorial Hospital Master Development Plan Amendment	○	31	All (within RSA)	This project is consistent with the land uses already occurring at and adjacent to the site and is consistent with the growth anticipated and accommodated by the City's General Plan. Although this project would provide an increase of 152 new jobs, many of these jobs are similar in nature to the jobs that occur at the site and would most likely be filled by individuals already residing in the City of Pasadena or within a reasonable commuting distance. These jobs would be well within the employment projections set by SCAG for Pasadena. Furthermore, this project is located in a developed urban area with an established roadway network and in-place infrastructure. Thus, development of this project would not require extending or improving infrastructure in a manner that would facilitate off-site growth.
Devil's Gate Reservoir Sediment Removal and Management Project	○	32	All (within RSA)	Under the sediment removal and both reservoir management options, this project does not create any overall population growth and therefore has no effect on growth.
Garfield Reservoir Replacement Project	○	33	All (within RSA)	Because this project proposes to replace an existing reservoir, it is anticipated that it will not contribute to growth inducement in the area.

TABLE 4.7:
Reasonably Foreseeable Actions – Growth

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Arroyo Seco Pedestrian and Bicycle Trail	○	34	All (within RSA)	This project proposes to construct a less than 1 mi long pedestrian/bicycle trail in an existing recreational facility (golf course). It is anticipated that this trail will serve an existing need in the community. Therefore, it is anticipated that this project would not contribute to growth inducement in the area.
Olson San Gabriel Residential Community Project	○	35	All (within RSA)	Development of the proposed on-site uses would increase the area population by 278 residents at build out, which would be an increase over what would be generated by the existing land use designations. However, this impact is considered less than significant under CEQA.
100 West Walnut Planned Development	○	36	All (within RSA)	This project would not substantially induce population growth due to the increase in on-site employees and residents because the growth that would occur at the project site is part of the growth already anticipated to occur in the City of Pasadena.
Hill and Colorado Project	○	37	All (within RSA)	The area surrounding the project site is already developed with commercial and retail establishments, and the increase in commercial uses contemplated by the potential development concept is unlikely to induce substantial population growth. Moreover, as development of the project site would occur on previously developed properties, it does not propose to extend any infrastructure to an area not previously served by infrastructure, which could otherwise induce population growth. Therefore, this project would not directly or indirectly induce substantial population growth.
Green Hotel Apartments Project	○	38	All (within RSA)	Growth inducement was not identified in the Draft EIR as a topic of concern. Therefore, it is anticipated that this project would not contribute to growth inducement in the area.
Reuse of the Desiderio Army Reserve Center	○	39	All (within RSA)	This project is consistent with the uses allowed and anticipated under the West Gateway Specific Plan and is also consistent with the growth anticipated and accommodated in the City of Pasadena's General Plan. Furthermore, this project is located in a residential area with an established roadway network and in-place infrastructure. Therefore, no impact is identified for this issue.

1 See Table 3.1 for the list of references for each project.
2 The hollow bullet (○) indicates projects that would either have no impact to land use, or would not have an impact after typical avoidance, minimization and/or mitigation measures are incorporated.
3 The solid bullet (●) indicates projects that either still have an adverse impact after mitigation or require extraordinary mitigation measures and therefore are included in the analysis for this subject area.

CEQA = California Environmental Quality Act
EIR = Environmental Impact Report
HOT = High-Occupancy Toll
HOV = High-Occupancy Vehicle
I-10 = Interstate 10
I-105 = Interstate 105
I-110 = Interstate 110
I-210 = Interstate 210
I-5 = Interstate 5
I-605 = Interstate 605
I-710 = Interstate 710
LOS = level of service
Metro = Los Angeles County Metropolitan Transportation Authority
mi = mile/miles
ROW = right of way
RSA = Resource Study Area
SCAG = Southern California Association of Governments
SR 118 = State Route 118
SR 134 = State Route 134
SR 170 = State Route 170
SR 57/71 = State Route 57/State Route 71

continued to grow over the next few decades, establishing more schools (1852), the first library (1859), a Board of Health (1863), a Board of Education (1869), and the first publication of the *Los Angeles Times* (1881). In 1905, the County approved the Owens Valley water project to build an aqueduct from the Owens Valley, and by 1913, the aqueduct began delivering water to the County. Over the next century, the area continued to grow in population and became a major regional economic center. Infrastructure needs grew (e.g., ports, highways, the Colorado River Aqueduct) and regulatory agencies were formed (e.g., Los Angeles County Flood Control District, Los Angeles Air Pollution Control Board).

Population

At the time of the 2010 Census, Whites comprised 50.3 percent of Los Angeles County's population. Asians and African-Americans accounted for 13.7 and 8.7 percent of the County's population, respectively, while American Indians/Native Alaskans comprised 0.7 percent of the County's population. Approximately 0.3 percent of the County's population consisted of Native Hawaiians/Pacific Islanders. In addition, 21.8 percent of the County's population identified themselves as being some other race, and 4.5 percent identified as being two or more races. Racial minorities account for approximately 52 to 86 percent of the population in the study area cities.

Employment

Education, Health & Social Services is the largest County industry sector in terms of employment, comprising approximately 20.2 percent of the total employed population, followed by Professional and Technical Services (12.1 percent) and Manufacturing (11.2 percent). According to preliminary data issued by the State Employment Development Department in August 2013, there were 4,486,400 persons employed in the civilian labor force in the County, and 510,200 persons (approximately 10.2 percent) were unemployed. The County's unemployment rate is higher than that of the State, which is 8.8 percent.

Property and Sales Taxes

The base property tax rate in Los Angeles County is 1.0 percent of the assessed property value, while the total property tax includes additional district assessments that vary by tax rate area. During Fiscal Year (FY) 2012–2013, Los Angeles County collected a total of $11.0 billion in property tax revenue. The County allocates 15.04 percent of property tax revenue to incorporated cities, 40.97 percent to school districts, 7.05 percent to special districts, and 12.79 percent to redevelopment agencies. Based on information provided by the Los Angeles County Department of Auditor-Controller, an estimated 22.8 percent of the 1.0 percent property tax collected is distributed to the County's General Fund.

Effective April 1, 2013, the sales tax rate in the County of Los Angeles is 9.0 percent, 6.5 percent of which is allocated to the State, 0.75 percent is allocated to the County for public services, 1.25 percent is allocated to the County transportation fund, and 0.5 percent is used to fund transportation improvements in Los Angeles County (Metro Measure R). The State Board of Equalization tabulates taxable sales transactions for each city and county in California and reports them on a quarterly and yearly basis. According to the latest published report, the 266,868 permitted sales tax-producing businesses in Los Angeles County generated approximately $126,440,737 in taxable sales in 2011. Based on the sales tax rate in effect in April 2013, the County of Los Angeles average sales tax revenue per business in 2011 was $42,642.

Community Facilities

The study area includes numerous parks and recreational resources as well as other community facilities (fire stations, police stations, schools, libraries, transit stations, etc.).

4.2.3.3 Project Impacts

Community Character and Cohesion

A qualitative assessment of whether the direct or indirect impacts of construction or operation of the improvements included in the SR 710 North Study Build Alternatives would result in beneficial or adverse impacts on the overall character or cohesion of the communities in which they would be located is discussed below.

TSM/TDM Alternative

The TSM/TDM Alternative would not result in temporary impacts on community cohesion in the cities, communities, or neighborhoods in the study area where these improvements are located.

The TSM/TDM Alternative improvements would result in minor changes in access or circulation; however, they would also provide the traveling public with modest improvements in mobility and increase the efficiency of the existing circulation system without dividing or otherwise affecting the character of the communities in which they would be located.

BRT Alternative

The BRT Alternative is not anticipated to result in any temporary disruptions in access within the study area. Therefore, the BRT Alternative would not result in any temporary impacts on community character and cohesion in any of the cities, communities, or neighborhoods in the study area.

The BRT Alternative would enhance existing bus service by reducing headways on 20 of the bus routes that serve the study area and replace the existing Metro Route 762 service in the study area with a limited stop, high-frequency bus service that would travel along a combination of new, dedicated, and existing bus lanes and mixed-flow traffic lanes. Under the BRT Alternative, transit riders using these bus routes would experience decreased travel times because buses would run more frequently and would improve connections to other transit service along their routes. The BRT Alternative would also provide a new bus feeder route between the Atlantic Boulevard Gold Line Station and the Commerce and Montebello Metrolink Stations, which would provide the study area with improved transit connections to the Orange County and Riverside Metrolink lines, and a new bus feeder route between Downtown Pasadena and the El Monte Transit Station via Rosemead Boulevard and Colorado Boulevard, which would provide improved transit connections in the eastern San Gabriel Valley.

In addition to these impacts, the BRT Alternative would also result in the impacts related to community character and cohesion under the TSM/TDM Alternative as described earlier in this section.

LRT Alternative

Construction of the LRT Alternative would involve minor detours, delays, and/or rail/truck haul trips but would not result in temporary disruptions to local pedestrian and vehicular traffic or

temporary disruptions to access in the study area. Therefore, the LRT Alternative would not result in any temporary impacts on community cohesion in the cities, communities, and neighborhoods in the study area.

The LRT Alternative would require permanent tunnel easements beneath 34 parcels in the City of South Pasadena.

Under the LRT Alternative, high-frequency light rail service would be established along a direct route between East Los Angeles and Pasadena, which would benefit transit riders in northeast Los Angeles and the western San Gabriel Valley, including South Pasadena. Transit riders, particularly those who live or work near one of the LRT stations, would likely experience decreased travel times, especially on north-south trips, because transit would run more frequently and offer improved connections between destinations. The LRT Alternative would also provide two new bus feeder routes in the study area. The new bus feeder route between the Floral Station and the Commerce and Montebello Metrolink Stations would provide the City of South Pasadena with improved transit connections to the Orange County and Riverside Metrolink lines.

In addition to these impacts, the LRT Alternative would also result in the impacts related to community character and cohesion under the TSM/TDM Alternative as described earlier in this section.

Freeway Tunnel Alternative (Single-Bore Design Variation)

Construction activities associated with the bored and cut-and-cover tunnel segments of the single-bore design variation of the Freeway Tunnel Alternative would generate excess excavated soil and other material that cannot be reused within the project limits. That material is proposed to be disposed of at two former rock quarries (the Manning and Olive Pits) in the City of Irwindale. The Manning Pit, which is located southwest of Vincent Avenue and Arrow Highway, has the capacity to accept 5 million cubic yards of those types of materials. The Manning Pit is accessible from Vincent Avenue.

The Olive Pit, which is located southwest of Olive Street and Azusa Canyon Road, has the capacity to accept 50 million cubic yards of soil and other material from the tunnel bores. The Olive Pit is accessible from Olive Street, Azusa Canyon Road, and a local rail spur along 4th Street to the east of the pit.

The following preliminary haul routes have been identified for this analysis. These preliminary haul routes would be refined prior to construction in connection with the preparation of the TMP. Soil excavated from the bored and cut-and-cover tunnel segments would be transported via rail or truck, depending on the tunnel portal from which the debris would be removed.

The excavated soil associated with tunnel construction activities at the south tunnel portal would be transported by either rail or truck. Rail haul trips would be transported along an existing rail line just north of Valley Boulevard to the Olive Pit. Trains used for rail haul trips would return to the south tunnel portal using the same route. Truck haul trips from the south tunnel portal would travel beneath Valley Boulevard and proceed south on I-710, east on I-10, north on I-605, and exit at Live Oak Avenue. After exiting I-605, haul truck traffic would follow Live Oak Avenue east to Arrow Highway. Trucks bound for the Olive Pit would proceed south on

Azusa Canyon Road, while trucks bound for the Manning Pit would proceed south on Vincent Avenue. After disposing of their loads in Irwindale, trucks would return to the south tunnel portal using the same route.

The excavated soil associated with tunnel construction activities at the north tunnel portal would be transported by truck. Truck haul trips would proceed north on I-710, east on I-210, south on I-605, and exit at Arrow Highway. After exiting I-605, haul truck traffic would proceed east on Arrow Highway and follow the same routes to the Olive and Manning Pits as the haul trucks from the south tunnel portal. After disposing of their loads in Irwindale, trucks would return to the north tunnel portal using the same haul route.

Construction of the single-bore design variation would involve minor detours, delays, and/or rail/truck haul trips but would not result in temporary disruptions to local pedestrian and vehicular traffic or temporary disruptions to access in the study area. Therefore, the single-bore design variation would not result in any temporary impacts on community cohesion in the cities, communities, and neighborhoods in the study area.

The single-bore design variation of the Freeway Tunnel Alternative would require permanent tunnel easements beneath 324 parcels in El Sereno, Pasadena, and South Pasadena. (Tunnel easements are required to accommodate tunnel structures beneath a property.) The single-bore design variation would also require permanent footing easements on 3 parcels in Alhambra and El Sereno, and permanent subsurface easements for uses other than the tunnel (e.g., utility relocations) beneath 32 parcels in Alhambra, El Sereno, and Pasadena. (Footing easements are required to accommodate structural foundations beneath a property. Subsurface easements are required to accommodate underground utility lines or other underground structures not directly related to tunnels beneath a property.)

The single-bore design variation of the Freeway Tunnel Alternative would provide improvements to the off-ramp from northbound I-710 to Valley Boulevard and the Valley Boulevard on-ramp to southbound I-710 that would improve traffic operations and circulation in Alhambra and El Sereno without permanently modifying the access to and from adjacent properties. The single-bore design variation would also provide a new four-lane freeway facility (two northbound lanes and two southbound lanes) extending between the existing terminus of SR 710 on the south to the existing I-210/SR 134 interchange to the north. There would be no interchanges with local streets except at the existing partial interchange between I-710 and Valley Boulevard.

Because the single-bore design variation of the Freeway Tunnel Alternative would not provide interchanges or access locations between Valley Boulevard and I-210/SR 134, it would not provide any direct transportation benefit to motorists in the study area along the alignment of the freeway. However, some travelers currently using north-south local streets to traverse the study area would be expected to take alternative routes that would allow them to access the new freeway for those north-south trips.

In addition to these impacts, the Freeway Tunnel Alternative single-bore design variation would also result in the impacts related to community character and cohesion under the TSM/TDM Alternative as described earlier in this section.

Freeway Tunnel Alternative (Dual-Bore Design Variation)

The dual-bore design variation of the Freeway Tunnel Alternative would employ the same haul routes described above for the single-bore design variation. However, because the dual-bore design variation would require the excavation of approximately twice as much soil as the single-bore design variation, the dual-bore design variation would result in twice as many haul trips as the single-bore design variation. Although the dual-bore design variation would result in twice as many haul trips as the single-bore-design variation, the dual-bore design variation of the Freeway Tunnel Alternative would not result in any greater short-term traffic effects than those described above for the single-bore design variation with respect to community character and cohesion.

Construction of the dual-bore design variation would involve minor detours, delays, and/or rail/truck haul trips but would not result in temporary disruptions to local pedestrian and vehicular traffic or temporary disruptions to access in the study area. Therefore, the dual-bore design variation would not result in any temporary impacts on community cohesion in the cities, communities, and neighborhoods in the study area.

The Freeway Tunnel Alternative dual-bore design variation includes the same features as the Freeway Tunnel Alternative single-bore design variation. The dual-bore design variation would require permanent tunnel easements beneath 563 parcels in El Sereno, Pasadena, and South Pasadena. (Tunnel easements are required to accommodate tunnel structures beneath a property.) The dual-bore design variation would also require permanent footing easements on 3 parcels in Alhambra and El Sereno and permanent subsurface easements for uses other than the tunnel (e.g., utility relocations) beneath 41 parcels in Alhambra, El Sereno, and Pasadena. (Footing easements are required to accommodate structural foundations beneath a property. Subsurface easements are required to accommodate underground utility lines or other underground structures not directly related to tunnels beneath a property.) Although the dual-bore design variation would result in improvements in the City of Monterey Park, all such improvements would be constructed within the existing public ROW, therefore, the dual-bore design variation would not require any temporary or permanent easements or property acquisition in the City of Monterey Park. Further, the dual-bore design variation would not result in any short-term traffic impacts or temporary or permanent changes in access in the City of Monterey Park. Therefore, the dual-bore design variation of the Freeway Tunnel Alternative would not result in any temporary or permanent impacts on the community character or cohesion of the City of Monterey Park.

Because the dual-bore design variation of the Freeway Tunnel Alternative would not provide interchanges or access locations between Valley Boulevard and I-210/SR 134, it would not provide any direct transportation benefit to motorists in the study area along the alignment of the freeway. However, some travelers currently using north-south local streets to traverse the study area would be expected to take alternative routes that would allow them to access the new freeway.

In addition to these impacts, the Freeway Tunnel Alternative dual-bore design variation would also result in the impacts related to community character and cohesion under the TSM/TDM Alternative as described earlier in this section.

Environmental Justice

Temporary Impacts

Environmental justice populations across the study area would experience short-term adverse air quality, noise, and traffic impacts. Non-environmental justice populations in the study area would also experience those short-term impacts during construction of the project improvements. Moving the improvements in the Build Alternatives to other locations to avoid short-term construction impacts in and near census tracts with one or more environmental justice populations would result in those improvements being located where they would not provide comparable improvements to the circulation system. However, because those short-term impacts on all populations, including environmental justice populations, can be substantially reduced, the construction of the Build Alternatives would not result in adverse impacts that are appreciably more severe or greater in magnitude on environmental justice populations than the adverse impacts experienced by non-environmental justice populations.

Permanent Impacts

The operation of the TSM/TDM and BRT Alternatives would not result in adverse impacts that would be appreciably more severe or greater in magnitude on environmental justice populations than the adverse impacts experienced by non-environmental justice populations after taking offsetting benefits into account.

The property acquisition and displacement under the LRT Alternative would result in permanent adverse impacts on environmental justice populations that would not be borne by non-environmental justice populations; however, the LRT Alternative would not result in adverse impacts that would be appreciably more severe or greater in magnitude on environmental justice populations than the adverse impacts experienced by non-environmental justice populations after taking offsetting benefits into account.

Under the Freeway Tunnel Alternative, all of the freeway segment at the southern end (at and north of the I-10 interchange), the majority of the tunnel alignment, and approximately half of the freeway segment at the northern end of the alignment (south of and at the I-210 interchange) are within or immediately adjacent to census tracts with at least one environmental justice population. Because the Freeway Tunnel Alternative would not provide interchanges or access locations between Valley Boulevard and I-210/SR 134, it would not provide any direct transportation benefit to environmental justice populations or other populations along the alignment of the Freeway Tunnel Alternative. However, some travelers currently using north-south local streets to traverse the study area would be expected to take alternative routes that would allow them to access the new freeway. Environmental justice and other populations would indirectly benefit as a result of reduced traffic on local streets in the study area. In addition, the TSM/TDM Alternative improvements provided in the Freeway Tunnel Alternative would benefit both environmental justice and non-environmental justice populations in the study area.

Moving the alignment of the Freeway Tunnel Alternative to another location to avoid permanent land acquisition in and near census tracts with one or more environmental justice populations along the current alignment of the Freeway Tunnel Alternative could result in the need to relocate the interchanges at I-10 and I-210, which would substantially increase the project cost and the amount of land needed to accommodate the improvements in this Build

Alternative. Realigning the Freeway Tunnel Alternative could also result in greater impacts in census tracts with one or more environmental justice populations. However, because the long-term impacts of the Freeway Tunnel Alternative on all populations, including environmental justice populations, can be substantially reduced, the operation of the Freeway Tunnel Alternative would not result in adverse impacts that are appreciably more severe or greater in magnitude on environmental justice populations than the adverse impacts experienced by non-environmental justice populations. As a result, the operation of the Freeway Tunnel Alternative would not result in adverse impacts that would be appreciably more severe or greater in magnitude on environmental justice populations than the adverse impacts experienced by non-environmental justice populations after taking offsetting benefits into account.

Relocations

Relocations anticipated as part of the SR 710 North Study Build Alternatives are discussed below.

TSM/TDM Alternative

The TSM/TDM Alternative would result in one full parcel acquisition in Pasadena, which would not result in relocations. The TSM/TDM Alternative would result in the relocation of one business from a Caltrans-owned parcel in El Sereno and the displacement of six employees.

Additionally, the TSM/TDM Alternative would result in 31 partial parcel acquisitions in Alhambra, Eagle Rock, El Sereno, Pasadena, Rosemead, San Gabriel, and South Pasadena. None of these partial parcel acquisitions would result in the displacement of businesses or employees.

Because the TSM/TDM Alternative would result in a minimal number of non-residential displacements, it would not affect the character or cohesion of the communities in which the TSM/TDM Alternative improvements would be located. Further, there is an adequate supply of replacement properties available in the study area to relocate this displaced business. Therefore, it is anticipated that this displaced business could be relocated near its current location without any disruption to the social fabric of the community in which it is located.

BRT Alternative

The BRT Alternative would result in approximately 45 partial parcel acquisitions in Alhambra, East Los Angeles, Monterey Park, Pasadena, and South Pasadena. None of these partial parcel acquisitions would result in the displacement of businesses or employees.

The BRT Alternative would also include all the improvements in the TSM/TDM Alternative with the exception of Local Street Improvement L-8 (Fair Oaks Avenue from Grevelia Street to Monterey Road) and the reversible lane component of Local Street Improvement L-3 (Atlantic Boulevard from Glendon Way to I-10). Therefore, the BRT Alternative would also require the same permanent effects related to relocations and real property acquisitions (partial acquisition of approximately 31 parcels, full acquisition of approximately 1 parcel, and the displacement of approximately 1 business) as the TSM/TDM Alternative.

In summary, with the inclusion of the TSM/TDM Alternative improvements described above, the BRT Alternative would require the partial acquisition of approximately 76 parcels, the full acquisition of approximately 1 parcel, and the displacement of approximately 1 business. The BRT Alternative would not result in permanent adverse effects related to relocations and real

property acquisitions and would not affect the character or cohesion of the communities in which the BRT Alternative improvements would be located.

LRT Alternative

The LRT Alternative would result in 58 full acquisitions in Alhambra, East Los Angeles, Monterey Park, Pasadena, and South Pasadena, and the partial acquisition of approximately 11 parcels in Alhambra, East Los Angeles, El Sereno, Monterey Park, Pasadena, and South Pasadena. These acquisitions would require the relocation of approximately 73 businesses, resulting in the displacement of approximately 645 employees. In addition, the LRT Alternative would result in the relocation of 1 business from a State-owned parcel in El Sereno and the displacement of approximately 30 employees at that business.

The LRT Alternative would also include all the improvements in the TSM/TDM Alternative with the exception of Other Road Improvement T-1 (Valley Boulevard to Mission Road Connector Road). Therefore, the LRT Alternative would also include most of the same permanent effects related to relocations and real property acquisitions (partial acquisition of approximately 31 parcels and full acquisition of approximately 1 parcel) as the TSM/TDM Alternative, but would not result in the displacement of approximately 1 business from El Sereno.

With the inclusion of the TSM/TDM Alternative improvements described above, the LRT Alternative would require the partial acquisition of approximately 42 parcels, the full acquisition of approximately 59 parcels, and the displacement of approximately 74 businesses.

Because the LRT Alternative would result in a minimal number of non-residential displacements, it would not affect the character or cohesion of most of the communities in which the LRT Alternative improvements would be located (i.e., Alhambra, El Sereno, Irwindale, Monterey Park, Pasadena, and South Pasadena). Further, there is an adequate supply of replacement properties available in the study area in which to relocate these displaced businesses. All businesses displaced by the LRT Alternative would receive relocation assistance under the Uniform Act; however, some may not be relocated near their current locations.

Because local residents do not appear to rely on the services provided by the 20 businesses that would be displaced from Monterey Park under the LRT Alternative on a day-to-day basis, their displacement would not disrupt the social fabric of the City of Monterey Park.

Although local residents appear to rely on the goods and services provided by the 48 businesses that would be displaced from the South Pasadena and Huntington Station sites under the LRT Alternative on a day-to-day basis, many businesses in the vicinity of the South Pasadena and Huntington Station sites offer the same types of goods and services as those businesses that would be displaced under the LRT Alternative. Therefore, local residents would still be able to receive goods and services similar to those currently provided by the businesses that would be displaced, and it would not disrupt the social fabric of the community in this area. Further, based on the relatively low percentage of transit-dependent residents in the areas surrounding the South Pasadena and Huntington Station sites, most local residents would be able to drive to the new locations of those businesses that would be displaced from these station sites, if so desired. Therefore, the business displacements associated with the LRT Alternative would not disrupt the social fabric of the City of South Pasadena.

Within the unincorporated community of East Los Angeles, the LRT Alternative would result in the displacement of 15 adjacent neighborhood-oriented businesses along Mednik Avenue just south of SR 60, which would disrupt the social fabric of the community in this area. Although these businesses would receive relocation assistance under the Uniform Act, and based on the currently available properties for relocation, these businesses are not likely to be relocated in the immediate vicinity of their current location. Due to the types of services these businesses offer (laundromat, drinking water, credit union, and restaurants), their location near the East Los Angeles Civic Center, and the high percentage of transit-dependent residents in the area, local residents are likely to rely on the services provided by these businesses on a day-to-day basis. Therefore, their displacement would adversely affect the community character and cohesion of East Los Angeles.

Freeway Tunnel Alternative (Single-Bore Design Variation)

The single-bore design variation of the Freeway Tunnel Alternative would result in one full parcel acquisition in Alhambra. This full parcel acquisition would require the relocation of one business in Alhambra and the displacement of five employees. In addition, the single-bore design variation would result in the relocation of one business from a Caltrans-owned parcel in El Sereno and the displacement of 30 employees.

The single-bore design variation of the Freeway Tunnel Alternative would result in two partial parcel acquisitions in El Sereno. None of these partial parcel acquisitions would require the displacement of businesses or employees.

Because the single-bore design variation of the Freeway Tunnel Alternative would result in a minimal number of non-residential displacements, it would not affect the character or cohesion of the communities in which the single-bore design variation improvements would be located. Further, there is an adequate supply of replacement properties available in the study area to relocate the displaced businesses. Therefore, it is anticipated that displaced businesses could be relocated near their current location without much disruption to the social fabric of the communities in which they are located.

Freeway Tunnel Alternative (Dual-Bore Design Variation)

The dual-bore design variation of the Freeway Tunnel Alternative would result in one full parcel acquisition in Alhambra. This full parcel acquisition would require the relocation of one business in Alhambra, resulting in the displacement of five employees. In addition, the dual-bore design variation would result in the relocation of one business from a Caltrans-owned parcel in El Sereno and the displacement of 30 employees.

The dual-bore design variation of the Freeway Tunnel Alternative would result in three partial parcel acquisitions in El Sereno, none of which would require the displacement of businesses or employees.

Because the dual-bore design variation of the Freeway Tunnel Alternative would result in a minimal number of non-residential displacements, it would not affect the character or cohesion of the communities in which the dual-bore design variation improvements would be located. Further, there is an adequate supply of replacement properties available in the study area in which to relocate the displaced businesses. Therefore, it is anticipated that displaced businesses

could be relocated near their current location without much disruption to the social fabric of the communities in which they are located.

The Freeway Tunnel Alternative (single- and dual-bore) would also include all the improvements in the TSM/TDM Alternative with the exception of Other Road Improvements T-1 (Valley Boulevard to Mission Road Connector Road) and T-3 (St. John extension between Del Mar Boulevard and California Boulevard). Therefore, both design variations of the Freeway Tunnel Alternative would also include most of the same permanent effects related to relocations and real property acquisitions (partial acquisition of approximately 17 parcels) as the TSM/TDM Alternative, but would not result in the partial acquisition of approximately 14 parcels, the full acquisition of approximately 1 parcel in Pasadena, and the displacement of approximately 1 business from El Sereno. With the inclusion of the TSM/TDM Alternative improvements described above, both design variations of the Freeway Tunnel Alternative would require the partial acquisition of approximately 19 parcels, the full acquisition of approximately 1 parcel, and the displacement of approximately 1 business. The Freeway Tunnel Alternative would not result in permanent adverse effects related to relocations and real property acquisitions.

Community Facilities

Impacts to community facilities in the study area anticipated as part of the Build Alternatives are discussed below.

TSM/TDM Alternative

Short-term noise and air quality level increases and traffic impacts during construction would occur at 20 community facilities in the cities/communities of Alhambra, Eagle Rock, El Sereno, Glassell Park, Pasadena, Rosemead, San Gabriel, San Marino, and South Pasadena. In addition, one community facility in the City of Pasadena could experience short-term air quality effects and noise level increases during construction of the TSM/TDM Alternatives. Lastly, three community facilities in the cities/communities of Eagle Rock, San Marino, and South Pasadena would experience temporary traffic/access impacts. However, such impacts would be temporary in nature and would cease upon completion of construction. In order to reduce noise impacts, construction activities in the State ROW would comply with Caltrans noise control standards, while construction activities outside of the State ROW would be limited to the hours set forth in the municipal noise ordinance applicable to the area in which the improvements would be constructed. Short-term traffic impacts during construction would be substantially mitigated based on implementation of a TMP. Compliance with SCAQMD requirements related to dust control and equipment emissions during construction will reduce construction-related air quality impacts.

Twenty-one community facilities could experience permanent noise level increases during operation of the TSM/TDM Alternative. Although most of these community facilities are anticipated to experience permanent noise level increases of less than 3 dB, which would be barely perceptible to the human ear, three of these facilities (Blair High School, Maranatha High School, and Sequoyah School) would experience noticeable differences in noise levels. However, none of the schools engage in noise-sensitive outdoor activities on a routine basis. Further, based on visual inspections of the exterior of these facilities and the warm climate in the portion of Los Angeles County in which these facilities are located, each of these facilities is likely to rely on air conditioning in lieu of opening windows for ventilation. Therefore, the permanent noise

level increases under the TSM/TDM Alternative would not affect the ability of these facilities to serve the community.

The operation of the TSM/TDM Alternative would not result in permanent adverse impacts on community facilities related to the permanent acquisition of land, permanent easements, air quality, traffic/access, and parking, and would not result in permanent adverse effects on community character and cohesion.

BRT Alternative

The BRT Alternative would use 0.02 ac of land from Cascades Park in the City of Monterey Park as a TCE during construction in the vicinity of this park. Compliance with SCAQMD requirements related to dust control and equipment emissions during construction will reduce construction-related air quality impacts. Eleven community facilities in the cities/communities of Alhambra, East Los Angeles, Monterey Park, Pasadena, and San Marino could experience short-term noise and air quality level increases and traffic/access impacts during construction. Four facilities in the cities/communities of East Los Angeles, Monterey Park, and Pasadena could experience short-term air quality effects and noise level increases during construction, and four facilities in the same cities/communities could experience short-term noise effects. Additionally, two facilities in the cities/communities of Alhambra and South Pasadena could experience short-term traffic/access impacts. Such increases would be temporary in nature and would cease upon completion of the project. Construction activities in the State ROW would comply with Caltrans noise control standards, while construction activities outside of State ROW would be limited to the hours set forth in the municipal noise ordinance applicable to the area in which the improvements would be constructed. Additionally, the community facilities that could experience short-term traffic impacts during construction would be substantially mitigated based on implementation of a TMP and maintenance of access to these facilities during construction. The BRT Alternative would also result in the same short-term construction effects on community character and cohesion as the other improvements in the TSM/TDM Alternative. However, with the inclusion of the TSM/TDM Alternative improvements described above, the BRT Alternative would not result in short-term adverse effects on community character and cohesion.

The BRT Alternative would require the permanent acquisition of 0.011 ac of land from Cascades Park in the City of Monterey Park.

Ten community facilities in the cities/communities of East Los Angeles, Monterey Park, Pasadena, and South Pasadena that could experience a permanent noise level increase of less than 3 dB during operation of the BRT Alternative. Most facilities are anticipated to experience a permanent noise level increase of less than 3 dB, which would be barely perceptible to the human ear. One of these community facilities (South Pasadena Middle School) is anticipated to experience a permanent noise level increase of 3 dB. Because South Pasadena Middle School does not appear to engage in frequent human use/activity on a routine basis, and based on a visual inspection of the exterior of its facilities and the warm climate in which it is located, South Pasadena Middle School is likely to rely on air conditioning in lieu of opening windows for ventilation. Therefore, the permanent noise level increase anticipated to occur under the BRT Alternative would not affect its ability to serve the community.

The BRT Alternative would not result in long-term traffic and transportation impacts or require the permanent acquisition of parking spaces at community facilities. The BRT Alternative would also result in the same operational effects on community character and cohesion as the other improvements in the TSM/TDM Alternative. However, with the inclusion of the TSM/TDM Alternative improvements described above, the BRT Alternative would not result in permanent adverse effects on community character and cohesion.

LRT Alternative

The LRT Alternative would require the use of 1.7 ac of vacant land on the California State University, Los Angeles (Cal State LA) campus for a TCE during construction of the LRT station at this University. Six facilities in the cities/communities of Alhambra, East Los Angeles, and El Sereno could experience short-term air quality, noise, and traffic/access effects. Compliance with SCAQMD requirements related to dust control and equipment emissions during construction will reduce construction-related air quality impacts. Such increases would be temporary in nature and would cease upon completion of the project. Construction activities in the State ROW would comply with Caltrans noise control standards, while construction activities outside of State ROW would be limited to the hours set forth in the municipal noise ordinance applicable to the area in which the improvements would be constructed. Additionally, four community facilities in the cities/communities of East Los Angeles, Pasadena, and South Pasadena could experience short-term traffic/access effects during construction. These impacts would be substantially mitigated based on implementation of a TMP and maintenance of access to these facilities during construction.

The LRT Alternative would also include all the improvements in the TSM/TDM Alternative with the exception of Other Road Improvement T-1 (Valley Boulevard to Mission Road Connector Road). As a result, the LRT Alternative would also result in most of the same short-term construction effects on community character and cohesion as the TSM/TDM Alternative; however, the LRT Alternative would result in traffic detours and delays for motorists on Valley Boulevard at SR 710 over a longer period of time than the TSM/TDM Alternative. However, with the inclusion of the TSM/TDM Alternative improvements described above, the LRT Alternative would not result in short-term adverse effects on community character and cohesion.

The LRT Alternative would permanently acquire 3 ac of vacant land on the Cal State LA campus for permanent incorporation into the LRT Alternative station at this University. Because this acquisition consists of vacant land that is not used by Cal State LA for academic or ancillary uses, the LRT Alternative is not anticipated to affect the University's ability to serve the community or the community cohesion of the surrounding area.

Five community facilities in the cities/communities of East Los Angeles and El Sereno could experience permanent noise level increases during operation of the LRT Alternative. Although one of these community facilities (Belvedere Community Regional Park) is anticipated to experience a permanent noise level increase of 3 dB, most facilities are anticipated to experience a permanent noise level increase of less than 3 dB, which would be barely perceptible to the human ear. Because Belvedere Community Regional Park is an active use park and is not considered to be noise sensitive, the permanent noise level increase anticipated to occur under the LRT Alternative would not affect its ability to serve the community.

Operation of the LRT Alternative improvements would not impact access to/from the driveways of any of the community facilities or require the permanent use of parking spaces along the LRT route. As a result, the LRT Alternative would not result in long-term traffic and transportation impacts at community facilities.

The LRT Alternative would also include all the improvements in the TSM/TDM Alternative with the exception of Other Road Improvement T-1 (Valley Boulevard to Mission Road Connector Road). As a result, the LRT Alternative would also result in the same permanent effects on community character and cohesion as the other improvements in the TSM/TDM Alternative. However, with the inclusion of the TSM/TDM Alternative improvements described above, the LRT Alternative would result in permanent adverse effects on community character and cohesion related to the displacement of 15 neighborhood-oriented businesses in East Los Angeles.

Freeway Tunnel Alternative

The Freeway Tunnel Alternative would require the use of 0.2 ac of land on the Cal State LA campus for a TCE during construction of the freeway improvements in this area. Three facilities in the cities/communities of El Sereno and Pasadena could experience short-term air quality, noise, and traffic/access effects. However, compliance with SCAQMD requirements related to dust control and equipment emissions during construction will reduce construction-related air quality impacts. Additionally, two community facilities in the City of Pasadena could experience short-term noise level increases. Such increases would be temporary in nature and would cease upon completion of the project. To reduce temporary noise impacts, construction activities in the State ROW would comply with Caltrans noise control standards, while construction activities outside of State ROW would be limited to the hours set forth in the municipal noise ordinance applicable to the area in which the improvements would be constructed. Short-term traffic impacts during construction would be substantially mitigated based on implementation of a TMP and maintenance of access to these facilities during construction.

The Freeway Tunnel Alternative would also include all the improvements in the TSM/TDM Alternative with the exception of Other Road Improvements T-1 (Valley Boulevard to Mission Road Connector Road) and T-3 (St. John extension between Del Mar Boulevard and California Boulevard). As a result, the Freeway Tunnel Alternative would also result in most of the same short-term construction effects on community character and cohesion as the TSM/TDM Alternative; however, the Freeway Tunnel Alternative would result in traffic detours and delays for motorists on Valley Boulevard at SR 710 over a longer period of time than the TSM/TDM Alternative. However, with the inclusion of the TSM/TDM Alternative improvements described above, the Freeway Tunnel Alternative would not result in short-term adverse effects on community character and cohesion.

The Freeway Tunnel Alternative would permanently acquire approximately 1.0 ac of land on the Cal State LA campus for permanent incorporation into the freeway improvements in this area. Additionally, the Freeway Tunnel Alternative would require an approximately 0.6 ac permanent easement on the Cal State LA campus to accommodate a footing for the freeway improvements in this area.

Four community facilities in the cities/communities of El Sereno and Pasadena could experience permanent noise level increases during operation of either design variation of the Freeway

Tunnel Alternative. Although most of these facilities are anticipated to experience a permanent noise level increase of less than 3 dB under either design variation, which would be barely perceptible to the human ear, two of these community facilities (Cal State LA and Maranatha High School) are anticipated to experience a permanent noise level increase of 3 dB or more under the Tunnel Alternative. Neither the University nor the school appear to engage in noise-sensitive outdoor activities on a routine basis (events held at the outdoor athletic facilities at these sites are not likely to be noise sensitive because they typically would produce their own noise). Further, based on a visual inspection of the exteriors of these facilities and the warm climate in the portion of Los Angeles County in which these facilities are located, the University and the high school are likely to rely on air conditioning in lieu of opening windows for ventilation. Therefore, the permanent noise level increase anticipated to occur under either design variation of the Freeway Tunnel Alternative would not affect the ability of these facilities to serve the community.

Operation of either design variation of the Freeway Tunnel Alternative would not impact access to/from the driveways or require the permanent acquisition of parking spaces of any of the community facilities near the improvements. As a result, neither design variation of the Freeway Tunnel Alternative would result in long-term traffic and transportation impacts at community facilities.

The Freeway Tunnel Alternative would also include all the improvements in the TSM/TDM Alternative with the exception of Other Road Improvements T-1 (Valley Boulevard to Mission Road Connector Road) and T-3 (St. John extension between Del Mar Boulevard and California Boulevard). As a result, the Freeway Tunnel Alternative would also result in the same permanent effects on community character and cohesion as the other improvements in the TSM/TDM Alternative. However, with the inclusion of the TSM/TDM Alternative improvements described above, the Freeway Tunnel Alternative would not result in permanent adverse effects on community character and cohesion.

A substantial decrease in Mobile Source Air Toxics (MSAT) emissions can be expected between the existing (2012) and future (2020, 2025, and 2035) No Build conditions. This decrease is prevalent throughout the highest priority MSATs and the analyzed alternatives. This decrease is also consistent with the EPA study that projects a substantial reduction in on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde between 2000 and 2050. Based on the analysis for this project, reductions in MSATs expected by 2035 are: 59 percent of diesel particulate matter plus diesel exhaust organic gases (diesel PM), 67 percent of benzene, 70 percent of 1,3-butadiene, 24 percent of naphthalene, 46 percent of polycyclic organic matter, 73 percent of acrolein, and 46 percent of formaldehyde. These projected reductions are achieved while total vehicle miles traveled (VMTs) increase by 11.3 percent between 2012 and 2035. Implementation of the Build Alternatives would result in a slight increase in MSAT emissions within the SR 710 North Study area. However, the proposed project's increase in MSAT emissions would be negligible. While the proposed project alternatives would result in a small increase in localized MSAT emissions, the EPA's vehicle and fuel regulations, coupled with fleet turnover, will cause substantial reductions over time that will cause regionwide MSAT levels to be substantially lower than they are today.

4.2.3.4 Reasonably Foreseeable Actions

The reasonably foreseeable actions would occur in the areas that are planned for development or redevelopment. The reasonably foreseeable actions are listed in Table 3.1 and shown on Figure 3-1. Table 4.8 shows projects with particular relevance to impacts on community impacts.

4.2.3.5 Cumulative Impact

Community Character and Cohesion

As stated in Section 4.2.3.3 (Project Impacts), the SR 710 North Study is anticipated to have temporary traffic, air quality, and noise impacts during construction. Table 4.8 shows that all 22 cumulative projects are anticipated to have these types of temporary impacts. Nine projects are anticipated to be constructed concurrent with the SR 710 North Study. Four of these projects are located far enough away from the SR 710 North Study or would create such nominal impacts that they would not contribute to a temporary cumulative traffic, air quality, and/or noise effect. Five of the cumulative projects (Regional Connector Transit Corridor, Crown City Medical Center, Devil's Gate Reservoir Sediment Removal and Management, Olson San Gabriel Residential Community, and 100 West Walnut Planned Development) are located very near the SR 710 North Study and have the potential to contribute to a temporary cumulative traffic, air quality, and/or noise effect. However, these projects would implement their own best management practices during construction to minimize these impacts. Therefore, it is not anticipated that these projects, in combination with the SR 710 North Study, would contribute to temporary traffic, air quality, and/or noise impacts.

Additionally, as stated above in Section 4.2.3.3, the Build Alternatives would result in minor changes in access or circulation; however, they would also provide the traveling public with improvements in mobility and increase the efficiency of the existing circulation system without dividing or otherwise affecting the character of the communities in which they would be located. However, as stated below in Subsection "Relocation," displacement of neighborhood-oriented businesses in East Los Angeles would adversely affect the community character and cohesion of that neighborhood. Table 4.8 shows that the I-710 South Corridor Project would have an adverse effect on community character and cohesion in the communities of Commerce, Bell Gardens, and Compton. However, these communities are not the same communities affected by the SR 710 North Study and will therefore not contribute to an adverse cumulative effect on community and cohesion.

Environmental Justice

As shown in Table 4.8, the I-710 South Corridor Project would have near roadway noise and air quality impacts. Additionally, the Regional Connector Transit Corridor would have temporary access and relocation impacts as well as permanent visual and noise impacts to environmental justice communities. However, as stated above in Section 4.2.3.3, operation of the SR 710 North Study Build Alternatives would not result in adverse temporary or permanent impacts that would be appreciably more severe or greater in magnitude on environmental justice populations than the adverse impacts experienced by non-environmental justice populations after taking offsetting benefits into account. Therefore, the SR 710 North Study would not contribute to a cumulative effect on environmental justice communities.

TABLE 4.8:
Reasonably Foreseeable Actions – Community Impacts

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
I-710 South Corridor Project	●	1	Freeway Tunnel (0.5 mi) LRT (0.4 mi)	This project would result in community cohesion impacts at a localized level within Commerce, Bell Gardens, and Compton due to relocations of existing cohesive communities. Additionally, some disproportionate adverse impacts to minority and low-income populations were identified that were related to near roadway noise and air quality impacts, while no disproportionate adverse impacts were found in other areas. Additionally, this project would have direct and/or indirect impacts to seven community facilities.
I-10 HOT Lanes	○	8	BRT (intersects) LRT (intersects) Freeway Tunnel (intersects)	This project proposes to improve on the existing roadway and is not anticipated to affect public access, divide neighborhoods, or separate residences from community facilities. This project is consistent with the goals, objectives, and policies of all surrounding communities' General Plans, which generally call for improved traffic conditions on the I-10. There are no environmental consequences related to community cohesion. Additionally, the project's requirement for travelers to have transponders will have setup charges and recurring fees that will have an adverse effect on low-income and minority populations who utilize the existing HOV lane. However, the proposed improvement is also anticipated to have a beneficial impact on all project study area residents, including minority and low-income populations, by providing traffic improvements that increase the operational efficiency of existing transit services and provide additional transit services throughout the affected communities.
San Gabriel Trench Grade Separation	●	11	TSM/TDM (intersects)	Because this project site currently divides the San Gabriel Village District, Mission District, and San Gabriel Mission areas of San Gabriel, the operation of this project would not increase or exacerbate the division of these areas. Implementation of this project would actually improve or reduce the effect of the project due to the proposed change to the railroad configuration (from at-grade to below-grade or trench), which would eliminate disruptive at-grade crossings at Ramona Street, Mission Road, Del Mar Avenue, and San Gabriel Boulevard. Three businesses would be displaced as part of the proposed project. These three displaced businesses are mostly light industrial, and they employ approximately 38 persons.
Rosemead Boulevard Safety Enhancement & Beautification	○	12	TSM/TDM (intersects)	This project does not have the potential to divide or disrupt neighborhoods/communities. This project would occur within existing ROW and would not create any barriers or methods to divide or disrupt neighborhoods/communities.
Regional Connector Transit Corridor	●	17	Freeway Tunnel (2,800 ft)	This project would have temporary adverse construction-related impacts on community mobility, emergency service response times, community resources and events, and business viability. Additionally, this project would also have a short-term adverse operation effect on business viability due to acquisitions (though not permanent). In addition, disproportionate community and neighborhood impacts could occur in Little Tokyo during construction, including reductions of access to community facilities and businesses. Disproportionate property acquisitions and business relocations would also occur in Little Tokyo.

TABLE 4.8:
Reasonably Foreseeable Actions – Community Impacts

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
				Disproportionate visual alteration of the Little Tokyo neighborhood could occur due to removal of structures for the 1st/Central Avenue station. Disproportionate operation noise may be more audible in Little Tokyo than in other parts of the alignment due to the portals and open-roof station. These impacts would be reduced to a not substantially adverse level by the mitigation measures to be implemented as part of this project.
Eastside Transit Corridor Phase 2 – Metro Gold Line Eastside Extension	●	18	BRT (intersects) LRT (0.5 mi)	Minimal community impacts would result from the construction and operation of the SR 60 LRT Alternative (i.e., the aerial system and stations fit within the SR 60 ROW); however, it should be noted that as currently designed, this build alternative will impact 12 residential properties. Minimal community impacts would result from the construction and operation of the Washington Boulevard LRT Alternative due to the scale of the community, and streets along this alignment can accommodate both the aerial system and stations with minimal impacts to quality of life and traffic circulation.
Alhambra Bicycle Master Plan	○	24	BRT (intersects)	This project in anticipated to benefit the community by providing increased bicycle use.
Lincoln Avenue Specific Plan	○	25	Freeway Tunnel (100 ft)	It is anticipated that this project would result in temporary noise, air quality, and traffic impacts during construction. This project would not physically divide an established community.
Crown City Medical Center	○	26	Freeway Tunnel (0.25 mi)	It is anticipated that this project would result in temporary noise, air quality, and traffic impacts during construction. This project would not physically divide an established community because the site is developed with a surface parking lot and is located in a fully urbanized area.
16 East California Project	○	27	BRT (1,000 ft) LRT (460 ft) Freeway Tunnel (0.4 mi)	It is anticipated that this project would result in temporary noise, air quality, and traffic impacts during construction. It is anticipated that this project would not physically divide an established community because the project includes redevelopment of an existing site and is located in a fully urbanized area.
Magellan Gateway Project	○	28	BRT (750 ft) LRT (900 ft) Freeway Tunnel (200 ft)	It is anticipated that this project would result in temporary noise, air quality, and traffic impacts during construction. This project site was previously occupied by heavy manufacturing facilities that have since been demolished. The project site is surrounded by industrial land uses to the north; commercial, industrial, and convalescent care uses to the south; commercial, industrial, and residential uses to the east; and residential uses to the west. This project would be consistent with the General Plan 1991 designation of Industrial/Business Park for the site. Therefore, the proposed project would not physically divide an established community. In addition, this

TABLE 4.8:
Reasonably Foreseeable Actions – Community Impacts

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
				project would not introduce buildings or infrastructure that represents a physical division of the existing community.
El Monte Walmart	○	29	TSM/TDM (0.5 mi)	It is anticipated that this project would result in temporary noise, air quality, and traffic impacts during construction. It is anticipated that this project would not physically divide an established community because the project includes development of a vacant site and is located in a fully urbanized area.
Huntington Memorial Hospital Master Development Plan Amendment	○	31	BRT (750 ft) LRT (900 ft) Freeway Tunnel (200 ft)	It is anticipated that this project would result in temporary noise, air quality, and traffic impacts during construction. The project site is located in a highly urbanized area with a mix of land uses, and the majority of the site is part of the existing Huntington Memorial Hospital campus. The majority of demolition, construction, and renovation activities associated with the proposed project would occur within the existing Huntington Memorial Hospital campus boundaries. However, a component of the project involves a reconfiguration of the Master Development Plan boundary. Because the construction management buildings are used and owned by the hospital and are surrounded by hospital facilities to the north, east, and south and Pasadena Avenue to the east, and the project consists of an infill development within a highly urbanized area, the project will not physically divide an existing community. The reconfiguration of the Master Development Plan boundary will not result in the introduction of new land uses into the area, and there will be no conflict with existing land uses because hospital-related uses are already occurring on the subject parcel. There are no proposed changes to the streets servicing the site or an introduction of new structures that would physically divide the community. Therefore, no significant impacts would occur under CEQA.
Devil's Gate Reservoir Sediment Removal and Management Project	○	32	Freeway Tunnel (1 mi)	It is anticipated that this project would result in temporary noise, air quality, and traffic impacts during construction. It is anticipated that this project would not physically divide an established community because the project includes removal of sediment from an existing reservoir.
Garfield Reservoir Replacement Project	○	33	TSM/TDM (0.25 mi) BRT (800 ft) LRT (1 mi) Freeway Tunnel (1.5 mi)	It is anticipated that this project would result in temporary noise, air quality, and traffic impacts during construction. This project would involve the replacement of an existing reservoir to bring it up to current seismic standards. Therefore, it is anticipated that this project would not have an adverse impact on the community.

TABLE 4.8:
Reasonably Foreseeable Actions – Community Impacts

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Arroyo Seco Pedestrian and Bicycle Trail	○	34	TSM/TDM (1 mi) BRT (1 mi) LRT (1 mi) Freeway Tunnel (0.5 mi)	It is anticipated that this project would result in temporary noise, air quality, and traffic impacts during construction. This project would involve the extension of an existing pedestrian/bicycle trail and would therefore be adding a recreational element for use by the community. Therefore, this project would not have an adverse impact on the community.
Olson San Gabriel Residential Community Project	○	35	TSM/TDM (0.5 mi)	It is anticipated that this project would result in temporary noise, air quality, and traffic impacts during construction. This project will improve local roads and maintain existing road connections with new sidewalks. Therefore, this project will actually help maintain connections within the surrounding neighborhood. Impacts to the community would therefore be less than significant under CEQA and no mitigation is needed.
100 West Walnut Planned Development	○	36	TSM/TDM (0.5 mi) BRT (0.25 mi) LRT (0.75 mi) Freeway Tunnel (immediately adjacent)	It is anticipated that this project would result in temporary noise, air quality, and traffic impacts during construction. This project includes the construction of an office with potential ancillary retail uses as well as restaurant and residential uses in a series of buildings on areas currently used for surface parking. All project uses would fall entirely within the project site boundaries and would not physically alter surrounding parcels or properties. Therefore, the development of the project's various components would not occur in a configuration that would physically divide an established community. As a result, a less than significant impact under CEQA would occur.
Hill and Colorado Project	○	37	BRT (intersects) Freeway Tunnel (0.75 mi)	It is anticipated that this project would result in temporary noise, air quality, and traffic impacts during construction. The potential development concept for the project site includes the construction and operation of two hotels with commercial components, including retail stores, restaurants, and other nonresidential uses supported by subterranean parking. All of those uses would fall entirely within the project boundaries, would not substantially alter the area's existing highly urbanized character, and would be integrated within the existing community. The proposed project site involves existing parcels that are not currently used as an entrance or exit by community members. There are no new streets proposed that could divide an established community. Therefore, impacts resulting from physically dividing an established community would be less than significant under CEQA.
Green Hotel Apartments Project	○	38	TSM/TDM (0.5 mi) BRT (intersects) LRT (0.5 mi) Freeway Tunnel (0.25 mi)	It is anticipated that this project would result in temporary noise, air quality, and traffic impacts during construction. Because this project involves construction of a mixed-use building on an existing surface parking lot, its effects to the community were found to be less than significant under CEQA.

TABLE 4.8:
Reasonably Foreseeable Actions – Community Impacts

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Reuse of the Desiderio Army Reserve Center	○	39	TSM/TDM (0.75 mi) BRT (0.5 mi) LRT (0.75 mi) Freeway Tunnel (0.25 mi)	This project includes a neighborhood park. It is anticipated that the majority of users of the park would be nearby residents who currently use other neighborhood and regional parks. The addition of the park would provide a benefit to the community by providing additional recreational space on an underutilized parcel. Therefore, no significant impact under CEQA is identified for this issue.

1 See Table 3.1 for the list of references for each project.
2 The hollow bullet (○) indicates projects that would either have no impact to land use, or would not have an impact after typical avoidance, minimization and/or mitigation measures are incorporated.
3 The solid bullet (●) indicates projects that either still have an adverse impact after mitigation or require extraordinary mitigation measures and therefore are included in the analysis for this subject area.

BRT = Bus Rapid Transit
CEQA = California Environmental Quality Act
ft = foot/feet
HOT = High-Occupancy Toll
I-10 = Interstate 10
I-710 = Interstate 710
LRT = Light Rail Transit
Metro = Los Angeles County Metropolitan Transportation Authority
mi = mile/miles
ROW = right of way
SR 60 = State Route 60
TDM = Transportation Demand Management
TSM = Transportation System Management

Relocation

As stated in Section 4.2.3.3, within the unincorporated community of East Los Angeles, the LRT Alternative would result in the displacement of 15 adjacent neighborhood-oriented businesses along Mednik Avenue just south of SR 60. Although these businesses would receive relocation assistance under the Uniform Act, and based on the currently available properties for relocation, these businesses are not likely to be relocated in the immediate vicinity of their current location. Due to the types of services these businesses offer (laundromat, drinking water, credit union, and restaurants), their location near the East Los Angeles Civic Center, and the high percentage of transit-dependent residents in the area, local residents are likely to rely on the services provided by these businesses on a day-to-day basis. Therefore, their displacement would adversely affect the community of East Los Angeles. Additionally, as shown in Table 4.8, three of the cumulative projects would also require both residential and non-residential relocations. However, it is anticipated that these properties would be able to be relocated within their communities. Additionally, none of these relocations would occur in the community of East Los Angeles and therefore will not contribute to a cumulative effect on the community.

Community Facilities

As stated above in Section 4.2.3.3, the Build Alternatives would result in temporary traffic, air quality, and noise impacts on various community facilities during construction. Additionally, minor acquisitions of land from community facilities would be required that range from 0.011 ac to 3 ac, depending on the Build Alternative. The Build Alternatives would also result in permanent noise level increases at as few as 4 or as many as 21 community facilities, depending on the Build Alternative. However, these increases in noise levels would be barely perceptible to the human ear and would not affect the ability of the facilities to serve the community. As shown in Table 4.8, the I-710 South Corridor Project is anticipated to have direct and indirect operational impacts to approximately 7 community facilities, and the Metro Gold Line Foothill Extension Project would have noise impacts on adjacent schools. However, impacts to these community facilities would be minimized and/or mitigated to comply with CEQA/NEPA and, therefore, would not contribute to a cumulative effect on community facilities.

4.2.3.6 Avoidance, Minimization, and/or Mitigation Measures

In order to minimize temporary impacts to access and traffic during construction, the following measure is proposed for the SR 710 North Study. This measure is typical during construction of most projects and it can be assumed that similar measures will be implemented during construction of the cumulative projects in which there is a temporary traffic and access effect.

Transportation Management Plan (applies to all four Build Alternatives): Preliminary Transportation Management Plan (TMP) Data Sheets were prepared for each Build Alternative and are included in the *Draft Project Report* (2014). Once the preferred alternative is identified, the Project Engineer will prepare a revised TMP Data Sheet and the Final TMP during final design. The objectives of the TMP will be to:

- Maintain traffic safety during construction;
- Effectively maintain an acceptable level of traffic flow throughout the transportation system during construction;

- Minimize traffic delays and facilitate reduction of duration of construction activities;
- Minimize detours and impacts to pedestrians and bicyclists;
- Foster public awareness of the project and related impacts; and
- Achieve public acceptance of construction of the project and the Final TMP measures.

The TMP will address all aspects of transportation effects of all construction activities on vehicular, pedestrian, and bicycle access and mobility, including: temporary lane, sidewalk, and ramp closures; detours; increases in traffic volumes (including regular traffic and construction traffic, construction equipment, materials delivery vehicles, waste/haul vehicles, and employee commutes); and potential effects on emergency services (e.g., fire, police, and ambulances), transit services, bicyclists, and pedestrians). The development of the TMP will be closely coordinated with Caltrans, Metro, local jurisdictions (cities and the county), and other potentially affected parties (school bus and transit operators and police, fire, and emergency services providers). The TMP will identify specific TMP strategies, the party/parties responsible for implementing those strategies, the agencies and parties with which the TMP strategies will be coordinated, and the timing of the implementation of those strategies.

- The TMP will include specific strategies to address short-term, project-related construction effects on traffic, bicyclists, pedestrians, and area residents and businesses. Table 3.5.16 lists the types of TMP strategies that would be applicable to the individual Build Alternatives. The TMP for the Preferred Alternative will include, but not be limited to, those strategies.
- Ramp Closure Plans will be prepared by a qualified traffic engineer during final design for each on and/ or off-ramp proposed to be closed temporarily for 10 or more days during construction of the Freeway Tunnel Alternative. The ramp closure plans will be implemented by the Resident Engineer during construction. *(This TMP component applies to the Freeway Tunnel Alternative only.)*
- The Resident Engineer will require the Construction Contractor to implement the strategies in the TMP prior to, during, and after construction activities, as required in the TMP.

Property Acquisition (applies to all four Build Alternatives): All acquisition of property for improvements in the Build Alternatives by Metro (for the TSM/TDM, the BRT, and the LRT Alternatives) or Caltrans (for the Freeway Tunnel Alternative), including any federally funded improvements, will be conducted in compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act (Uniform Act) of 1970 as amended. The Uniform Act establishes minimum standards for federally funded programs and projects that require the acquisition of real property (real estate) or the displacement of persons from their homes, businesses, or farms. The Uniform Act's protections and assistance apply to the acquisition, rehabilitation, or demolition of real property for federal or federally funded projects.

4.2.4 Utilities/Emergency Services

The information in this section is based on the *Community Impact Assessment* (2014) prepared for the SR 710 North Study.

4.2.4.1 Resource Study Area

The direct physical impacts of the Build Alternatives related to emergency services and utilities would be largely limited to the proposed ROW and the areas adjacent to the proposed improvements. The specific locations of public services and utilities were identified based on information provided by the respective providers. As a result, the discussion of the affected environment focuses on utilities either within the ROW or close enough to the ROW to be impacted by the Build Alternatives. Services such as fire and police protection are, however, generally provided to fairly large geographic areas (e.g., a city or service area), and for this reason the cumulative RSA for emergency services would correspond to the geographic area serviced by the given service provider. Emergency service providers in the study area include various city police and fire departments, as well as the Los Angeles County Sheriff's and Fire Departments. In addition, approximately 40 different utility owners were identified that operate facilities within the study area.

4.2.4.2 Health and Historical Context

The study area is located in the largest population concentration on the west coast of the United States. Large-scale urban growth has and will continue to put pressure on emergency services and require prudent land use, hazard abatement, and risk management programs. Intensification of land uses throughout an urban area also requires a coordinated emergency response network like the one that exists throughout Los Angeles County.

Regional utility facilities critical to national and regional interests are located throughout the study area. These regional facilities are proprietary in nature and are regulated under State and Federal jurisdictions. Those identified within the study area include power transmission systems, petroleum transmission pipelines, gas transmission pipelines, water aqueducts, sewer interceptor trunk lines, and telecommunication systems. Historically, utility corridors have been engineered for the purpose of accommodating sewer, water, and other utility lines and providing access for their maintenance.

4.2.4.3 Project Impacts

TSM/TDM Alternative

Utilities

The TSM/TDM Alternative would require the relocation of electric utilities in Alhambra, Eagle Rock, El Sereno, Rosemead, San Gabriel, and South Pasadena, the relocation of telecommunications facilities in Alhambra, Eagle Rock, El Sereno, Pasadena, Rosemead, San Gabriel, and South Pasadena, and the protection in-place of water and sewer utilities in Alhambra. None of the short-term utility impacts anticipated to occur during construction of the TSM/TDM Alternative would be adverse.

Emergency Services

During construction of the TSM/TDM Alternative improvements, some impairment to the delivery of emergency services, including fire and police response times, may occur as a result of the lane restrictions proposed as part of this alternative. Improvement under the TSM/TDM Alternative could result in temporary lane restrictions that may impact access and circulation at 25 areas in Alhambra, Eagle Rock, El Sereno, Glassell Park, Pasadena, Rosemead, San Gabriel, San Marino, South Pasadena, and the unincorporated San Gabriel Valley Communities.

The TSM/TDM Alternative would require the permanent acquisition of 0.03 ac of land and 0.02 ac of land for a TCE during construction at the San Gabriel Police Station in the City of San Gabriel. Additionally, Fire Station No. 74 in Alhambra, Fire Station Nos. 42 and 59 in the Eagle Rock neighborhood, the San Marino Fire Department, the South Pasadena Fire Department, the San Gabriel Police Station, the San Marino Police Department, and the South Pasadena Police Department could experience short-term traffic effects during construction.

BRT Alternative

Utilities

The BRT Alternative would require the relocation of telecommunications and electric utilities in Alhambra, East Los Angeles, Monterey Park, and South Pasadena. The BRT Alternative would also include all the improvements in the TSM/TDM Alternative with the exception of Local Street Improvement L-8 (Fair Oaks Avenue from Grevelia Street to Monterey Road) and the reversible lane component of Local Street Improvement L-3 (Atlantic Boulevard from Glendon Way to I-10). Therefore, construction of the BRT Alternative would also result in most of the same impacts on utilities as the TSM/TDM Alternative described earlier, with the exception of those utility relocations associated with Local Street Improvement L-8 and the reversible lane component of Local Street Improvement L-3.

With the inclusion of the TSM/TDM Alternative improvements described above, the BRT Alternative would require the relocation of telecommunications and electric utilities in Alhambra, Eagle Rock, East Los Angeles, El Sereno, Monterey Park, Rosemead, San Gabriel, and South Pasadena; the relocation of telecommunication facilities in Pasadena; and the protection in-place of water and sewer utilities in Alhambra. None of the short-term utility impacts anticipated to occur during construction of the BRT Alternative would be adverse.

Emergency Services

During construction of the BRT Alternative improvements, some impairment to the delivery of emergency services, including fire and police response times, may occur as a result of the lane restrictions along Atlantic Boulevard, Huntington Drive, and Fair Oaks Avenue in Alhambra, East Los Angeles, Monterey Park, Pasadena, and South Pasadena and ramp closures at the SR 60 on-ramps from Atlantic Boulevard.

The BRT Alternative would also include all the improvements in the TSM/TDM Alternative with the exception of Local Street Improvement L-8 (Fair Oaks Avenue from Grevelia Street to Monterey Road) and the reversible lane component of Local Street Improvement L-3 (Atlantic Boulevard from Glendon Way to I-10). Therefore, construction of the BRT Alternative would also require similar temporary lane restrictions and would result in similar emergency response service impairments as the TSM/TDM Alternative. With the inclusion of the TSM/TDM Alternative improvements described above, the BRT Alternative would require temporary lane restrictions that would result in temporary impairments to emergency response services affecting 7 fire stations and 3 police stations in the study area. None of the short-term impacts related to emergency response services anticipated to occur during construction of the BRT Alternative would be adverse.

Fire Station Nos. 31 and 34 in the City of Pasadena could experience short-term traffic effects during construction of the BRT Alternative. Operation of the BRT Alternative would not degrade

emergency response times or require the construction of new police or fire facilities within the study area.

LRT Alternative

Utilities

The LRT Alternative would require the relocation or protection in-place of electric, water, sewer, cable, telecommunications, and gas utilities in Alhambra, East Los Angeles, El Sereno, Monterey Park, Pasadena, and South Pasadena. These utility relocations may result in temporary service disruptions to some utility users in the vicinity of those relocations.

The LRT Alternative would also include all the improvements in the TSM/TDM Alternative with the exception of Other Road Improvement T-1 (Valley Boulevard to Mission Road Connector Road). Therefore, construction of the LRT Alternative would also result in the same impacts on utilities as the TSM/TDM Alternative described earlier, with the exception of those utility relocations associated with Other Road Improvement T-1. With the inclusion of the TSM/TDM Alternative improvements described above, the LRT Alternative would require the relocation or protection in-place of electric, water, sewer, cable, telecommunications, and gas utilities in Alhambra, Eagle Rock, East Los Angeles, El Sereno, Monterey Park, Pasadena, Rosemead, San Gabriel, and South Pasadena. None of the short-term utility impacts anticipated to occur during construction of the LRT Alternative would be adverse.

Emergency Services

During construction of the LRT Alternative improvements, some impairment to the delivery of emergency services, including fire and police response times, may occur as a result of the overnight closures on SR 60, Interstate 710 (I-710), and other roadways to accommodate the placement of concrete barriers adjacent to the median and the construction of falsework. In addition, there are nine areas in Alhambra, East Los Angeles, El Sereno, Monterey Park, Pasadena, and South Pasadena where improvements under the LRT Alternative could result in temporary lane restrictions that may impact access and circulation and impair the delivery of emergency services.

The LRT Alternative would also include all the improvements in the TSM/TDM Alternative with the exception of Other Road Improvement T-1 (Valley Boulevard to Mission Road Connector Road). Therefore, construction of the LRT Alternative would also require similar temporary lane restrictions and would result in similar emergency response service impairments as the TSM/TDM Alternative. With the inclusion of the TSM/TDM Alternative improvements described above, the LRT Alternative would require temporary lane restrictions that would result in temporary impairments to emergency response services affecting 5 fire stations and 4 police stations in the study area. None of the short-term impacts related to emergency response services anticipated to occur during construction of the LRT Alternative would be adverse.

Construction activities that require closures of travel lanes under the LRT Alternative could result in traffic delays that could affect the ability of fire, law enforcement, and emergency service providers to meet response time goals within the study area. Operation of the LRT Alternative would not degrade energy response times or require the construction of new police or fire facilities within the study area.

Freeway Tunnel Alternative

Utilities

The single-bore design variation of the Freeway Tunnel Alternative would require the relocation or protection in-place of electric, water, sewer, telecommunications, and natural gas utilities in Alhambra, El Sereno, and Pasadena. The single-bore design variation would also require the relocation or protection in-place of streetlights in El Sereno and Pasadena. These utility relocations may result in temporary service disruptions to some utility users in the vicinity of those relocations.

The dual-bore design variation of the Freeway Tunnel Alternative would require the relocation or protection in-place of electric, water, sewer, cable, telecommunications, and natural gas utilities in Alhambra, El Sereno, Monterey Park, and Pasadena. The dual-bore design variation would also require the relocation or protection in-place of streetlights in El Sereno and Pasadena. These utility relocations may result in temporary service disruptions to some utility users in the vicinity of those relocations.

The Freeway Tunnel Alternative would also include all the improvements in the TSM/TDM Alternative with the exception of Other Road Improvements T-1 (Valley Boulevard to Mission Road Connector Road) and T-3 (St. John extension between Del Mar Boulevard and California Boulevard). Therefore, construction of the Freeway Tunnel Alternative would also result in most of the same impacts on utilities as the TSM/TDM Alternative described earlier, with the exception of those utility relocations associated with Other Road Improvements T-1 and T-3. With the inclusion of the TSM/TDM Alternative improvements described above, both design variations of the Freeway Tunnel Alternative would require the relocation or protection in-place of electric, water, sewer, cable, telecommunications, and gas utilities in Alhambra, Eagle Rock, El Sereno, Pasadena, Rosemead, San Gabriel, and South Pasadena, and the relocation or protection in-place of streetlights in El Sereno and Pasadena. In addition, the dual-bore design variation of the Freeway Tunnel Alternative would require the relocation of telecommunications facilities in Monterey Park. None of the short-term utility impacts anticipated to occur during construction of the Freeway Tunnel Alternative would be adverse.

Emergency Services

During construction of the Freeway Tunnel Alternative improvements, some impairment to the delivery of emergency services, including fire and police response times, may occur as a result of lane restrictions.

The single-bore design variation of the Freeway Tunnel Alternative would result in delays at 5 locations and detours in 7 locations in Alhambra, El Sereno, and Monterey Park in the vicinity of the south tunnel portal, as well as delays at 8 locations and detours in 11 locations in Pasadena in the vicinity of the north tunnel portal.

The dual-bore design variation of the Freeway Tunnel Alternative would result in delays at 4 locations and detours in 9 locations in Alhambra, El Sereno, and Monterey Park in the vicinity of the south tunnel portal, as well as delays at 8 locations and detours in 11 locations in Pasadena in the vicinity of the north tunnel portal.

The Freeway Tunnel Alternative would also include all the improvements in the TSM/TDM Alternative with the exception of Other Road Improvements T-1 (Valley Boulevard to Mission Road Connector Road) and T-3 (St. John extension between Del Mar Boulevard and California Boulevard). Therefore, construction of the Freeway Tunnel Alternative would also require similar temporary lane restrictions and would result in similar emergency service response impairments as the TSM/TDM Alternative. With the inclusion of the TSM/TDM Alternative

improvements described above, both design variations of the Freeway Tunnel Alternative would require temporary lane restrictions that would result in temporary impairments to emergency response services affecting 5 fire stations and 3 police stations in the study area. None of the short-term impacts related to emergency response services anticipated to occur during construction of the Freeway Tunnel Alternative would be adverse.

In the long term, operation of the Build Alternatives would not impact access to/from the driveways of any of the emergency service facilities near such improvements. As a result, the Build Alternatives would not result in adverse long-term traffic and transportation impacts to emergency service facilities. The elements included in the Build Alternatives could help to reduce congestion in the future and consequently reduce the response times of emergency vehicles.

4.2.4.4 Reasonably Foreseeable Actions

The reasonably foreseeable actions would occur in the areas that are planned for development or redevelopment. The reasonably foreseeable actions are listed in Table 3.1 and shown on Figure 3-1. Table 4.9 shows projects with particular relevance to impacts on utilities and/or emergency services.

4.2.4.5 Cumulative Impact

Utilities

As shown in Section 4.2.4.3 (Project Impacts), all the Build Alternatives would require the relocation and protection in-place of utilities throughout the study area. Additionally, as shown in Table 4.9, 8 of the cumulative projects would either protect in-place or require the relocation of affected utilities. One project would require improvements to existing utilities, 6 projects would require new infrastructure, and one alternative for the Eastside Transit Corridor Phase 2 Project would conflict with Southern California Edison (SCE) facilities. At this time, it is not known how the potential impact to this SCE facility would be avoided, minimized, and/or mitigated. However, because all impacts would be minimized and/or mitigated by relocation, protection in-place, or fee payment, the SR 710 North Study would not contribute to a cumulative impact on utilities.

Emergency Services

As shown in Section 4.2.4.3 and in Table 4.9, the Build Alternatives as well as the cumulative projects, fire and police stations in Alhambra, the Eagle Rock neighborhood, El Monte, San Marino, South Pasadena, Pasadena, and San Gabriel could experience short-term traffic effects during construction. Although this impact would be temporary and would be minimized by implementation of a TMP, there is a potential for the SR 710 North Study, Regional Connector Transit Corridor Project, Arroyo Seco Pedestrian and Bicycle Trail, Olson San Gabriel Residential Community Project, 100 West Walnut Planned Development, and the Green Hotel Apartments Project to be under construction concurrently, thus causing a temporary cumulative impact to emergency service response times in the community of East Los Angeles, the neighborhood of El Sereno, South Pasadena, Pasadena, and adjacent cities.

TABLE 4.9:
Reasonably Foreseeable Actions – Utilities/Emergency Services

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
San Bernardino Freeway (I-10)/San Gabriel River Freeway (I-605) Direct Connector Project	○	6	All (within RSA)	This project is currently under construction and will include minor improvements to an existing interchange. Therefore, it would not contribute to an adverse effect on utilities and emergency services.
I-10 HOT Lanes	○	8	All (within RSA)	This project was completed in 2013. Because this project converted existing freeway lanes into HOT lanes, it did not result in an impact to utilities or emergency services. Therefore, this project did not contribute to the degradation of traffic or emergency services within the RSA.
San Gabriel Trench Grade Separation	●	11	All (within RSA)	Two new storm drain lines would need to be constructed to divert storm water runoff. Additionally, the main sewer trunk line located beneath Ramona Street and a 27-inch-diameter siphon would need to be relocated. Potential emergency service response time impacts could occur during construction. During operation of this project, the provision of a grade separation of the four street crossings of the UPRR tracks would enhance response times for emergency services by enabling emergency vehicles to cross over the railroad tracks in the project area at the same time that trains pass through.
Rosemead Boulevard Safety Enhancement & Beautification	○	12	All (within RSA)	This project would improve drainage facilities on Rosemead Boulevard. This project would not impact any performance objective of the police and/or fire services and would not result in impacts associated with the provision of new or physically altered police and/or fire facilities.
San Fernando Road Widening Between Elm Street and Eagle Rock Boulevard	○	14	All (within RSA)	This project was completed in 2012 and had no impact on utilities or emergency services. Therefore, this project did not contribute to the degradation of traffic or emergency services within the RSA.
Riverside Drive Bridge and Grade Separation Replacement	○	15	All (within RSA)	This project would have no impacts on utilities and would have a benefit to emergency service times.
Regional Connector Transit Corridor	●	17	All (within RSA)	This project would require the relocation, modification, or protection in-place of all utilities and below-grade structures that would conflict with excavations (cut-and-cover sections, tunneling, and station structures). Response times for emergency services could be temporarily impacted due to street closures and detours.
Eastside Transit Corridor Phase 2 – Metro Gold Line Eastside Extension	●	18	All (within RSA)	The SR 60 LRT Alternative may conflict with SCE plans for construction of new 500kV transmission lines and towers adjacent to the SR 60/Paramount interchange and in the Peck Road Station area as part of the Tehachapi Renewable Transmission Project. Because the Build Alternatives would reduce vehicular travel on the regional highway system, implementation of this project may benefit police and/or fire services by reducing congestion.

TABLE 4.9:
Reasonably Foreseeable Actions – Utilities/Emergency Services

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Metro Gold Line Foothill Extension	○	19	All (within RSA)	Utilities that traverse the rail ROW (i.e., cross at an angle) would generally be protected in-place. There would not be adverse impacts on police or fire protection services because traffic disruptions would be minimal, and the project would not substantially increase demand for police or fire protection services.
Gold Line Transit Plaza	○	22	All (within RSA)	It is anticipated that any utilities that may be impacted would generally be protected in-place. There would not be adverse impacts on police or fire protection services because traffic disruptions would be minimal, and the project would not substantially increase demand for police or fire protection services.
Station Square Transit Village	○	23	All (within RSA)	It is anticipated that any utilities that may be impacted would generally be protected in-place. There would not be adverse impacts on police or fire protection services because traffic disruptions would be minimal, and the project would not substantially increase demand for police or fire protection services.
Alhambra Bicycle Master Plan	○	24	All (within RSA)	This project is not anticipated to have impacts to utilities. Response times for emergency services could be temporarily impacted due to street closures and detours.
Lincoln Avenue Specific Plan	●	25	All (within RSA)	Future site-specific development projects may require new infrastructure to meet the water supply demand. Existing police and fire protection facilities and staffing are expected to be sufficient to provide protection and emergency services to this project, and project development is not anticipated to require the Pasadena Fire or Police Departments to construct new or expanded facilities or to increase its staff.
Crown City Medical Center	○	26	All (within RSA)	This project will not have an impact on utilities. This project would not result in the need for additional new or altered police and/or fire protection services and would not alter acceptable service ratios or response times. Any increase in service demand associated with this project would be offset by the project's requirement for development impact fees that support funding new police and fire protection facilities. Therefore, this project would not substantially impact police and/or fire protection services.
16 East California Project	○	27	All (within RSA)	Because this project involves redevelopment of an existing site, it is anticipated that there will not be an impact to utilities and/or emergency services.

TABLE 4.9:
Reasonably Foreseeable Actions – Utilities/Emergency Services

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Magellan Gateway Project	○	28	All (within RSA)	This project was completed in 2012. The project Applicant was responsible for the payment of a water facilities connection fee prior to the establishment of potable water service. This connection fee was utilized to accommodate facilities to serve this project. Therefore, impacts in this regard were considered less than significant under CEQA. Project implementation would not result in a substantial increase in the need for police and/or fire protection facilities. Therefore, this project did not contribute to the degradation of traffic or emergency services within the RSA.
El Monte Walmart	○	29	All (within RSA)	It is anticipated that this project would require new utilities that would be connected to the existing system. However, due to the size of the project, it is further anticipated there would be an adequate supply of these utilities. Therefore, the project would not have an adverse impact on utilities. Although the project would draw additional traffic to the area, it is anticipated that this traffic would be nominal and would not adversely affect emergency service response times in the area.
Huntington Memorial Hospital Master Development Plan Amendment	○	31	All (within RSA)	This project would not have an adverse impact on utilities. There would be a sufficient level of staff available to serve this project and meet the demands for fire protection services. Accordingly, the project is not large enough to warrant a need for additional new or altered fire protection services and would not alter acceptable service ratios or response times. Additionally, this project would nominally increase the need for police protection but would not result in the need for additional new or altered police protection services nor alter acceptable service ratios or response times.
Garfield Reservoir Replacement Project	○	33	All (within RSA)	As this project proposes to replace an existing reservoir, it is anticipated that it will not have an adverse effect on utilities and/or emergency services.
Arroyo Seco Pedestrian and Bicycle Trail	○	34	All (within RSA)	This project proposes to construct a less than 1 mi long pedestrian/bicycle trail in an existing recreational facility (golf course). Therefore, it is anticipated that this project would not have an adverse effect on utilities and/or emergency services.
Olson San Gabriel Residential Community Project	○	35	All (within RSA)	The utility providers in this area would be able to accommodate the proposed project without any adverse effect. However, this project has a deficient 12-inch wastewater pipeline in San Gabriel Boulevard. Development of this project would add to this condition, which is considered a significant impact that would require mitigation. This project will add 88 residential units to the area and create an incremental need for police and fire services. The project will pay approved Development Impact Fees for police service and facility expansion. Therefore, impacts are less than significant under CEQA, and no mitigation is needed.

TABLE 4.9:
Reasonably Foreseeable Actions – Utilities/Emergency Services

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
100 West Walnut Planned Development	●	36	All (within RSA)	This project would result in a net increase in the generation of wastewater and water use within the City of Pasadena. With the project's increase in on-site development, upgraded or new water and wastewater conveyance systems may be required. This project would increase the population served by the City of Pasadena's fire and police departments. Therefore, it is anticipated that there would be an adverse impact to emergency services requiring mitigation.
Hill and Colorado Project	●	37	All (within RSA)	The increase in on-site development and density, as well as the increase in patrons from the hotel and retail uses related to this project could result in potentially significant impacts on fire protection services. This project would not induce new or altered police facilities. With the anticipated increase in development uses on the project site compared to what currently exists on the site, potentially significant impacts to the existing water supply as well as the wastewater management network may result, and there is the potential that upgraded or new water and wastewater conveyance systems may be required.
Green Hotel Apartments Project	○	38	All (within RSA)	The EIR prepared for this project determined that impacts to utilities and/or emergency services would not be significant under CEQA.
Reuse of the Desiderio Army Reserve Center	○	39	All (within RSA)	The utilities within the project area would be able to adequately serve this project. Therefore, this project would not result in an adverse impact to utilities. Although this project would increase the intensity of uses on site compared to the existing condition, this project would not substantially induce population either directly or indirectly and can be served by existing emergency services.

[1] See Table 3.1 for the list of references for each project.
[2] The hollow bullet (○) indicates projects that would either have no impact to land use, or would not have an impact after typical avoidance, minimization and/or mitigation measures are incorporated.
[3] The solid bullet (●) indicates projects that either still have an adverse impact after mitigation or require extraordinary mitigation measures and therefore are included in the analysis for this subject area.

CEQA = California Environmental Quality Act
EIR = Environmental Impact Report
HOT = High-Occupancy Toll
I-10 = Interstate 10
I-605 = Interstate 605
kV = kilovolt/kilovolts
LRT = Light Rail Transit
Metro = Los Angeles County Metropolitan Transportation Authority
mi = mile/miles
ROW = right of way
RSA = Resource Study Area
SCE = Southern California Edison
SR 60 = State Route 60
UPRR = Union Pacific Railroad

4.2.4.6 Avoidance, Minimization, and/or Mitigation Measures

Utilities

All four Build Alternatives (TSM/TDM, BRT, LRT, and Freeway Tunnel) will require the relocation, protection in-place, and/or removal of utility facilities within the construction limits. Agencies and other parties potentially affecting utility facilities during construction of their projects are required to coordinate any such activities with the applicable utility provider to minimize the risk of damage to the facilities and disruption of services, and to protect the safety of the construction workers and the general public. As a result, because any modifications to utility facilities under the Build Alternatives are already required to be coordinated with the applicable utility provider, no specific measure is required to address this potential effect of the Build Alternatives.

Emergency Services

In order to minimize temporary impacts to access and traffic during construction, the following measure is proposed for the SR 710 North Study. This measure is typical during construction of most projects and it can be assumed that similar measures will be implemented during construction of the cumulative projects in which there is a temporary traffic and access effect.

Transportation Management Plan (applies to all four Build Alternatives): Preliminary TMP Data Sheets were prepared for each Build Alternative and are included in the *Draft Project Report* (2014). Once the preferred alternative is identified, the Project Engineer will prepare a revised TMP Data Sheet and the Final TMP during final design. The objectives of the TMP will be to:

- Maintain traffic safety during construction;
- Effectively maintain an acceptable level of traffic flow throughout the transportation system during construction;
- Minimize traffic delays and facilitate reduction of duration of construction activities;
- Minimize detours and impacts to pedestrians and bicyclists;
- Foster public awareness of the project and related impacts; and
- Achieve public acceptance of construction of the project and the Final TMP measures.

The TMP will address all aspects of transportation effects of all construction activities on vehicular, pedestrian, and bicycle access and mobility, including: temporary lane, sidewalk, and ramp closures; detours; increases in traffic volumes (including regular traffic and construction traffic, construction equipment, materials delivery vehicles, waste/haul vehicles, and employee commutes); and potential effects on emergency services (e.g., fire, police, and ambulances), transit services, bicyclists, and pedestrians). The development of the TMP will be closely coordinated with Caltrans, Metro, local jurisdictions (cities and the county), and other potentially affected parties (school bus and transit operators and police, fire, and emergency services providers). The TMP will identify specific TMP strategies, the party/parties responsible for implementing those strategies, the agencies and parties with which the TMP strategies will be coordinated, and the timing of the implementation of those strategies.

The TMP will include specific strategies to address short-term, project-related construction effects on traffic, bicyclists, pedestrians, and area residents and businesses. Table 3.5.16 lists the types of TMP strategies that would be applicable to the individual Build Alternatives. The TMP for the Preferred Alternative will include, but not be limited to, those strategies.

Ramp Closure Plans will be prepared by a qualified traffic engineer during final design for each on and/ or off-ramp proposed to be closed temporarily for 10 or more days during construction of the Freeway Tunnel Alternative. The ramp closure plans will be implemented by the Resident Engineer during construction. *(This TMP component applies to the Freeway Tunnel Alternative only.)*

The Resident Engineer will require the Construction Contractor to implement the strategies in the TMP prior to, during, and after construction activities, as required in the TMP.

To minimize the potential cumulative impact of the SR 710 North Study and the Regional Connector Transit Corridor, the TMP will be coordinated with TMPs for other projects in the study area to ensure that any detours or road closures for the SR 710 North Study do not conflict with detours and road closures for the Regional Connector Transit Corridor.

4.2.5 Traffic and Transportation/Pedestrian and Bicycle Facilities

The analysis in this section is based on the *Transportation Technical Report* (2014).

4.2.5.1 Resource Study Area

For the purpose of the traffic and transportation/pedestrian and bicycle facilities cumulative impacts analysis, the RSA is the area analyzed in the *Transportation Technical Report*. The traffic operations analysis used a focus area slightly larger than the study area. The traffic operations analysis study area was selected to capture all freeway segments with potential changes in overall traffic for the Build Alternatives. Traffic operations analysis was conducted on a defined set of freeway segments and intersections for evaluation. A total of 156 intersections were identified for the intersection analysis.

4.2.5.2 Health and Historical Context

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

In 2012, the daily VMT in the study area was 24,150,000 miles (mi), and the daily vehicle hours traveled (VHT) in the study area was 660,000 hours. The sum of VMT on the arterial system in the study area was 7,645,000 mi. The percentage of total daily person trips that use transit was 3.5

percent, and the percentage of study area and population and employment located within 0.25 mi of a transit stop with high frequency service was 80.8 percent.

In 2013, there was an average of approximately 45 pedestrians per hour in the a.m. peak hour, and 56 pedestrians per hour in the p.m. peak hour. The highest volume pedestrian intersections were at the Daly Street/Broadway intersection in Los Angeles (374 pedestrians per hour), Los Robles Avenue/Colorado Boulevard in Pasadena (338 pedestrians per hour), and Atlantic Boulevard/Whittier Boulevard in East Los Angeles (330 pedestrians per hour). Additionally, there was an average of approximately 9 bicycles per hour in the a.m. peak hour, and 13 bicycles per hour in the p.m. peak hour. The highest volume bicycle intersections were at Atlantic Boulevard/Pomona Boulevard in Los Angeles (40 bicycles per hour), Baldwin Avenue/Valley Boulevard intersection in El Monte (39 bicycles per hour), and Fair Oaks Avenue/Orange Grove Boulevard in Pasadena (also 39 bicycles per hour).

4.2.5.3 Project Impacts

The SR 710 North Study would have direct and indirect effects on active transportation users, including bicyclists and pedestrians.

In general, the forecasts show an increased mobility for all Build Alternatives compared to the No Build Alternative. There are clear benefits for highway system performance from the Freeway Tunnel Alternative, particularly because it removes traffic from the arterials. Both the single-bore and dual-bore design variations of the Freeway Tunnel Alternative show these benefits. The transit alternatives have virtually no effect on highway system performance on their own, although the TSM/TDM Alternatives does have some effects. In general, the Freeway Tunnel Alternative design variations (single bore and dual bore) reduce traffic congestion by shifting it from the surface streets (arterials) to the freeways. There is only a marginal change with the TSM/TDM, BRT, and LRT Alternatives. The net effect is a reduction in total VMT on the arterials and the overall delay.

On the arterials and intersections within the study area, the TSM/TDM Alternative improvements will accommodate pedestrians and comply with ADA requirements. Class III bikeways will be accommodated, but Class I and Class II will not due to limited lane widths. At the Valley Boulevard connector road and Other Road Improvement T-2 hook ramps, the proposed improvements within Caltrans ROW (freeway mainline and off-ramps) will not provide pedestrian or bikeway access beyond that currently allowed for emergency access in the Caltrans Highway Design Manual and Standard Plans.

Under the BRT Alternative, outside of peak hours, bicyclists may need to share the outside general traffic lane with other vehicular traffic. Limited conflict areas between buses and bicycles will occur at bus stop locations, where bus drivers will need to be alert for the presence of bicycle traffic. In areas with proposed bus lanes, the BRT Alternative reduces the width of sidewalks to a minimum of 8 ft at bus stops and a minimum of 6 ft elsewhere.

Under the LRT Alternative, the I-710 northbound off-ramp will be realigned to be adjacent to the southbound on-ramp, thereby reducing the two existing intersections to one. The single intersection will be somewhat more complex for bicycles and pedestrians.

4.2.5.4 Reasonably Foreseeable Actions

The reasonably foreseeable actions would occur in the areas that are planned for development or redevelopment. The reasonably foreseeable actions are listed in Table 3.1 and shown on Figure 3-1. Table 4.10 shows projects with particular relevance to traffic and transportation and/or pedestrian/bicycle facilities as well as their impacts.

4.2.5.5 Cumulative Impact

Traffic and Transportation

As stated above in Section 4.2.5.3 (Project Impacts), the SR 710 North Study would have direct and indirect effects on active transportation users, including bicyclists and pedestrians. The SR 710 North Study is anticipated to result in increased mobility within the study area. Additionally, as shown in Table 4.10, 19 of the 39 cumulative projects would have or are anticipated to have adverse impacts to traffic and transportation. Of these 19 projects, 9 projects would have or are anticipated to have unavoidable impacts that cannot be mitigated. However, since the SR 710 North Study's *Transportation Technical Report* included the cumulative projects discussed above in its analysis and the project would improve mobility in the study area, the SR 710 North Study would not contribute to a cumulative traffic and transportation impact.

Pedestrian and/or Bicycle Facilities

As stated above in Section 4.2.5.3, the SR 710 North Study would not have an adverse impact on pedestrian and/or bicycle facilities. As for the cumulative projects, Table 4.10 shows that one project, the Huntington Memorial Hospital Master Development Plan Amendment, would have an adverse impact on pedestrian and/or bicycle facilities. Although this impact is considered adverse, it occurs in a small portion of the study area and, in combination with the SR 710 North Study (which does not have adverse impacts to pedestrian and/or bicycle facilities), it would not result in an adverse cumulative impact.

4.2.5.6 Avoidance, Minimization, and/or Mitigation Measures

As there would not be a permanent adverse impact to traffic/transportation and/or pedestrian/ bicycle facilities, no avoidance, minimization, and/or mitigation measures are necessary. Please refer to the TMP in Section 4.2.4.6 for avoidance and minimization measures related to temporary traffic/circulation impacts during construction.

4.2.6 Visual/Aesthetics

The analysis in this section is based on the *Visual Impact Assessment* (VIA) (2014) prepared for the project.

4.2.6.1 Resource Study Area

The study area is used as the RSA for the purpose of the visual cumulative impacts analysis. The study area is bounded by I-210 on the north, I-605 on the east, I-10 on the south, and I-5 and SR 2 on the west. The study area includes portions of the cities and communities of Alhambra, Arcadia, Commerce, Duarte, El Monte, Glendale, Irwindale, La Cañada Flintridge, Los Angeles, Monrovia, Montebello, Monterey Park, Pasadena, Rosemead, San Gabriel, San Marino, Sierra Madre, South Pasadena, and Temple City.

TABLE 4.10:
Reasonably Foreseeable Actions – Traffic and Transportation/Pedestrian/Bicycle Facilities

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
I-710 South Corridor Project	●	1	All (within RSA)	On the I-710 mainline, the traffic LOS is generally maintained or improved in the morning, midday, and evening peak periods in both directions of I-710 when comparing the 2035 Build Alternative conditions to the 2035 No Build Alternative conditions. Although LOS improves compared to the No Build Alternative conditions, some segments of the I-710 mainline would continue to experience poor LOS in 2035 under all the Build Alternatives and Alternative 1 in the morning, midday, and evening peak periods in both the northbound and southbound directions due to increased traffic volumes caused by regional growth in traffic. Implementation of this project is projected to result in adverse impacts to 21 intersections in the project study area. Feasible mitigation measures were identified for all but four of these intersections. These four intersections will remain adversely impacted by the proposed project. This project includes changes to arterial interchanges that may affect sidewalks and bicycle lanes. This project will provide facilities for bicycles and pedestrians in locations where local streets are affected by the construction of the Build Alternatives. Because bicycle and pedestrian facilities will be maintained or improved, the effect of this project is that travel by walking and bicycling will not substantially change as a result of the implementation of the Build Alternatives.
I-5 Corridor Improvement Project (I-605 to I-710)	○	2	All (within RSA)	It is anticipated that this project would relieve congestion and improve traffic and transportation. It is also anticipated that this project would not have an adverse effect on pedestrian and/or bicycle facilities.
I-5 Improvement Project between SR 118 to SR 170	○	3	All (within RSA)	This project would improve traffic flow and relieve congestion.
I-5 North Improvement Projects from SR 134 to SR 170	○	4	All (within RSA)	This project would improve traffic flow and relieve congestion. The widening of the Providencia Avenue overhead would result in the removal of a pedestrian overcrossing attached to the northbound side of the freeway. This project would replace and relocate the pedestrian overcrossing.
I-5/Western Avenue Interchange Improvements	○	5	All (within RSA)	This project was completed in 2012. This project's purpose was to improve traffic flow and relieve congestion. Additionally, this project did not have an adverse effect on pedestrian and/or bicycle facilities. Therefore, this project did not contribute to the degradation of traffic/transportation and/or bicycle/pedestrian facilities within the RSA.
San Bernardino Freeway (I-10)/San Gabriel River Freeway (I-605) Direct Connector Project	○	6	All (within RSA)	This project is currently under construction would improve traffic flow and relieve congestion. This project would not have an impact to pedestrian and/or bicycle facilities.

TABLE 4.10:
Reasonably Foreseeable Actions – Traffic and Transportation/Pedestrian/Bicycle Facilities

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
San Bernardino Freeway (I-10) add One HOV Lane from I-605 to SR 57/71 and I-210	○	7	All (within RSA)	This project was completed in 2013. Analysis results indicated that the eastbound I-10 ramps intersection would operate at an unsatisfactory LOS E in 2015 and LOS F in 2030. While the intersection of Vincent Avenue and Plaza/Lakes Drive, as a whole, would operate at a satisfactory LOS in 2030, the north, east, and west approaches would operate at an unsatisfactory LOS E. This would be mitigated through a design feature such as an addition of an exclusive full right-turn lane and a deceleration lane. No bicycle or pedestrian facilities would be affected as a result of this project during construction or after the project is completed. Therefore, this project did not contribute to the degradation of traffic/transportation and/or bicycle/pedestrian facilities within the RSA.
I-10 HOT Lanes	○	8	All (within RSA)	This project is a demonstration project that was completed in 2013. The intent of this project was to explore new and innovative ways of alleviating traffic congestion despite the limitations that the existing corridor infrastructure presents. The qualitative judgment is that the traffic impacts will not be significant under CEQA. Additionally, this project would not have an impact on pedestrian and/or bicycle facilities. Therefore, this project did not contribute to the degradation of traffic/transportation and/or bicycle/pedestrian facilities within the RSA.
The I-110 (Harbor Freeway)/Transitway HOT Lanes Project (182nd Street to Adams Boulevard) and on I-105 from Crenshaw Boulevard to Compton Avenue	○	9	All (within RSA)	This project is a demonstration project that was completed in 2012. The intent of this project was to explore new and innovative ways of alleviating traffic congestion despite the limitations that the existing corridor infrastructure presents. The qualitative judgment is that the traffic impacts will not be significant under CEQA. Additionally, this project would not have an impact on pedestrian and/or bicycle facilities. Therefore, this project did not contribute to the degradation of traffic/transportation and/or bicycle/pedestrian facilities within the RSA.
I-110 Widening and Rehabilitation Project	○	10	All (within RSA)	This project would enhance safety and traffic flow on this corridor.
San Gabriel Trench Grade Separation Project	○	11	All (within RSA)	Temporary disruption of Metro services may occur during construction. A detour plan would be developed to ensure minimal disruption to services. Implementation of this project would eliminate existing delay and alleviate congestion on surrounding streets. This project would not generate any new trips. Additionally, it is anticipated that this project would improve pedestrian access due to elimination of at-grade crossings and potential conflicts between trains and pedestrians.

TABLE 4.10:
Reasonably Foreseeable Actions – Traffic and Transportation/Pedestrian/Bicycle Facilities

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Rosemead Boulevard Safety Enhancement & Beautification	○	12	All (within RSA)	This project would enhance circulation on Rosemead Boulevard. Operation of this project would not generate any new traffic to the project site or the city. This project would reduce parking supply on Rosemead Boulevard but would not create any adverse parking supply impacts within the study area based on remaining spaces available. A separate protected bikeway would be constructed through the project limits, thereby enhancing bicycle access.
Washington Boulevard Improvement Project	○	13	All (within RSA)	It is anticipated that this project would relieve congestion and improve traffic and transportation. It is also anticipated that this project would not have an adverse effect on pedestrian and/or bicycle facilities.
San Fernando Road Widening Between Elm Street and Eagle Rock Boulevard	○	14	All (within RSA)	This project was completed in 2012. This project would reduce congestion and increase sidewalk widths to improve pedestrian access. No additional vehicle trips would be generated by the proposed project. Therefore, this project did not contribute to the degradation of traffic/transportation and/or bicycle/pedestrian facilities within the RSA.
Riverside Drive Bridge and Grade Separation Replacement	○	15	All (within RSA)	This project would not generate additional vehicle trips or cause changes in local traffic patterns. Additionally, bicycle and pedestrian traffic across the Los Angeles River would be maintained on the existing bridge and viaduct during all stages of construction.
Valley Boulevard/I-605 Project	○	16	All (within RSA)	The reconfiguration of the Valley Boulevard on- and off-ramps to I-605 will improve mobility and circulation, and would relieve the current congestion at Valley Boulevard. Additionally, this project would not have an adverse impact to pedestrian and/or bicycle facilities.
Regional Connector Transit Corridor	●	17	All (within RSA)	After mitigation measures are implemented for this project, the intersection of 4th and Flower Streets will continue to be adversely affected during the AM peak hour. This impact would be considered significant under CEQA. In the PM peak hour, three intersections (4th and Flower Streets, 5th and Flower Streets, and 6th and Flower Streets) would have the potential to be adversely affected. With the implementation of mitigation measures, the effect will not be adverse under NEPA and will be considered less than significant under CEQA. This project would have substantial temporary impacts to pedestrian and bicycle facilities. Potentially adverse construction-related effects to traffic, transit, bicycle, and pedestrian circulation will remain after mitigation. However, this project would not result in a permanent impact to pedestrian and/or bicycle facilities.
Eastside Transit Corridor Phase 2 – Metro Gold Line Eastside Extension	○	18	All (within RSA)	Mobility goals of providing improved regional connectivity are achieved with this project by connecting with the regional Metro rail system, providing additional transportation capacity to serve increasing travel demand, reducing vehicular travel on the regional highway system, and attracting new transit riders.

TABLE 4.10:
Reasonably Foreseeable Actions – Traffic and Transportation/Pedestrian/Bicycle Facilities

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Metro Gold Line Foothill Extension	●	19	All (within RSA)	The introduction of a light rail system into the Foothill Extension study area would provide passengers with greater access to regional transit opportunities and would provide for improved regional transit connectivity. However, a total of 27 intersections are anticipated to be adversely/significantly impacted by the Gold Line prior to any mitigation measures. Although the mitigation measures proposed for all 27 impacted locations would result in no residual impacts from the project, it should be noted that several locations are projected to operate at an extremely poor LOS and would need to be addressed by improving intersection operations prior to reaching this level of congestion. Since it is difficult to validate impacts at these extreme levels of congestion, it has been recommended that the affected jurisdictions improve these congested intersections prior to implementation of this project. This project is not anticipated to have an adverse impact to bicycle and/or pedestrian facilities.
Wilshire Boulevard Bus Rapid Transit Project – Phases I and II	●	20	All (within RSA)	This project would result in significant impacts under CEQA related to the exceedance of LOS criteria for multiple intersections in both 2012 and 2020 project years. Ten intersections are forecast to remain significantly affected under CEQA because no feasible mitigation measures could be identified. This project would not have an adverse impact on pedestrian and/or bicycle facilities.
California High Speed Rail Project	●	21	All (within RSA)	This project is anticipated to reduce congestion on intercity highways, which would lead to fewer long distance automobile passengers on highways. However, it is anticipated that there would be localized traffic impacts near stations. It is a goal of this project to ensure that connections to pedestrian and/or bicycle facilities are maintained or created.
Gold Line Transit Plaza	●	22	All (within RSA)	Intersections surrounding the stations will experience increased vehicular activity.
Station Square Transit Village	●	23	All (within RSA)	Intersections surrounding the stations will experience increased vehicular activity.
Alhambra Bicycle Master Plan	●	24	All (within RSA)	Because construction of the individual bikeway project would in some cases result in temporary localized increases in traffic congestion that exceed applicable LOS standards, the construction impact on transportation operations is considered significant under CEQA. Implementation of mitigation measures incorporated into the project would lessen these impacts to less than significant levels under CEQA. Therefore, no unavoidable significant project impacts under CEQA would occur. Overall, the Bicycle Master Plan would encourage the use of bicycles instead of cars, therefore reducing the number of (automobile) vehicle trips and the total vehicle miles traveled in the County. Therefore, in general, the implementation of the Plan would result in reduced vehicular traffic volumes on roadways and improved traffic performances. However, some of the proposed Class II bike lanes would require the removal of one or more travel lanes. These projects would involve vehicular travel lane reduction in order to add bike lanes,

TABLE 4.10:
Reasonably Foreseeable Actions – Traffic and Transportation/Pedestrian/Bicycle Facilities

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
				which could potentially affect traffic operations and LOS at these locations. Where projects would involve vehicular travel lane reduction to add bike lanes and potentially affect traffic operations and LOS, traffic operation impacts would be significant under CEQA. Implementation of mitigation measures incorporated into the project would lessen these impacts to less than significant levels under CEQA. Therefore, no unavoidable significant project impacts would occur under CEQA.
Lincoln Avenue Specific Plan	●	25	All (within RSA)	This project plus existing condition and the project in combination with ambient growth and related projects would result in a significant increase under CEQA in volume-to-capacity ratio for nine signalized and five unsignalized intersections. This would result in a significant and unavoidable impact under CEQA. Development in accordance with the Specific Plan would not interfere with the existing bicycle routes and would not decrease the quality of the physical bicycle environmental adjacent to the project site. This project would not result in any impacts to pedestrian facilities.
Crown City Medical Center	●	26	All (within RSA)	Project-related trip generation would impact LOS for the study area roadway segments and would result in a significant and unavoidable impact under CEQA. The study area would remain a high-quality pedestrian and bicyclist environment with project implementation.
16 East California Project	○	27	All (within RSA)	Because this project involves redevelopment of an existing site, it is anticipated that there will not be traffic/transportation and/or pedestrian/bicycle facilities.
Magellan Gateway Project	●	28	All (within RSA)	This project was completed in 2012. However, this project resulted in significant and unavoidable adverse impacts under CEQA to the function of State Highway mainline and on-ramp facilities in the project area. Therefore, this project would contribute to some degradation of traffic and transportation within the RSA. This project would not have an adverse effect on pedestrian and/or bicycle facilities.
El Monte Walmart	●	29	All (within RSA)	It is anticipated that this project would increase traffic in the surrounding area and would be considered an adverse impact. It is anticipated that this project would not have an impact on pedestrian and/or bicycle facilities because it will be built within the confines of an existing lot.
Olive Pit Mining and Reclamation Operations and Long-Term Reuse Project	●	30	All (within RSA)	Continued mining, reclamation, and landfilling operations have the potential to prolong and increase impacts on roadway segments and intersections and affect the structural integrity of roadways and pavement conditions. Additionally, because this project would be using a portion of the site for development, it has the potential to create more traffic in the surrounding area.

TABLE 4.10:
Reasonably Foreseeable Actions – Traffic and Transportation/Pedestrian/Bicycle Facilities

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Huntington Memorial Hospital Master Development Plan Amendment	●	31	All (within RSA)	The proposed project has the potential to increase traffic in the project vicinity and area roadways during operation that could adversely affect the existing capacity of the street system or exceed an established LOS standard. Additionally, this project is anticipated to have a significant effect on pedestrian and/or bicycle facilities under CEQA.
Devil's Gate Reservoir Sediment Removal and Management Project	●	32	All (within RSA)	Under CEQA, significant impacts to haul route intersections could cause a substantial increase in traffic that would affect the efficiency of the circulation system. This project would not have an impact to pedestrian and/or bicycle facilities.
Garfield Reservoir Replacement Project	○	33	All (within RSA)	As this project would be replacing the existing reservoir with the same use, it is anticipated that this project would not have an adverse impact on traffic, transportation, pedestrian, and/or bicycle facilities.
Arroyo Seco Pedestrian and Bicycle Trail	○	34	All (within RSA)	As this project would be adding a pedestrian and bicycle trail to an existing recreational facility, it is anticipated that this project would provide a beneficial effect on traffic, transportation, pedestrian, and/or bicycle facilities.
Olson San Gabriel Residential Community Project	○	35	All (within RSA)	This project does not cause a traffic deficiency in the project area. This project would provide bicycle parking at the recreation features. The project will also construct a trail along the Rubio Wash that may go as far south as Grand Avenue.
100 West Walnut Planned Development	●	36	All (within RSA)	During operation, this project has the potential to increase traffic in the project vicinity and on area roadways and could adversely affect the existing capacity of the street system or exceed the City of Pasadena's established LOS standards. It is not anticipated that this project would have an adverse impact on pedestrian and/or bicycle facilities.
Hill and Colorado Project	●	37	All (within RSA)	This project includes commercial and retail uses (e.g., two hotels) that have the potential to increase traffic in the project vicinity and could adversely affect the existing capacity of the street system or exceed the City of Pasadena's established standards. It is not anticipated that this project would have an adverse impact on pedestrian and/or bicycle facilities.
Green Hotel Apartments Project	●	38	All (within RSA)	This project's increased traffic along Dayton Street between Fair Oaks Avenue and Raymond Avenue would constitute a significant impact under CEQA. This project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

TABLE 4.10:
Reasonably Foreseeable Actions – Traffic and Transportation/Pedestrian/Bicycle Facilities

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Reuse of the Desiderio Army Reserve Center	●	39	All (within RSA)	This project would result in street segment impacts on Westminster Drive that are considered significant under CEQA. It is not anticipated that this project would have an adverse impact on pedestrian and/or bicycle facilities.

[1] See Table 3.1 for the list of references for each project.
[2] The hollow bullet (○) indicates projects that would either have no impact to land use, or would not have an impact after typical avoidance, minimization and/or mitigation measures are incorporated.
[3] The solid bullet (●) indicates projects that either still have an adverse impact after mitigation or require extraordinary mitigation measures and therefore are included in the analysis for this subject area.

CEQA = California Environmental Quality Act
HOT = High-Occupancy Toll
HOV = High-Occupancy Vehicle
I-10 = Interstate 10
I-105 = Interstate 105
I-110 = Interstate 110
I-210 = Interstate 210
I-5 = Interstate 5
I-605 = Interstate 605
I-710 = Interstate 710
LOS = level of service
Metro = Los Angeles County Metropolitan Transportation Authority
NEPA = National Environmental Policy Act
RSA = Resource Study Area
SR 118 = State Route 118
SR 134 = State Route 134
SR 170 = State Route 170
SR 57/71 = State Route 57/State Route 71

4.2.6.2 Health and Historical Context

Los Angeles County is heavily urbanized, and most of the undeveloped land that remains is within unincorporated areas. Unincorporated areas within the County are climatically and ecologically diverse and include coastal, mountain, forest, and desert ecosystems. There are a number of wildlife corridors in the County that connect the Mojave Desert, San Gabriel Mountains, Santa Susana Mountains, Santa Monica Mountains, and Puente Hills with other core areas of wildlife habitat. The County has jurisdictional control over numerous rivers, creeks, and flood control channels and other rights-of-way.

The Arroyo Seco Parkway National Scenic Byway watershed begins in the San Gabriel Mountains and passes through the communities of Pasadena, South Pasadena, and Northeast Los Angeles. The Arroyo Seco Parkway unites a highly diverse region and serves as the focal point of a shared identity. The Arroyo Seco Parkway proceeds on, passing under the SR 134, and crosses at the southern boundary of Pasadena. The channel continues along the western boundary of South Pasadena, and then into northeast Los Angeles, flowing southeast of the Verdugo Mountains and Mount Washington.

The landscape units within the RSA and the existing condition of these units are:

- **Residential:** Overall visual quality ranges from moderately low to high based on the various neighborhoods throughout the different cities within the RSA. The vividness is low because the landscape components are low. The visual coherence and compositional unity of the natural and built landscape as a whole is considered moderate.
- **Recreation:** Overall visual quality is moderate. The vividness consists of the distinctness and memorability of the natural landscape. The intactness is low within the unit as there are only a few utility power lines encroaching. The overall unity contributes to a moderately high unity.
- **Education:** Overall visual quality is low. Vividness is low due to the limited diversity of the landscape. Intactness is low due to the encroachment of walls, light poles, fences, and utility power lines from the background. Unity is low as several elements (fences, walls, playgrounds, buildings, and other facilities) are out of balance.
- **Industrial:** Overall visual quality is low. There are no memorable landscape components that would contribute to the visual quality of the vividness. Above-ground utility and power lines, lightings, and other signage result in low intactness. The unity of the urban landscape is moderately low due to unharmonious patterning of buildings, warehouses, cargo, vehicles, parking lots, and other facilities.
- **Commercial/Retail:** Overall visual quality is low to moderately low. There are no memorable landscape components that would contribute to the visual quality of the vividness. Above-ground utility and power lines, lightings, and other signage result in moderately low intactness. The unity of the urban landscape is also moderately low due to buildings, vehicles, gas stations, parking lots, and other facilities.
- **Freeway:** Overall visual quality is moderately low. The vividness is low because there is minimal visual power of the landscape components. Intactness is low because highway posts, light poles, and also utility lines are major encroachments. The unity is moderate as the highway is the main component balancing the view.

While the County of Los Angeles has three State-designated Scenic Highways and eight County-designated Scenic Highways, none are within the SR 710 North Study's viewshed and study area. The Arroyo Seco Parkway, which runs through Pasadena, South Pasadena, and Los Angeles, was awarded National Scenic Byway status in 2002. The City of Los Angeles has designated several scenic corridors; however, only the San Gabriel/Verdugo Mountains Scenic Preservation Area falls within the viewshed of the SR 710 North Study. Monterey Park, Alhambra, South Pasadena, and Pasadena have not designated any local scenic roads or areas within the SR 710 North Study viewshed.

Local policies relevant to the SR 710 North Study are found in the General Plans of cities within the RSA. For example, the County of Los Angeles has adopted a policy that establishes and maintains urban scenic highways to provide access to interesting and aesthetic manmade features, historical and cultural sites, and urban open space areas. The City of Alhambra has adopted a policy to promote community identification and beautification, and the City of South Pasadena has adopted a goal to conserve and preserve the historic "built" environment of the city by identifying its architectural and cultural resources, by encouraging their maintenance and/or adaptive reuse, and by developing guidelines for new and infill development, thereby assuring design compatibility.

4.2.6.3 Project Impacts

TSM/TDM Alternative

The TSM/TDM Alternative mainly involves minor improvements to existing roads and intersections without substantive changes in physical facilities or views to/from those improvements. As a result, there would only be minor physical changes or visible impacts to the environment and to the key views. In addition, due to the low-profile (ground-level) nature of these improvements and the low perspective of potential viewers, the TSM/TDM Alternative would not result in negative permanent visual impacts.

For preliminary noise barriers proposed for the TSM/TDM Alternative, visual impacts would range from low to high. Visual impacts would vary depending on the wall location, the viewers affected, and barrier heights. Taller walls, closer walls, and walls surrounding residences will generally have a higher visual impact than shorter walls, walls further from viewers, and walls in non-residential areas.

BRT Alternative

The operation of the BRT Alternative would not result in permanent adverse visual impacts based on the key view analysis. Visual impacts based on viewer response may be moderately low, but the resource change is very low and adds positively to visual quality and is compatible with the existing visual character. However, the addition of the proposed noise barriers would cause moderate to moderately high visual impacts for several local residents and viewers on the streets. Visual impacts would vary depending on the barrier location, the viewers affected, and barrier heights. Taller walls will generally have a higher visual impact.

LRT Alternative

The LRT Alternative would have the most substantial visual impact since the majority of the alignment in East Los Angeles, Monterey Park, and Alhambra is above ground and visible to these communities. The visual impacts ranged from a moderate negative impact to a moderate positive impact. Some measures have been incorporated directly into the proposed designs of the structures

to avoid or minimize potential visual effects, and other measures have been identified to minimize and/or conceal potential visual effects.

Freeway Tunnel Alternative

The Freeway Tunnel Alternative would have a low-to-moderate visual impact since the majority of the alignment is below ground and not visible to many residential communities. In addition, several above-ground portions expand to the existing freeway where the visual quality is already lower. The visual impacts ranged from a moderately low negative impact to a moderate positive impact. However, visual impacts as a result of the noise barriers would range from moderate to high, depending on the wall location, height, and affected viewer group. Some measures have been incorporated directly into the proposed designs of the structures to avoid or minimize potential visual effects, and other measures have been identified to minimize and/or conceal potential visual effects.

Viewers within the study area would experience very little increased night lighting due to the majority of the proposed roadway being located in a valley. Vehicle headlight glare from all lanes is expected to be minimized by the natural slopes, in some cases by screen walls, and by distance of the viewer from safety lighting and lights from vehicles. During winter solar declination seasons and during the hours when the sun is low to the horizon, the elevated LRT would create some shade and/or shadows along the neighborhoods west of Mednik Avenue in East Los Angeles and through the southwest corner of Monterey Park. However, the impact would be minimal due to the narrow width and thin profile of the LRT.

4.2.6.4 Reasonably Foreseeable Actions

The reasonably foreseeable actions would occur in the areas that are planned for development or redevelopment. The reasonably foreseeable actions are listed in Table 3.1 and shown on Figure 3-1. Table 4.11 shows projects with particular relevance to visual resources and aesthetics as well as their visual impacts.

4.2.6.5 Cumulative Impact

TSM/TDM Alternative

The TSM/TDM Alternative does not contribute to visual impacts in the study area; therefore, it would not contribute to a cumulative visual impact.

BRT Alternative

As noted above in Section 4.2.6.3 (Project Impacts), 5 out of 14 reasonably foreseeable projects in combination with the BRT Alternative have the potential to contribute to a cumulative visual impact in the study area. This is due mostly to the distance of these cumulative projects to the BRT Alternative improvements (mainly the addition of bus stations on Atlantic Boulevard between Pomona Boulevard and Beverly Boulevard and at Fair Oaks Avenue and California Boulevard) and the elevated features of the Eastside Transit Corridor Project. Additionally, the new buildings proposed as part of the 16 East California Project, Huntington Memorial Hospital Master Development Plan Amendment, 100 West Walnut Planned Development, Hill and Colorado Project add to the cumulative visual impact in the study area. However, as noted above in Section 4.2.6.3, the BRT Alternative would not create a substantial visual impact. Also, it is anticipated that the new

TABLE 4.11:
Reasonably Foreseeable Actions – Visual Resources and Aesthetics

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
I-10 HOT Lanes	○	8	BRT (intersects) LRT (intersects) Freeway Tunnel (intersects)	This project was completed in 2013 and consisted of converting existing HOV lanes into HOT lanes. Therefore, it did not result in visual impacts and would not contribute to the degradation of the visual environment within the RSA.
Eastside Transit Corridor Phase 2 – Metro Gold Line Eastside Extension	●	18	BRT (intersects) LRT (0.5 mi)	Alternatives for this project include elevated track crossings and new stations. Therefore, this project is anticipated to result in visual impacts.
Alhambra Bicycle Master Plan	○	24	BRT (intersects)	This plan provides a vision to improve conditions for bicycling throughout Alhambra and to create local and regional connectivity. Due to the nature of bicycle improvements, it is anticipated that this project will not result in visual impacts.
Lincoln Avenue Specific Plan	●	25	Freeway Tunnel (100 ft)	This project proposes to gradually convert existing industrial and auto-related land uses to a neighborhood-serving retail/commercial district. The addition of new buildings and residential units are anticipated to result in a visual impact.
Crown City Medical Center	●	26	Freeway Tunnel (0.25 mi)	The project allows for the development of a 112,252 sf, five-story medical office and retail building over a six-level parking garage (i.e., one level at-grade and five subterranean levels). According to the *Supplemental Draft Environmental Impact Report*, this project will not have a substantial adverse impact on visual resources.
16 East California Project	●	27	BRT (1,000 ft) LRT (460 ft) Freeway Tunnel (0.4 mi)	This project includes the replacement of existing buildings with a new larger facility. Therefore, it is anticipated that this project would have a visual impact.
Huntington Memorial Hospital Master Development Plan Amendment	●	31	BRT (750 ft) LRT (900 ft) Freeway Tunnel (200 ft)	Currently, the site is developed with 17 structures ranging in height from one to seven stories. This Master Development Plan Amendment includes the development of an Emergency Department and vertical expansion; the addition of 43,000 sf of gross floor area; the rerouting of Fairmont Avenue between California Boulevard and Congress Street; and the demolition of a one-story medical office building. Therefore, it is anticipated that this project will result in visual impacts.
Garfield Reservoir Replacement Project	○	33	TSM/TDM (0.25 mi) BRT (0.5 mi)	Because this project would replace the existing reservoir with a similar reservoir, it is anticipated that this project would not result in an adverse visual effect.
Arroyo Seco Pedestrian and Bicycle Trail	○	34	Freeway Tunnel (0.5 mi)	Because this project would be adding a pedestrian and bicycle trail to an existing recreational facility, it is anticipated that this project would not result in an adverse visual effect.
Olson San Gabriel Residential Community Project	○	35	TSM/TDM (0.5 mi)	This project would improve views of the existing site (underused warehouse and dilapidated parking) but block views of the mountains to the north for some residents from some locations. The site is not near a scenic highway. Impacts to scenic resources and highways are less than significant under CEQA.
100 West Walnut Planned Development	●	36	TSM/TDM (0.5 mi) BRT (0.25 mi) Freeway Tunnel (immediately adjacent)	This project would alter views of the project site and of the area.

TABLE 4.11:
Reasonably Foreseeable Actions – Visual Resources and Aesthetics

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Hill and Colorado Project	●	37	BRT (intersects)	The project could alter views of scenic vistas, including views of the San Gabriel Mountains to the north of the project site. Thus, potentially significant impacts (under CEQA) to views could occur with the implementation of the proposed project.
Green Hotel Apartments Project	○	38	TSM/TDM (0.25 mi) BRT (intersects) Freeway Tunnel (0.25 mi)	This project would not have a substantial adverse effect on a scenic vista or substantially degrade the existing visual character or quality of the site and its surroundings.
Reuse of the Desiderio Army Reserve Center	○	39	BRT (0.5 mi) Freeway Tunnel (0.25 mi)	Long-term impacts to aesthetics would be less than significant under CEQA. The design of the proposed bungalows references Pasadena's historic building plans, compliments the surrounding historic buildings, and creates linkage with the adjacent single-family neighborhood.

[1] See Table 3.1 for the list of references for each project.
[2] The hollow bullet (○) indicates projects that would either have no impact to land use, or would not have an impact after typical avoidance, minimization and/or mitigation measures are incorporated.
[3] The solid bullet (●) indicates projects that either still have an adverse impact after mitigation or require extraordinary mitigation measures and therefore are included in the analysis for this subject area.

BRT = Bus Rapid Transit
ft = foot/feet
HOT = High-Occupancy Toll
HOV = High-Occupancy Vehicle
I-10 = Interstate 10
LRT = Light Rail Transit
Metro = Los Angeles County Metropolitan Transportation Authority
mi = mile/miles
RSA = Resource Study Area
sf = square foot/feet

features constructed as part of the cumulative projects will be visually compatible with the surrounding areas, and visual impacts would be lessened due to minimization and/or mitigation measures proposed in the environmental documents of these projects.

LRT Alternative

As noted above in Section 4.2.6.3, three out of the seven reasonably foreseeable projects in combination with the LRT Alternative have the potential to contribute to a cumulative visual impact in the study area. This is due mostly to the distance of the Eastside Transit Corridor Project to the elevated portions of the LRT Alternative. The LRT Alternative and the Eastside Transit Corridor Project propose elevated track alignments and stations in the community of East Los Angeles, which would contribute to a cumulative visual impact in the area. Although it is anticipated that, to the extent feasible, the new features constructed as part of these projects will be visually compatible with the surrounding areas, it would still result in a large visual change to the area and visual impacts would remain adverse.

Freeway Tunnel Alternative

As noted above in Section 4.2.6.3, 5 out of 14 reasonably foreseeable projects in combination with the Freeway Tunnel Alternative have the potential to contribute to a cumulative visual impact in the study area. This is due mostly to the distance of the Huntington Memorial Hospital Master Development Plan Amendment and 100 West Walnut Planned Development to the northern entrance/exit of the Freeway Tunnel Alternative in the City of Pasadena. However, the Freeway Tunnel Alternative would result in visual impacts only in areas where the entrances and exits are visible. Since the remaining cumulative projects in this area are near the areas in which the Freeway Tunnel Alternative is below ground, there will not be a cumulative visual impact in those areas. Therefore, the Freeway Tunnel Alternative does not contribute to a cumulative visual impact.

4.2.6.6 Avoidance, Minimization, and/or Mitigation Measures

Visual mitigation for adverse project impacts as a result of the SR 710 North Study will consist of following the design recommendations in cooperation with the Caltrans District Landscape Architect. The recommendations are described below by project feature:

- **Sound Walls:** Sound walls protect surrounding neighborhoods from traffic noise and reduce noise levels in neighborhoods. The design of sound walls will follow the standards from the Caltrans Highway Design Manual and will take into consideration gathered community input. Aesthetic enhancement for the sound walls should be incorporated into the final design of the proposed SR 710 North Study. Possible enhancements may include, but would not be limited to, using graphic patterns and colors.
- **Landscaping (LRT and Freeway Tunnel Alternatives Only):** Planting vines on the walls or creating berms and planting trees for screening can be another form of mitigation.

The degree to which these mitigation features are applied will be determined by the level of mitigation required (i.e., the higher the impact, the more intense the application of the mitigation measures). Similar measures will be required to minimize or avoid impacts of cumulative projects on visual resources and aesthetics.

4.2.7 Cultural Resources

The analysis in this section is based on the *Historic Property Survey Report* (HPSR) (2014), *Historical Resources Evaluation Report* (HRER) (2014), and *Archaeological Survey Report* (ASR) (2014) prepared for the SR 710 North Study.

4.2.7.1 Resource Study Area

The Area of Potential Effects (APE) used in the HPSR, HRER, and ASR is used as the RSA for the purpose of the cultural resources cumulative impacts analysis. The APE for this project is a combination of the areas of direct and indirect effects including, but not limited to, existing and proposed ROW, TCEs, staging areas, and areas where there are potential visual/setting impacts. It also contains several discontiguous areas to cover numerous intersection improvements over a wide geographic area.

4.2.7.2 Health and Historical Context

The APE is located within the Los Angeles Basin in the alluvial fan of the San Gabriel Mountains and areas of steep vegetated canyons and hillsides in Pasadena. Eight geologic units may be encountered within the APE of this project: Holocene Alluvial Fan Deposits, Young Alluvial Fan Deposits, Young Alluvium, Old Alluvial Fan Deposits, Old Alluvium, Fernando Formation, Puente Formation, and Topanga Group. In addition, artificial fill likely occurs within the APE along existing interstates, highways, and streets where it was used during construction to adjust for changes in topography and for overpasses and interchanges.

The APE is densely developed with a wide range of primarily historic-period (pre-1971) property types including single-family and multifamily residences, commercial businesses, offices, medical facilities, religious and educational institutions, industrial facilities, government and quasi-public facilities, and parks. In addition, the APE is intersected by SR 710, SR 60, I-10, SR 110, Route 66, a 0.6 mi segment of the Tournament of Roses Parade route, and the Arroyo Seco. In California, the historic era is generally divided into three periods: the Spanish or Mission Period (1769 to 1821), the Mexican or Rancho Period (1821 to 1848), and the American Period (1848 to present).

Mission San Gabriel, the primary European influence in the APE during the 18th century, became one of the most prosperous and powerful of the 21 missions, providing a base for the establishment of the nearby Pueblo of Los Angeles and ultimately the City of Los Angeles. Its 24 associated ranchos and ranchitos, granted to individuals as a reward for service to the mission, laid a framework for the initial European settlement in the APE. In 1845, local Californians ousted the Mexican-appointed governor, and in January 1847, Los Angeles was Americanized. In 1885, passenger service began on the Los Angeles-San Gabriel Valley Railway, which linked Pasadena to Los Angeles and brought an influx of tourists, new settlers, and land speculators to Southern California, subsequently creating real estate booms (and subsequent busts) throughout many developing cities, including those in the APE. In the rapidly growing cities in Southern California, the 1890s brought economic decline following the real estate boom of the late 1880s, resulting in a slowdown in commercial development and residential growth. The area did not experience complete revitalization until the turn of the century. In the early part of the new century, populations again increased dramatically, which stimulated and expanded commercial development in the region. By 1906, the suburbs of Los Angeles had expanded to the former ranch lands of the APE. In 1917, the country as a whole experienced a lull in development associated with the effects of World War I, but by 1919 things

began to return to normal. Throughout most of the 1920s, growth and prosperity, some of which was spurred by the growing popularity of the automobile, continued in Southern California and the APE. With the advent of the Depression in the 1930s, construction in the APE drew to a halt. In the APE, the period from 1930 to 1940 also brought the transition from railway to automobile.

No evidence of Native American sacred sites or Traditional Cultural Properties was identified through the records search, Native American consultation, or pedestrian survey. No cultural resources or artifacts were collected or observed during the preliminary survey of the three boring sites. No archaeological resources were observed in the APE.

Of the approximately 2,200 properties, a total of 67 properties in the project APE are either listed in or eligible for listing in the National Register of Historic Places (National Register). This includes 43 properties previously listed in or determined eligible for listing in the National Register (including 11 historic districts), 23 properties that were determined eligible for listing in the National Register (including 2 historic districts and 1 park), and 1 property (Route 66) that is being considered eligible for listing in the National Register for purposes of this study only. In addition to these 67 National Register properties, there are 10 properties (including 1 historic district) that are “historical resources” pursuant to CEQA, but are not eligible for listing in the National Register.

Pursuant to the 2014 Section 106 Programmatic Agreement (PA), Stipulation VIII.C.4, Caltrans is considering Route 66 as eligible for the National Register for purposes of this project only.

Fifteen bridges were also identified in the APE (HPSR, Attachment B). Of these, the Fair Oaks Overcrossing Bridge No. 53 0440 is eligible for listing in the National Register as a contributing element of the Arroyo Seco Parkway Historic District. The remaining bridges in the APE are Category 5 (not eligible for the National Register). All other historic-period resources within the APE have been determined exempt from further evaluation per the 2014 Section 106 PA.

4.2.7.3 Project Impacts

As stated above in Section 4.2.7.2, of the approximately 1,500 properties in the project APE, 43 properties are either listed in or are eligible for listing in the National Register, including 12 historic districts. A total of 458 properties were evaluated or previously evaluated as not eligible for listing in the National Register.

There are a total of 53 properties that qualify as “historical resources” pursuant to CEQA. It is anticipated that there would not be an adverse effect to these properties under Section 106.

Fifteen bridges were also identified in the APE (HPSR, Attachment B). Of these, the Fair Oaks Overcrossing Bridge No. 53 0440 is eligible for listing in the National Register as a contributing element of the Arroyo Seco Parkway Historic District. The remaining bridges in the APE are Category 5 (not eligible for the National Register). All other historic-period resources within the APE have been determined exempt from further evaluation per the 2014 Section 106 PA.

The APE has been extensively disturbed by construction of the existing freeways and roads, railroads, urban development, and other infrastructure; however, most of this disturbance occurred decades before archaeological sites were routinely and systematically recorded or any laws and/or regulations were in place to protect cultural resources. Despite the fact that no archaeological resources were identified within the APE through the records search or the field survey, the archival research and Native American consultation efforts suggest that portions of the APE and the

surrounding project vicinity were well populated prehistorically; thus, there is some potential to encounter archaeological resources if excavations extend into native soil. More specifically, ethnographic research indicates that some areas in the APE that are subject to ground-disturbing work are in the approximate locations of prehistoric village sites and therefore may be considered sensitive for the presence of buried archaeological resources. While cultural resources could potentially be encountered anywhere in the APE, the following areas should be considered to have a relatively high sensitivity for buried archaeological resources:

- The sections of the APE in South Pasadena along I-110 near the approximate location of the Horatio Rust Site prehistoric village site.
- The section of the APE just north of I-10, near Cal State LA and near the approximate location of the Otsunga prehistoric village site.

4.2.7.4 Reasonably Foreseeable Actions and Their Impacts

The reasonably foreseeable actions would occur in the areas that are planned for development or redevelopment. The reasonably foreseeable actions are listed in Table 3.1 and shown on Figure 3-1. Table 4.12 shows projects with particular relevance to cultural resources as well as their impacts on these resources.

4.2.7.5 Cumulative Impact

As shown in Table 4.12, four projects (San Gabriel Trench Grade Separation Project, 100 West Walnut Planned Development, Hill and Colorado Project, and Reuse of the Desiderio Army Reserve Center) would result in an adverse impact to cultural resources. However, as stated above in Section 4.2.7.3, the SR 710 North Study would not have an adverse impact on any cultural, historical, or archaeological resources. Therefore, the SR 710 North Study would not contribute to a cumulative impact on cultural resources. It should be noted that any of the projects listed above, including the SR 710 North Study, have the potential to encounter buried undiscovered resources, including human remains. Typical mitigation measures (as provided below in Section 4.2.7.6) would be implemented if this were to occur. With the implementation of mitigation measures (which include monitoring during construction), these projects would not contribute to cumulative effects on cultural resources.

4.2.7.6 Avoidance, Minimization, and/or Mitigation Measures

If previously unidentified cultural materials are unearthed during construction, it is Caltrans policy that work be halted in that area until a qualified archaeologist can assess the significance of the find. Additional archaeological surveys will be needed if the undertaking limits are extended beyond the present survey limits.

4.2.8 Hydrology and Floodplains

The analysis in this section is based on the *Summary Floodplain Encroachment Report* (SFER) (2014) and the *Water Quality Assessment Report* (2014) prepared for the SR 710 North Study.

TABLE 4.12:
Reasonably Foreseeable Actions – Cultural Resources

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
I-10 HOT Lanes	○	8	BRT (intersects) LRT (intersects) Freeway Tunnel (intersects)	This project was completed in 2013. A Finding of No Historic Properties Affected, according to Section 106 PA Stipulation IX.A and 36 CFR 800.4(d)(1), was received for this project. Therefore, this project would not contribute to the degradation of cultural resources within the study area.
San Gabriel Trench Grade Separation Project	●	11	TSM/TDM (intersects)	The loss or displacement of the San Gabriel Mission Site and other undiscovered buried resources would result in an adverse impact. Additionally, noise and vibration as a result of construction activities would impact 14 historic resources in the project area and would be considered an adverse impact. Mitigation measures will reduce project effects to each of the affected historic properties. Caltrans will coordinate with SHPO to resolve these adverse effects.
Rosemead Boulevard Safety Enhancement & Beautification Project	○	12	TSM/TDM (intersects)	This project would occur within the ROW and would not involve any property takings or disturbance of any historic buildings. Any archaeological resources that may have existed at one time have likely been disturbed due to previous development on the site, as well as ground disturbance caused by intensive development in the greater Los Angeles region during the years before modern archaeological studies and the application of environmental protection for cultural resources. Nonetheless, construction activities associated with project implementation would have the potential to unearth undocumented resources and/or human remains. However, compliance with standard measures regarding discovery of unearthed resources and human remains would ensure that implementation of this project would not cause a substantial adverse change in the significance of these resources.
Regional Connector Transit Corridor	○	17	Freeway Tunnel (2,800 ft)	Construction and operation of this project would not be expected to result in any direct or indirect adverse effects to historic properties. On June 1, 2010, the California SHPO concurred with FTA's finding of no adverse effect. Under CEQA, construction of this project would result in 1 direct significant impact and 14 indirect significant impacts to historical resources. However, implementation of mitigation measures would reduce these potential impacts to a less than significant level. Project operation would not be expected to cause direct or indirect impacts.
Eastside Transit Corridor Phase 2 – Metro Gold Line Eastside Extension	○	18	BRT (intersects) LRT (0.5 mi)	Based on the Alternatives Analysis, it is anticipated that this project would not have an adverse impact on cultural resources.
Alhambra Bicycle Master Plan	○	24	BRT (intersects)	The projects proposed as part of the Bicycle Master Plan have the potential to result in an adverse change to a historical or archaeological resource and result in significant impacts under CEQA. Implementation of mitigation measures incorporated into this project would lessen these impacts to less than significant levels under CEQA. Therefore, no unavoidable significant project impacts would occur under CEQA.

TABLE 4.12:
Reasonably Foreseeable Actions – Cultural Resources

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Lincoln Avenue Specific Plan	○	25	Freeway Tunnel (100 ft)	This project would not have an adverse effect on cultural resources.
Crown City Medical Center	○	26	Freeway Tunnel (0.25 mi)	No properties on the proposed project site have been identified as listed on or eligible for listing on the National Register of Historic Places, the California Register of Historical Resources, or for designation as a City of Pasadena Landmark. The proposed project would not have a direct impact on historical resources. The proposed project is in the vicinity of, but not in, the Pasadena Playhouse Historic District. The proposed project would not result in a direct or significant level of impact to the nearby historic district under CEQA, and would not result in indirect impacts to the historic district or any of the individual contributors in the district.
16 East California Project	○	27	BRT (1,000 ft) LRT (460 ft) Freeway Tunnel (0.4 mi)	Because this project would redevelop an existing site, it is anticipated that there would not be an adverse impact to cultural resources.
Huntington Memorial Hospital Master Development Plan Amendment	○	31	BRT (750 ft) LRT (900 ft) Freeway Tunnel (200 ft)	There are no known prehistoric or historic archeological sites within the project site or within 0.25 mi. The project site is fully developed and has been subject to disturbance from construction activities over time. However, this project would involve grading and excavation for the 350-space underground parking garage that may extend into native undisturbed soils. Therefore, construction of the project could encounter previously undiscovered archaeological resources. Furthermore, because the site is located approximately 1 mi east of the Arroyo Seco, there is an increased potential to encounter buried prehistoric or Native American resources during grading. Although the potential to encounter archaeological or Native American resources is considered somewhat remote and impacts are likely to be less than significant under CEQA, mitigation measures are recommended in the event resources are encountered during project implementation that would result in a less than significant impact to cultural resources under CEQA.
Garfield Reservoir Replacement Project	○	33	TSM/TDM (0.25 mi)	Because this project would replace the existing reservoir, it is anticipated that this project would not result in an adverse effect to cultural resources.
100 West Walnut Planned Development	●	36	BRT (0.25 mi) Freeway Tunnel (immediately adjacent	This project has the potential to change the character surrounding noted and potential historic resources and the adjacent historic district.
Hill and Colorado Project	●	37	BRT (intersects)	The vacant former Pasadena Ford (H.G. Loud Autos) showroom on the North Parcel was determined to be eligible for listing in the National Register in the City's historic resources survey of the East Colorado Specific Plan area. The proposed development would retain the auto showroom; however, the development that would occur immediately adjacent to this structure has the potential to indirectly impact this historic resource.

TABLE 4.12:
Reasonably Foreseeable Actions – Cultural Resources

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Green Hotel Apartments Project	○	38	TSM/TDM (0.25 mi) BRT (intersects) Freeway Tunnel (0.25 mi)	This project is adjacent to but would not involve demolition or physical alteration of the historic Hotel Green or Castle Green Apartments or any other historic structures.
Reuse of the Desiderio Army Reserve Center	●	39	BRT (0.5 mi) Freeway Tunnel (0.25 mi)	This project would cause a substantial adverse change in the significance of a historical resource that is considered significant and unavoidable under CEQA.

1 See Table 3.1 for the list of references for each project.
2 The hollow bullet (○) indicates projects that would either have no impact to land use, or would not have an impact after typical avoidance, minimization and/or mitigation measures are incorporated.
3 The solid bullet (●) indicates projects that either still have an adverse impact after mitigation or require extraordinary mitigation measures and therefore are included in the analysis for this subject area.

BRT = Bus Rapid Transit
Caltrans = California Department of Transportation
CEQA = California Environmental Quality Act
CFR = Code of Federal Regulations
ft = foot/feet
FTA = Federal Transit Administration
HOT = High-Occupancy Toll
I-10 = Interstate 10
LRT = Light Rail Transit
Metro = Los Angeles County Metropolitan Transportation Authority
mi = mile/miles
PA = Programmatic Agreement
ROW = right of way
SHPO = State Historic Preservation Officer
TDM = Transportation Demand Management
TSM = Transportation System Management

4.2.8.1 Resource Study Area

The project study area is located in Los Angeles County in the Los Angeles River Watershed. Therefore, the Los Angeles River Watershed is the RSA for the hydrology and floodplains cumulative impacts analysis.

4.2.8.2 Health and Historical Context

The Los Angeles River Watershed is approximately 834 square miles (sq mi) and is one of the largest watersheds in the region. The eastern portion of the watershed spans from the Santa Monica Mountains to the Simi Hills, and in the west from the Santa Susana Mountains to the San Gabriel Mountains. The watershed encompasses and is shaped by the path of the Los Angeles River, which flows from its headwaters in the mountains eastward to the northern corner of Griffith Park. Here the channel turns southward through the Glendale Narrows before it flows across the coastal plain and into San Pedro Bay near Long Beach. While the Los Angeles River was once an uncontrolled, meandering river, it is now predominantly a major flood protection waterway.

Two floodplains were identified within the study area: the Laguna Regulating Basin and the Dorchester Channel. The Laguna Regulating Basin collects runoff from the watersheds north of I-10, including the communities of Alhambra, Monterey Hills, and South Pasadena. The Dorchester Channel drains into the Laguna Regulating Basin. The Laguna Regulating Basin drains through several channel systems and eventually discharges into the Los Angeles River in the City of Vernon. The Los Angeles Department of Public Works indicated there has never been an overtopping flood in this Basin since it was constructed, even during wet years; therefore, an overtopping flood would be an extreme event with a return frequency likely to be greater than 100 years. The Dorchester Channel collects runoff from the watersheds north of I-10, including the communities of Alhambra, Monterey Hills, and South Pasadena. The Dorchester Channel drains into the Laguna Regulating Basin. The Laguna Regulating Basin drains through several channel systems and eventually discharges into the Los Angeles River in the City of Vernon. The data available for the Dorchester Channel indicate that design flows for this system were based on a 50-year frequency in accordance with Los Angeles County methodology, also known as the Capital Flood.

As designated by the Los Angeles Regional Water Quality Control Board (LARWQCB) (1995) Region 4, the study area is located within the Los Angeles-San Gabriel Hydrologic Unit (HU), Raymond Hydrological Area (HA), Pasadena Hydrologic Subarea (HAS) (405.31), Coastal Plain HA, Central HSA Split (405.15), and the San Fernando HA, Eagle Rock HSA (405.25). The Los Angeles-San Gabriel HU covers approximately 1,608 sq mi in Los Angeles County and small areas in Ventura County.

The major drainages adjacent to the study area are the Los Angeles River in the west and the Rio Hondo and San Gabriel River in the east. Rio Hondo drains to the Los Angeles River, which drains to the Pacific Ocean. The San Gabriel River drains directly to the Pacific Ocean. In addition to these major drainages, there are smaller intermittent drainages adjacent to the study area that include, from west to east: the Alhambra/San Pasqual Wash, Rubio Wash, Eaton Wash, Arcadia Wash, and Santa Anita Wash in the western and central parts of the San Gabriel Valley. The major drainages in the study area include Arroyo Seco and Dorchester Channel (Laguna Channel). The Arroyo Seco, the San Gabriel River, and the Dorchester Channel all drain to the Los Angeles River, which in turn drains to the Pacific Ocean.

Runoff from the TSM/TDM Alternative would drain into the Arroyo Seco, Rio Hondo, and Los Angeles River. Runoff from the BRT Alternative would drain into the Rio Hondo and Los Angeles River. Runoff from the LRT Alternative would drain into the Rio Hondo and Los Angeles River. Runoff from the Freeway Tunnel Alternative would drain into the Arroyo Seco and Los Angeles River.

4.2.8.3 Project Impacts

The TSM/TDM Alternative would result in an approximately 3.8 ac increase of impervious surface area that would result in an increase in the volume of storm water runoff and pollutants over existing conditions. In addition to the increase as a result of the TSM/TDM Alternative, the BRT Alternative would result in an approximate 1.12 ac increase, the LRT Alternative an approximate 16.5 ac increase, the Freeway Tunnel Alternative single-bore design variation an approximate 1.7 ac increase, and the Freeway Tunnel Alternative dual-bore design variation an approximate 13.5 ac increase of impervious surface area, which would result in an increase in the volume of storm water runoff and pollutants over the existing conditions.

Of the Build Alternatives being considered, the No Build, TSM/TDM, BRT, and LRT Alternatives do not encroach into any floodplains. The Freeway Tunnel Alternative single-bore design variation alignment crosses the Laguna Regulating Basin floodplain, and the dual-bore design variation alignment crosses the Laguna Regulating Basin floodplain and Dorchester Avenue Storm Drain (Dorchester Channel) floodplain.

Both the single-bore and dual-bore tunnel design variations of the Freeway Tunnel Alternative would encroach horizontally into the west side of the Laguna Regulating Basin. The encroachment would result in slight modifications to the floodplain boundary, but the basin floodplain elevation would not change. The encroachment involves excavating beneath a bridge structure. It is therefore likely that the encroachment would, in fact, increase and not decrease the basin storage volume, thereby increasing the flood control function of the Laguna Regulating Basin. The Freeway Tunnel Alternative's single-bore and dual-bore design variations would also require reconstruction of the existing maintenance road along the west side of the Laguna Regulating Basin. The existing maintenance road would be constructed in an area outside the current floodplain boundary; consequently, rebuilding the maintenance road would not affect the flood control functions of the Laguna Regulating Basin. Therefore, the Freeway Tunnel Alternative's single-bore and dual-bore design variations would not have the potential to negatively affect the flood control functions of the Laguna Regulating Basin.

The single-bore design variation of the Freeway Tunnel Alternative would not encroach into the Dorchester Channel, but the dual-bore design variation would encroach into Dorchester Channel and would require portions of the Dorchester Channel floodplain boundary north of Hellman Avenue to be narrowed. The encroachment into Dorchester Channel would increase the water surface elevation in the Channel in the locations where the floodplain boundary is being narrowed; however, the water surface elevation in the upstream Channel would not be altered. While the floodplain encroachment would result in a change to the water surface elevation in the portion of Dorchester Channel that would be altered by the dual-bore design variation, the water surface elevation of the reconstructed portion of Dorchester Channel would still be contained in the reconstructed Channel. Therefore, the dual-bore design variation would not have the potential to negatively affect the flood control functions of Dorchester Channel.

Neither the single-bore nor dual-bore design variations of the Freeway Tunnel Alternative would have the potential to adversely affect flood control functions of surface waters or storm drain facilities in or downstream of the study area.

4.2.8.4 Reasonably Foreseeable Actions and Their Impacts

The reasonably foreseeable actions would occur in the areas that are planned for development or redevelopment. The reasonably foreseeable actions are listed in Table 3.1 and shown on Figure 3-1. Table 4.13 shows projects with particular relevance to hydrology and floodplains as well as their impacts.

4.2.8.5 Cumulative Impact

As shown above in Table 4.13, four projects (I-710 South Corridor Project, Olive Pit Mining and Reclamation Operations, 100 West Walnut Planned Development, and Hill and Colorado Project) are anticipated to have an adverse impact to both hydrology and floodplains. Additionally, the Eastside Transit Corridor Project is anticipated to have an adverse impact on the floodplain. Lastly, the Temple Palms Business Park, which was completed in 2012, adversely impacted area hydrology. As discussed in Section 4.2.8.3, the SR 710 North Study is anticipated to result in an approximately 1.14 to 16.4 ac increase of impervious surface area (depending on the alternative) that would result in an increase in the volume of storm water runoff and pollutants over existing conditions. The LRT Alternative would result in the greatest increase of impervious area, and the BRT Alternative would result in the least.

Additionally, both the design variations of the Freeway Tunnel Alternative cross floodplains and would involve a horizontal encroachment within floodplains of the Laguna Regulating Basin. However, under the single-bore Freeway Tunnel Alternative design variation, the base floodplain elevation would not change. The dual-bore Freeway Tunnel Alternative design variation would encroach into the Dorchester Channel which would result in a narrowing of the floodplain boundary. The dual-bore Freeway Tunnel Alternative design variation minimizes the horizontal encroachment within the floodplain of the Dorchester Channel. Other design variations considered for this alternative would have required geometric modifications to the horizontal or vertical alignment, or realignment of the freeway mainline. Those design variations would induce more severe impacts to existing ROW, land uses, and hydrology east of the Freeway. Therefore, alternatives to the horizontal encroachment are not feasible.

Based on the above analysis, the SR 710 North Study, when combined with the cumulative projects, is not anticipated to result in a cumulative impact to hydrology and floodplains.

4.2.8.6 Avoidance, Minimization, and/or Mitigation Measures

As no adverse impacts would occur related to hydrology and/or floodplains, no avoidance, minimization, and/or mitigation measures are necessary.

4.2.9 Water Quality and Storm Water Runoff

The analysis in this section is based on the *Water Quality Assessment Report* (2014) prepared for the SR 710 North Study.

TABLE 4.13:
Reasonably Foreseeable Actions – Hydrology and Floodplains

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
I-710 South Corridor Project	●	1	All (within RSA)	All Build Alternatives would result in transverse (i.e., perpendicular to the direction of flow) encroachments at 22 Los Angeles River locations, one Compton Creek location, and one Rio Hondo Channel location. The Build Alternatives would not change the capacity of the Los Angeles River, Compton Creek, and/or Rio Hondo Channel to carry water and would not result in a measurable impact to the 100-year floodplain elevation. The proposed encroachments would not result in any adverse impacts on the natural and beneficial floodplain values, would not result in a substantial change in flood risk or damage, and do not have substantial potential to cause interruption or termination of emergency services or emergency routes. Therefore, the Build Alternatives do not constitute a significant floodplain encroachment as defined in 23 CFR 650.105(q). Alternatives 6A/B/C will also impact the Dominguez Gap Basins (west basins), which are used for groundwater recharge, and a retention basin at the I-710/I-105 interchange. Potential replacement locations have been identified for these basins.
I-5 Corridor Improvement Project (I-605 to I-710)	○	2	All (within RSA)	It is anticipated that although this project may result in one transverse encroachment (Rio Hondo Channel), it would not change the capacity of the Rio Hondo Channel to carry water and would not result in a measurable impact to the 100-year floodplain elevation, natural or beneficial floodplain values, a substantial change in flood risk or damage, or interruption or termination of emergency services or routes.
I-5 Improvement Project between SR 118 to SR 170	○	3	All (within RSA)	This project would not encroach upon a floodplain.
I-5 North Improvement Projects from SR 134 to SR 170	○	4	All (within RSA)	This project would not encroach upon a floodplain.
I-5/Western Avenue Interchange Improvements	○	5	All (within RSA)	This project was completed in 2012 and did not encroach upon a floodplain. Therefore, this project would not contribute to adverse impacts to hydrology and floodplain within the RSA.
San Bernardino Freeway (I-10)/San Gabriel River Freeway (I-605) Direct Connector Project	○	6	All (within RSA)	This project is currently under construction and will include minor improvements to an existing interchange. Therefore, it does not have an adverse impact on floodplains/hydrology.
San Bernardino Freeway (I-10) add One HOV Lane from I-605 to SR 57/71 and I-210	○	7	All (within RSA)	This project was completed in 2013. The hydraulic efficiency of the storm water control and drainage system was improved under this project, resulting in a system capable of treatment at the standard for water quality flows as required in Caltrans' Project Planning and Design Guide. Additionally, this project did not result in adverse impacts related to changes in water courses, groundwater resources, or substantial impacts related to erosion. Therefore, this project did not contribute to adverse impacts to hydrology and floodplain within the RSA.

TABLE 4.13:
Reasonably Foreseeable Actions – Hydrology and Floodplains

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
I-10 HOT Lanes	○	8	All (within RSA)	This project was completed in 2013. The risks associated with this project were minimal and did not encroach on floodplains or wetlands; therefore, this project did not contribute to adverse impacts to hydrology within the RSA.
The I-110 (Harbor Freeway)/Transitway HOT Lanes Project (182nd Street to Adams Boulevard) and on I-105 from Crenshaw Boulevard to Compton Avenue	○	9	All (within RSA)	This project was completed in 2012 and had minimal impacts on the existing drainage systems. Additionally, there was no meaningful change in the rate of storm water runoff and no alterations to floodplain hydrology. Therefore, this project would not contribute to adverse impacts to hydrology and floodplain within the RSA.
I-110 Widening and Rehabilitation Project	○	10	All (within RSA)	This project was completed in 2012 and had an overall minimal impact on natural and beneficial floodplain values. Therefore, this project would not contribute to adverse impacts to hydrology and floodplain within the RSA.
San Gabriel Trench Grade Separation Project	○	11	All (within RSA)	During construction, temporary disruption of storm drains in the area could result in flooding upstream from the project. BMPs would be implemented to reduce potential impacts. This project is not located within a 100-year flood hazard area.
Rosemead Boulevard Safety Enhancement & Beautification	○	12	All (within RSA)	The project site is not located within a regulatory floodway or within the base floodplain (100-year) elevation of a watercourse or lake as indicated on FEMA Map #1675F. In addition, this project would not involve construction of housing or structures. Therefore, this project would have no impact.
Washington Boulevard Improvement Project	○	13	All (within RSA)	The project site is not located within a regulatory floodway or within the base floodplain (100-year) elevation of a watercourse or lake. Therefore, this project would have no impact.
San Fernando Road Widening Between Elm Street and Eagle Rock Boulevard	○	14	All (within RSA)	No impact would occur that would affect the Los Angeles River or the existing drainage pattern on or near the proposed project site. As part of the widening project, up to seven storm water catch basins would be relocated to accommodate changes in sidewalk and street orientation. The existing drainage pattern of the project site would not be altered during construction or operation; therefore, no impact would occur. This project site is not located within a 100-year flood hazard area.
Riverside Drive Bridge and Grade Separation Replacement	○	15	All (within RSA)	The proposed project would not modify existing local drainage patterns, alter the course of a stream or river, or otherwise contribute to substantial erosion or siltation. Additionally, there would be no substantial impact to the Los Angeles River regulatory floodway or floodplain as a result of project implementation.

TABLE 4.13:
Reasonably Foreseeable Actions – Hydrology and Floodplains

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Valley Boulevard/I-605 Project	○	16	All (within RSA)	This project area is within Zone X. These are areas protected from the 100-year flood event by levees that prevent overtopping of adjacent flood channels. Therefore, this project would have no impact.
Regional Connector Transit Corridor	○	17	All (within RSA)	The project area is outside the 100-year and 500-year flood zones and thus would not be susceptible to these storm events as defined by FEMA.
Eastside Transit Corridor Phase 2 – Metro Gold Line Eastside Extension	●	18	All (within RSA)	Floodplains are located within the Santa Anita station area. Rail system construction of the SR 60 LRT Alternative may impact these facilities. Additionally, the alignment travels adjacent to and within a portion of the Whittier Narrows Recreation Center, which includes a dam that performs a flood control role.
Metro Gold Line Foothill Extension	○	19	All (within RSA)	No mapped areas within the study area are indicated as being within a 100-year floodplain; therefore, there would be no impact.
Wilshire Boulevard Bus Rapid Transit Project – Phases I and II	○	20	All (within RSA)	Implementation of this project would not interfere with runoff flow patterns or alter the existing drainage pattern of the project corridor. Additionally, implementation of the proposed action would neither create nor contribute to flooding that would exceed the storm drain system capacity nor impede or redirect flood flow. No adverse impacts related to hydrology and/or floodplains would occur under the proposed action.
California High Speed Rail Project	○	21	All (within RSA)	This project would not be expected to have a substantial impact on streams or lakes. Streams would be minimally affected because streams in this area are highly developed, and flood controls are part of the existing infrastructure.
Gold Line Transit Plaza	○	22	All (within RSA)	No mapped areas within the study area are indicated as being within a 100-year floodplain; therefore, there would be no impact.
Station Square Transit Village	○	23	All (within RSA)	No mapped areas within the study area are indicated as being within a 100-year floodplain; therefore, there would be no impact.
Alhambra Bicycle Master Plan	○	24	All (within RSA)	During construction of the Bicycle Master Plan projects, under CEQA, significant impacts to rivers, creeks, channels, and flood control facilities would potentially occur. Implementation of mitigation measures incorporated into this project would lessen these impacts to less than significant levels under CEQA. Therefore, no unavoidable significant project impacts would occur under CEQA.
Lincoln Avenue Specific Plan	○	25	All (within RSA)	Implementation of this project would not substantially alter the existing drainage pattern or result in substantial erosion.
Crown City Medical Center	○	26	All (within RSA)	Under CEQA, this project would have a less than significant impact on hydrology and floodplains.
16 East California Project	○	27	All (within RSA)	It is anticipated that this project would not have an impact on hydrology and floodplains as it redevelops an existing site.
Magellan Gateway Project	●	28	All (within RSA)	This project was completed in 2012. This project may have resulted in increased hydrology and drainage impacts in the area.
El Monte Walmart	○	29	All (within RSA)	This project would be developed on an existing vacant site and is not located within a floodplain. Therefore, it is anticipated that this project would not have an adverse impact on floodplains/hydrology.

TABLE 4.13:
Reasonably Foreseeable Actions – Hydrology and Floodplains

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Olive Pit Mining and Reclamation Operations and Long-Term Reuse Project	●	30	All (within RSA)	Deeper excavation from below the water table exposes groundwaters of the San Gabriel Groundwater Basin, a listed Superfund site.
Huntington Memorial Hospital Master Development Plan Amendment	○	31	All (within RSA)	The City of Pasadena contains two streams: the Arroyo Seco and Eaton Creek. The project is not located near either stream. The project will not substantially alter the course of these streams or any ravines or gullies on the site. Additionally, no portions of the City of Pasadena are within a 100-year floodplain identified by FEMA.
Devil's Gate Reservoir Sediment Removal and Management Project	○	32	All (within RSA)	Under CEQA, no significant impacts to groundwater supplies are expected from the actions of this project. Additionally, under CEQA, this project would result in a less than significant impact on drainage patterns.
Garfield Reservoir Replacement Project	○	33	All (within RSA)	Because this project would be replacing an existing reservoir with a similar reservoir, an adverse impact to floodplains/hydrology is not anticipated.
Arroyo Seco Pedestrian and Bicycle Trail	○	34	All (within RSA)	Because this project would be adding a pedestrian and bicycle trail to an existing recreational facility, it is anticipated that this project would not result in an adverse effect on floodplains/ hydrology.
Olson San Gabriel Residential Community Project	○	35	All (within RSA)	The project site does not fall within a 100-year floodplain. Project impacts related to drainage patterns and capacity are reduced to less than significant levels under CEQA, and no mitigation is required.
100 West Walnut Planned Development	●	36	All (within RSA)	This project is not located within a 100-year floodplain. This project would require grading and excavation that may alter the direction of runoff from the project site, and existing drainage patterns may be affected by proposed development. Additionally, the change in on-site development patterns that would occur with project development may affect existing drainage patterns in a manner that could change the rate and/or location of water flowing across and off the project site, resulting in on- or off-site flooding.
Hill and Colorado Project	●	37	All (within RSA)	This project is not located within a 100-year floodplain. Due to the potential changes in on-site drainage patterns resulting from implementation of this project and the introduction of new land uses, compared to existing uses, development occurring under this project could affect the existing drainage pattern. Additionally, the change in on-site development patterns that would occur with development of the project site may affect existing drainage patterns in a manner that could change the rate and/or location of water flowing across and off the project site, resulting in on- or off-site flooding.
Green Hotel Apartments Project	○	38	All (within RSA)	The EIR prepared for this project concluded there would be no impacts to floodplains/ hydrology.

TABLE 4.13:
Reasonably Foreseeable Actions – Hydrology and Floodplains

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Reuse of the Desiderio Army Reserve Center	○	39	All (within RSA)	The EIR prepared for this project concluded there would be no impacts to floodplains/ hydrology.

[1] See Table 3.1 for the list of references for each project.
[2] The hollow bullet (○) indicates projects that would either have no impact to land use, or would not have an impact after typical avoidance, minimization and/or mitigation measures are incorporated.
[3] The solid bullet (●) indicates projects that either still have an adverse impact after mitigation or require extraordinary mitigation measures and therefore are included in the analysis for this subject area.

BMPs = best management practices
Caltrans = California Department of Transportation
CEQA = California Environmental Quality Act
CFR = Code of Federal Regulations
EIR = Environmental Impact Report
FEMA = Federal Emergency Management Agency
HOT = High-Occupancy Toll
HOV = High-Occupancy Vehicle
I-10 = Interstate 10
I-105 = Interstate 105
I-110 = Interstate 110
I-210 = Interstate 210
I-5 = Interstate 5
I-605 = Interstate 605
I-710 = Interstate 710
LRT = Light Rail Transit
Metro = Los Angeles County Metropolitan Transportation Authority
RSA = Resource Study Area
SR 118 = State Route 118
SR 134 = State Route 134
SR 170 = State Route 170
SR 57/71 = State Route 57/State Route 71
SR 60 = State Route 60

4.2.9.1 Resource Study Area

The project study area is located in Los Angeles County in the Los Angeles River Watershed. Therefore, the Los Angeles River Watershed is the RSA for the water quality and storm water runoff cumulative impacts analysis.

4.2.9.2 Health and Historical Context

The surface waters in the study area are within the Los Angeles River Watershed. Pollutants from dense clusters of residential, industrial, and other urban activities have impaired water quality in the middle and lower watershed. Added to this complex mixture of pollutant sources (particularly pollutants associated with urban and storm water runoff) is the high number of point source discharges. Water quality issues in the Los Angeles River Watershed include protection and enhancement of fish and wildlife habitat, removal of exotic vegetation, enhancement of recreational areas, attaining a balance between water reclamation and minimum flows to support habitat, management of storm water quality, assessment of other nonpoint sources (e.g., horse stables, golf courses, and septic systems), pollution from contaminated groundwater, groundwater recharge with reclaimed water, contamination of groundwater by volatile organic compounds (VOCs), leakage of methyl tertiary-butyl ether (MTBE) from underground storage tanks, groundwater contamination with heavy metals (particularly hexavalent chromium), and contaminated sediments in the Los Angeles River estuary.

Groundwater is impaired by VOCs from industry and nitrates from subsurface sewage disposal and past agricultural activities. These are the primary pollutants in much of the groundwater through the Los Angeles Coastal Plain Central Basin, San Fernando Valley Groundwater Basin, San Gabriel Valley Groundwater Basin, and the Raymond Groundwater Basin.

On the 2010 California 303(d) List, Los Angeles River Reach 2 (Carson Street to Figueroa Street) is listed as impaired for ammonia, coliform bacteria, copper, lead, nutrients (algae), oil, and trash; Arroyo Seco Reach 1 (Los Angeles River to West Holly Avenue) is listed as impaired for benthic-macroinvertebrate bioassessments, coliform bacteria, and trash; and Rio Hondo Reach 2 (at Spreading Grounds) is listed as impaired for coliform bacteria and cyanide.

4.2.9.3 Project Impacts

During construction activities, excavated soil would be exposed and there would be an increased potential for soil erosion compared to existing conditions. In addition, during a storm event, soil erosion could occur at an accelerated rate. During construction, there is also the potential for construction-related pollutants to be spilled, leaked, or transported via storm runoff into drainages adjacent to the study area and thereby into downstream receiving waters. All Build Alternatives would comply with the requirements of the Construction General Permit (CGP). Under the CGP, the project would be required to prepare a Storm Water Pollution Prevention Plan (SWPPP) and implement construction best management practices (BMPs) detailed in the SWPPP during construction activities to minimize erosion and prevent spills. With implementation of these BMPs, pollutants of concern would be retained in the study area and would not reach receiving waters; therefore, there is low potential for adverse water quality impacts during construction of any of the Build Alternatives.

Groundwater dewatering would be required during construction of the LRT Alternative and the Freeway Tunnel Alternative single-bore and dual-bore tunnel design variations. These Alternatives

would be required to comply with the requirements of Order No. R4-2013-0095 (National Pollutant Discharge Elimination System [NPDES] No. CAG994004). Order No. R4-2013-0095 covers general waste discharge permits for discharges to surface waters from activities involving groundwater extraction. This will ensure that effluent limitations for constituents are not exceeded.

The roadway and drainage improvements associated with the Build Alternatives include road widening, construction of retaining walls, bridges, tunnels, grading, excavation, paving, pavement delineations, installation of traffic control devices, and permanent water quality treatment BMPs that would result in increased impervious surface area. Increases in impervious surface area would cause long-term increases in velocity at outlets and increases in the amount of pollutants typically generated by operating and maintaining a transportation facility (i.e., total dissolved solids [TDS], nutrients, trash/litter, oil and grease, and heavy metals). The Build Alternatives would also include vegetated areas that would need fertilizer to encourage plant growth and pesticides to control pests. Increases in sediment and other pollutants in a water body can increase turbidity, smother bottom dwelling organisms, suppress aquatic vegetation growth, and alter the temperature and pH of a water body. Fertilizers could be a source of nutrients that cause oxygen depletion and a rise in water temperature, and pesticides could be a source of organic chemicals that cause adverse effects to fish and other aquatic organisms.

The Build Alternatives would include BMPs as appropriate to treat runoff from the project site and reduce pollutants of concern. For the TSM/TDM Alternative, the proposed BMPs would treat 76 percent of the new impervious surface area. For the BRT Alternative, the proposed BMPs would respectively treat 575 percent and 114 percent of the new impervious surface area within and outside Caltrans ROW. For the LRT Alternative, BMPs are only proposed in areas outside the tunnel, and most of the LRT alignment outside the tunnel is on an elevated track above steep terrain where BMPs are infeasible. Therefore, for the LRT Alternative, the proposed BMPs would respectively treat 31 percent and 47 percent of the new impervious surface area within and outside Caltrans ROW. The proposed BMPs for the Freeway Tunnel Alternative single-bore and dual-bore tunnel design variations would respectively treat 5,350 percent and 705 percent of the new impervious surface area within Caltrans ROW. Because the Build Alternatives would implement effective BMPs that would treat the proposed new impervious surface area as well as portions of the existing impervious surface area, there is a low potential for the Build Alternatives to have an adverse effect on the physical/chemical characteristics of the on-site or downstream aquatic environment.

4.2.9.4 Reasonably Foreseeable Actions and Their Impacts

The reasonably foreseeable actions would occur in the areas that are planned for development or redevelopment. The reasonably foreseeable actions are listed in Table 3.1 and shown on Figure 3-1. Table 4.14 shows projects with particular relevance to water quality as well as their impacts.

4.2.9.5 Cumulative Impact

The Build Alternatives, in combination with the cumulative projects, would have temporary construction-related pollution and waste discharge effects. However, during the construction stage, all disturbed slopes would be vegetated, and surface water from the project site would be diverted to designed collection and permanent treatment facilities. This work would minimize the effects of erosion and downstream siltation on any of the receiving waters once these projects become operational. Therefore, the SR 710 North Study, in combination with the cumulative projects, would not contribute to a cumulative impact on water quality.

TABLE 4.14:
Reasonably Foreseeable Actions – Water Quality and Storm Water Runoff

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
I-710 South Corridor Project	○	1	All (within RSA)	Construction of this project would result in construction activities that have the potential to cause erosion, sedimentation, and the discharge of non-storm water from the project site. However, BMPs would be implemented in accordance with NPDES permit requirements to control construction erosion and discharges. Therefore, no substantial impacts to surface waters would occur. Alternatives 6A/B/C would result in a greater increase in impervious surface area compared to Alternative 5A. The increase in impervious surface and, therefore, the increase in runoff and pollutant loading under Alternatives 6A/B/C would be greater than under Alternative 5A. All Build Alternatives would add new impervious surfaces, thereby increasing the amount of storm water runoff within the project limits and introducing additional amounts of water pollutants into the runoff in the area. However, detention basins and/or bioswales would be implemented to treat storm water runoff prior to discharge to receiving water bodies and to manage increased storm water flows. Therefore, permanent impacts to the water quality of groundwater in the vicinity of the I-710 South Corridor Project would be minimal following the completion of construction because there would not be any increase in the transport of pollutants into the groundwater through infiltration during the operational life of the new structures.
I-5 Corridor Improvement Project (I-605 to I-710)	○	2	All (within RSA)	Construction of this project would result in construction activities that have the potential to cause erosion, sedimentation, and the discharge of non-storm water from the project site. However, BMPs would be implemented in accordance with NPDES permit requirements to control construction erosion and discharges. Therefore, no substantial impacts to surface waters would occur. This project is anticipated to add impervious surface to the project area. However, it is anticipated that BMPs will be included in the design and implemented to treat storm water runoff prior to discharge to receiving water bodies and to manage increased storm water flows. Therefore, permanent impacts to the water quality of groundwater in the vicinity of this project would be minimal following the completion of construction.
I-5 Improvement Project between SR 118 to SR 170	○	3	All (within RSA)	Construction of this project would result in construction activities that have the potential to cause erosion, sedimentation, and the discharge of non-storm water from the project site. However, BMPs would be implemented in accordance with NPDES permit requirements to control construction erosion and discharges. Therefore, no substantial impacts to surface waters would occur. This project would not violate or be inconsistent with federal, State, or local water quality standards. A SWPPP will be developed prior to construction to ensure compliance with RWQCB procedures and requirements.

TABLE 4.14:
Reasonably Foreseeable Actions – Water Quality and Storm Water Runoff

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
I-5 North Improvement Projects from SR 134 to SR 170	○	4	All (within RSA)	Construction of this project would result in construction activities that have the potential to cause erosion, sedimentation, and the discharge of non-storm water from the project site. However, BMPs would be implemented in accordance with NPDES permit requirements to control construction erosion and discharges. Therefore, no substantial impacts to surface waters would occur. This project would not violate or be inconsistent with federal, State, or local water quality standards. A SWPPP will be developed prior to construction to ensure compliance with RWQCB procedures and requirements.
I-5/Western Avenue Interchange Improvements	○	5	All (within RSA)	This project was completed in 2012.This project did not violate and was not inconsistent with federal, State, or local water quality standards. A SWPPP was developed prior to construction to ensure compliance with RWQCB procedures and requirements. Therefore, this project would not contribute to the degradation of water quality within the RSA.
San Bernardino Freeway (I-10)/San Gabriel River Freeway (I-605) Direct Connector Project	○	6	All (within RSA)	This project is currently under construction and is following all appropriate BMPs to ensure there would not be an adverse impact on water quality. Additionally, as the project is making improvements to an existing interchange, impacts related to water quality are anticipated to be less than adverse.
San Bernardino Freeway (I-10) add One HOV Lane from I-605 to SR 57/71 and I-210	○	7	All (within RSA)	This project was completed in 2013. With the combination of treatment BMPs and various design pollution prevention BMPs (e.g., providing benches or terraces on high cut-and-fill slopes, rounding slopes, flaring the ends of outlets, and incorporating headwalls, transition structures, and splash walls where necessary), water quality was not substantially degraded. Additionally, drainage facilities were designed to be consistent with established drainage plans for the area. Therefore, this project would not contribute to the degradation of water quality within the RSA.
I-10 HOT Lanes	○	8	All (within RSA)	This project was completed in 2013 and the existing drainage systems were determined to be adequate to handle runoff from this project. Therefore, this project would not contribute to the degradation of water quality within the RSA.
The I-110 (Harbor Freeway)/Transitway HOT Lanes Project (182nd Street to Adams Boulevard) and on I-105 from Crenshaw Boulevard to Compton Avenue	○	9	All (within RSA)	This project was completed in 2012 and resulted in a total Disturbed Soil Area of 0.015 ac, or approximately 653 sf. A small amount of impervious area (less than 0.2 ac) was added but was considered minor. This project would not further impair the 303(d) listed water bodies. Therefore, this project would not contribute to the degradation of water quality within the RSA.
I-110 Widening and Rehabilitation Project	○	10	All (within RSA)	This project was completed in 2012. Compliance with federal and State regulations, such as the Clean Water Act, ensured that the project would not result in adverse impacts on water quality in the Los Angeles River. Therefore, this project would not contribute to the degradation of water quality within the RSA.

TABLE 4.14:
Reasonably Foreseeable Actions – Water Quality and Storm Water Runoff

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
San Gabriel Trench Grade Separation Project	○	11	All (within RSA)	Construction of this project would result in construction activities that have the potential to cause erosion, sedimentation, and the discharge of non-storm water from the project site. However, BMPs would be implemented in accordance with NPDES permit requirements to control construction erosion and discharges into the Rio Hondo Channel. Therefore, no substantial impacts to surface waters would occur. This project would require the existing storm drain collection systems to be re-routed and also includes modifications to two concrete-lined flood channels. However, both channel structures would be built to maintain the existing hydraulic capacity of the existing concrete channels and, as such, impacts would not be adverse.
Rosemead Boulevard Safety Enhancement & Beautification	○	12	All (within RSA)	This project would not create any measurable additional runoff than the existing conditions since the project area is an existing roadway ROW and consists largely of impervious surfaces. Violation of water quality standards and contributions of additional sources of polluted runoff during construction and operation activities would be less than significant under CEQA. The proposed project would not measurably create or contribute runoff water above existing levels, and therefore would not exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.
Washington Boulevard Improvement Project	○	13	All (within RSA)	It is anticipated that construction activities would result in additional polluted runoff because of construction-related pollution and waste discharge. However, it is anticipated that BMPs would be implemented to minimize this impact. Additionally, it is anticipated that only a minor amount of impervious surface would be added as a result of this project and would be considered minimal. It is also anticipated that any increase in surface runoff would be treated and no adverse impact would occur.
San Fernando Road Widening Between Elm Street and Eagle Rock Boulevard	○	14	All (within RSA)	This project was completed in 2012. The amount of runoff from the street was anticipated to be comparable to the amount of runoff that currently exists. Therefore, impacts related to potential discharges into storm water drainage systems or changes in water quality are considered to be less than significant under CEQA. Therefore, this project did not contribute to the degradation of water quality within the RSA.
Riverside Drive Bridge and Grade Separation Replacement	○	15	All (within RSA)	BMPs would be implemented to address the potential for bridge construction projects to harm waterways.
Valley Boulevard/I-605 Project	○	16	All (within RSA)	It is anticipated that construction activities would result in additional polluted runoff because of construction-related pollution and waste discharge. However, it is anticipated that BMPs would be implemented to minimize this impact. Additionally, it is anticipated that only a minor amount of impervious surface would be added as a result of this project and would be considered minimal. It is also anticipated that any increase in surface runoff would be treated and no adverse impact would occur.

TABLE 4.14:
Reasonably Foreseeable Actions – Water Quality and Storm Water Runoff

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Regional Connector Transit Corridor	○	17	All (within RSA)	This project would have adverse effects with respect to water quality and groundwater contamination during construction. Operation of the alternative would have the potential beneficial effect of reducing automobile use and related roadway pollutants in storm water runoff. Compliance with applicable regulations and implementation of mitigation measures would reduce potential adverse impacts to a less than significant level under CEQA.
Eastside Transit Corridor Phase 2 – Metro Gold Line Eastside Extension	○	18	All (within RSA)	It is anticipated that this project would have adverse effects with respect to water quality and groundwater contamination during construction. However, it is also anticipated that operation of the alternative would have the potential beneficial effect of reducing automobile use and related roadway pollutants in storm water runoff. Compliance with applicable regulations and implementation of mitigation measures would reduce potential adverse impacts to a less than significant level under CEQA.
Metro Gold Line Foothill Extension	○	19	All (within RSA)	Construction-related impacts from this project would primarily be to surface water, specifically in the areas of channels/drainages. Compliance with regulations and BMPs is expected to reduce potential impacts to less than adverse/less than significant levels under NEPA/CEQA, respectively. Under NEPA and CEQA, this project would have a water quality impact that can be mitigated to less than adverse/less than significant by regulatory compliance and use of BMPs during operations.
Wilshire Boulevard Bus Rapid Transit Project – Phases I and II	○	20	All (within RSA)	Implementation of this project would not create any new impacts related to water quality beyond existing conditions or alter the existing drainage pattern of the project corridor that would result in erosion or siltation. Therefore, adverse environmental effects related to water quality are not anticipated with this project.
California High Speed Rail Project	○	21	All (within RSA)	Considering the sophisticated design, engineering, and construction practices that would be used (and required in order to obtain permits), this project would have a potentially less than adverse effect on water quality when viewed on a system-wide basis. Additionally, placing the corridor for the high speed rail system within or along existing transportation corridors reduces the potential for adverse effects to water resources within the project vicinity, and engineering and design practices further reduce potential adverse impacts to these water resources. Avoidance and mitigation strategies as well as the aforementioned design practices will be applied to reduce these impacts to water resources in the second-tier, project-level analyses and in obtaining permits for facilities included in the high speed rail system should a decision be made to pursue its development.
Gold Line Transit Plaza	○	22	All (within RSA)	Under NEPA and CEQA, this project would have a water quality impact that can be mitigated to less than adverse/less than significant by regulatory compliance and use of BMPs during operations.

TABLE 4.14:
Reasonably Foreseeable Actions – Water Quality and Storm Water Runoff

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Station Square Transit Village	○	23	All (within RSA)	Under NEPA and CEQA, this project would have a water quality impact that can be mitigated to less than adverse/less than significant by regulatory compliance and use of BMPs during operations.
Alhambra Bicycle Master Plan	○	24	All (within RSA)	If any of these facilities were located in areas that would impede or redirect flood flows, a significant impact could occur under CEQA. Implementation of mitigation measures incorporated into this project would lessen these impacts to less than significant levels under CEQA. Therefore, no unavoidable significant project impacts would occur under CEQA. Because individual projects in the Bicycle Master Plan would be required to comply with NPDES permit conditions, use standard BMPs and erosion controls required for all County-approved projects, and implement appropriate hazardous material management practices, impacts related to storm water runoff quality would be less than significant under CEQA.
Lincoln Avenue Specific Plan	○	25	All (within RSA)	Construction of projects developed pursuant to the Specific Plan could result in short-term increases in pollutant concentrations from the site. Projects developed pursuant to the Specific Plan would not substantially increase the amount of impervious surfaces on site and would not substantially increase surface water flows into drainage systems in the watershed. However, the operations of projects developed pursuant to the Specific Plan have the potential to result in long-term increases in pollutant concentrations due to runoff from the site. However, with the implementation of minimization and mitigation measures, these impacts would be less than significant under CEQA.
Crown City Medical Center	○	26	All (within RSA)	This project would have a less than significant impact water quality and storm water runoff under CEQA.
16 East California Project	○	27	All (within RSA)	It is anticipated that this project would not have an impact on water quality and storm water runoff as it redevelops an existing site.
Magellan Gateway Project	○	28	All (within RSA)	This project was completed in 2012. It was determined that this project would not result in increased erosion potential, runoff amounts, or substantially degrade water quality upon implementation of recommended mitigation. Therefore, this project did not contribute to the degradation of water quality within the RSA.
El Monte Walmart	○	29	All (within RSA)	This project would be developed on an existing vacant site, would be adding impervious area, and may result in long-term increases in pollutant concentrations due to runoff from the site. However, with implementation of minimization and/or mitigation measures required under CEQA, these impacts are anticipated to be less than significant.
Olive Pit Mining and Reclamation Operations and Long-Term Reuse Project	○	30	All (within RSA)	This project would not be adding impervious surfaces to the site and therefore would not have an adverse impact on water quality.

TABLE 4.14:
Reasonably Foreseeable Actions – Water Quality and Storm Water Runoff

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Huntington Memorial Hospital Master Development Plan Amendment	○	31	All (within RSA)	Compliance with the MS4 permit and SUSMP would ensure that this project would not violate any water quality standards or waste discharge requirements; therefore, impacts would be less than significant under CEQA. Complying with the SUSMP and implementing the required BMPs would also ensure that the erosion or siltation impacts due to changes to drainage patterns would be less than significant under CEQA.
Devil's Gate Reservoir Sediment Removal and Management Project	○	32	All (within RSA)	Adequate BMPs will be utilized, and adherence to the regulations set forth by the County, State, and federal agencies will reduce the potential for impacts to water quality to a less than significant level under CEQA.
Garfield Reservoir Replacement Project	○	33	All (within RSA)	It is anticipated that this project would not have an impact on water quality and storm water runoff because it redevelops an existing site.
Arroyo Seco Pedestrian and Bicycle Trail	○	34	All (within RSA)	Because this project would be adding a pedestrian and bicycle trail to an existing recreational facility, it is anticipated that this project would not result in an adverse effect on water quality.
Olson San Gabriel Residential Community Project	○	35	All (within RSA)	The construction and grading phases of the project site would require temporary disturbance of surface soils and removal of vegetative cover, which could potentially result in erosion and sedimentation on site. However, this impact would be mitigated to a less than significant level under CEQA. This proposed project would result in the conversion of impermeable warehouse-related surfaces to a larger percentage of permeable surfaces. During project occupancy, it is possible that a number of human activities could result in pollutants reaching local waterways unless BMPs are implemented on an ongoing basis. With implementation of these BMPs, the effect to water quality and storm water runoff is considered less than significant under CEQA.
100 West Walnut Planned Development	○	36	All (within RSA)	Potential changes in on-site drainage patterns resulting from project implementation and the introduction of new land uses could affect the quality of storm water runoff. However, it is anticipated that with incorporation of BMPs, impacts related to water quality and storm water runoff would be less than adverse.
Hill and Colorado Project	○	37	All (within RSA)	Because the project site is fully paved or developed, redevelopment occurring under the proposed project will not increase impervious surfaces on site in comparison to existing conditions. However, due to the potential changes in on-site drainage patterns resulting from development under the proposed project and the introduction of new land uses, project site development could affect the quality of storm water runoff. With implementation of BMPs, it is anticipated that this project would not have an adverse effect related to water quality and storm water runoff.

TABLE 4.14:
Reasonably Foreseeable Actions – Water Quality and Storm Water Runoff

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Green Hotel Apartments Project	○	38	All (within RSA)	The EIR prepared for this project concluded there would be no impacts to water quality and storm water runoff.
Reuse of the Desiderio Army Reserve Center	○	39	All (within RSA)	The EIR prepared for this project concluded there would be no impacts to water quality and storm water runoff.

[1] See Table 3.1 for the list of references for each project.
[2] The hollow bullet (○) indicates projects that would either have no impact to land use, or would not have an impact after typical avoidance, minimization and/or mitigation measures are incorporated.
[3] The solid bullet (●) indicates projects that either still have an adverse impact after mitigation or require extraordinary mitigation measures and therefore are included in the analysis for this subject area.

ac = acre/acres
BMPs = best management practices
CEQA = California Environmental Quality Act
EIR = Environmental Impact Report
HOT = High-Occupancy Toll
HOV = High-Occupancy Vehicle
I-10 = Interstate 10
I-105 = Interstate 105
I-110 = Interstate 110
I-210 = Interstate 210
I-5 = Interstate 5
I-605 = Interstate 605
I-710 = Interstate 710
Metro = Los Angeles County Metropolitan Transportation Authority
MS4 = Municipal Separate Storm Sewer System
NEPA = National Environmental Policy Act
NPDES = National Pollutant Discharge Elimination System
ROW = right of way
RSA = Resource Study Area
RWQCB = Regional Water Quality Control Board
sf = square foot/feet
SR 118 = State Route 118
SR 134 = State Route 134
SR 170 = State Route 170
SR 57/71 = State Route 57/State Route 71
SUSMP = Standard Urban Storm Water Mitigation Plan
SWPPP = Storm Water Pollution Prevention Plan

As shown in Table 4.14, with implementation of BMPs and other avoidance, minimization, and/or mitigation measures, the cumulative projects would result in a less than adverse impact on water quality and storm water/runoff. Additionally, as discussed in Section 4.2.9.3, compliance with requirements such as obtaining an NPDES permit and implementing BMPs would ensure that the SR 710 North Study would result in a low potential for the Build Alternatives to have an adverse effect on water quality.

Based on the above analysis, the SR 710 North Study, in combination with the cumulative projects, would not have an adverse cumulative impact on water quality.

4.2.9.6 Avoidance, Minimization, and/or Mitigation Measures

The following regulatory requirements will be implemented with the Build Alternatives and will reduce or avoid construction-related impacts related to water quality:

- The project will comply with the provisions of the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (CGP) Order No. 2009-0009-DWQ, as amended by 2010-2014-DWQ and 2012-0006-DWQ, NPDES No. CAS000002, or any subsequent permit. The project will comply with the CGP by preparing and implementing a SWPPP to address all construction-related activities, equipment, and materials that have the potential to impact water quality for the appropriate Risk Level. The SWPPP will identify the sources of pollutants that may affect the quality of storm water and include BMPs to control the pollutants, such as sediment control, catch basin inlet protection, temporary soil stabilization, construction materials management, and non-storm water BMPs.
- If dewatering is required, construction site dewatering will comply with the requirements of Order No. R4-2013-0095 (NPDES No. CAG994004). Order No. R4-2013-0095 covers general waste discharge permits for discharges to surface waters from activities involving groundwater extraction. It covers treated or untreated groundwater generated from permanent or temporary dewatering operations or other appropriate wastewater discharge not specifically covered in other general NPDES permits in the Los Angeles region. Under this order, permittees are required to monitor their discharges from groundwater extraction waste from construction to ensure that effluent limitations for constituents are not exceeded.

The following regulatory requirements will be implemented with the Build Alternatives and will reduce or avoid operational impacts related to water quality:

- The project will comply with the provisions of the NPDES Permit, Statewide Storm Water Permit, Waste Discharge Requirements (WDRs) for the State of California, Department of Transportation Order No. 2012-0011-DWQ, NPDES No. CAS000003 (Caltrans Permit) or any subsequent permit.
- In compliance with the Standard Urban Storm Water Mitigation Plan (SUSMP) prepared for the LARWQCB WDRs for Municipal Separate Storm Sewer System (MS4) Order No. R4-2012-0175, NPDES Permit No. CAS004001, as amended, a final project-specific SUSMP will be prepared. The final project-specific SUSMP will include implementation of Site Design, Source Control, and Treatment Control BMPs to the maximum extent practicable. Site Design, Source Control, and Treatment Control BMPs include tree box filters, catch basins, curb inlet filters, media filters, and bioretention facilities.

- Caltrans-approved Design Pollution Prevention BMPs will be implemented to the maximum extent practicable consistent with the requirements of the Caltrans Permit and Project Planning and Design Guide. Design Pollution Prevention BMPs include preservation of existing vegetation, slope/surface protection systems (permanent soil stabilization and replanting of vegetation), asphalt concrete dikes, toe-of-fill ditches, and downdrains/overside drains.
- Caltrans-approved Treatment BMPs will be implemented to the maximum extent practicable consistent with the requirements of the Caltrans Permit and Project Planning and Design Guide. Treatment BMPs include biofiltration swales and gross solid removal devices (GSRDs).

4.2.10 Geology/Soils/Seismic/Topography

The analysis in this section is based on the *Preliminary Geotechnical Report* (2014) prepared for the SR 710 North Study.

4.2.10.1 Resource Study Area

The project study area is used as the RSA for the purpose of this cumulative impacts assessment because impacts related to geology/soils/seismic and/or topography would occur in close proximity to any given project. The study area is bounded by I-210 on the north, I-605 on the east, I-10 on the south, and I-5 and SR 2 on the west. The study area includes portions of the cities and communities of Alhambra, Arcadia, Commerce, Duarte, El Monte, Glendale, Irwindale, La Cañada Flintridge, Los Angeles, Monrovia, Montebello, Monterey Park, Pasadena, Rosemead, San Gabriel, San Marino, Sierra Madre, South Pasadena, and Temple City.

4.2.10.2 Health and Historical Context

The SR 710 North Study area encompasses portions of the San Gabriel Valley, the southern San Rafael Hills, the Elysian Hills, and the Repetto Hills. These areas are within a transition zone between the northwest-southeast-trending Peninsular Ranges physiographic province to the south and the east-west-trending Transverse Ranges province to the north. Geologic units/formations in the study area are young alluvium, old alluvium, Fernando, Puente (includes Monterey, Modelo, and an unnamed shale), Topanga, and Basement Rocks/Wilson Quartz Diorite. The geologic structure of the area is a result of ongoing compressional geologic forces that have resulted in the uplift of the San Gabriel Mountains and folding of the rocks within the hills present in the SR 710 North Study area. These compressional geologic forces have yielded active, potentially active, and inactive faults across the SR 710 North Study area. The only confirmed active fault identified in the SR 710 North Study area that could produce ground rupture is the Raymond fault. The Raymond fault crosses the BRT, LRT, and Freeway Tunnel Alternatives and is considered to be the most substantial fault with regard to the potential for causing surface rupture in the area of the Build Alternatives. In addition, two potentially active faults are present in the study area, the Eagle Rock and San Rafael faults. For the purposes of this study, it is assumed that the Eagle Rock and San Rafael faults are also active. Strong ground shaking is expected in the SR 710 North Study area as the accumulated strain on these and other regional faults is released.

4.2.10.3 Project Impacts

TSM/TDM Alternative

The TSM/TDM improvements are situated primarily within alluvial soils. Areas underlain by artificial fill soils are to be anticipated locally within some of the TSM/TDM Alternative improvements.

TSM/TDM Alternative improvements are not expected to be adversely affected by these conditions because they are the same soil and rock types supporting existing similar developments. Considering the proposed improvements associated with the TSM/TDM Alternative, the primary geologic hazards that could affect the TSM/TDM Alternative include seismic shaking, liquefaction, groundwater, and expansive and compressible soils. The TSM/TDM Alternative improvements would be designed and constructed in accordance with applicable Caltrans and local (city and County) standards to account for the geologic hazards.

BRT Alternative

The entire extent of the BRT Alternative is situated within alluvial soils. Areas underlain by artificial fill soils are to be anticipated locally along the BRT Alternative. BRT Alternative development is not expected to be adversely affected by these conditions, as they are the same soil and rock types supporting existing transit systems. Considering the proposed improvements associated with the BRT Alternative, the primary geologic hazards that could affect the BRT Alternative include seismic shaking, liquefaction, groundwater, and expansive and compressible soils. The BRT Alternative would be designed and constructed in accordance with Metro BRT and Caltrans design criteria.

LRT Alternative

The LRT Alternative is underlain by a variety of geologic units, including artificial fill soils, alluvial soils, and sedimentary bedrock (Fernando, Puente, and Topanga Formations). Considering the proposed improvements associated with the LRT Alternative, the primary geologic hazards that could affect the LRT Alternative include fault-induced ground rupture, seismic shaking, liquefaction, soil and bedrock variability, slope instability, and groundwater. The LRT Alternative crosses one active fault (the Raymond fault) and one potentially active fault (the San Rafael fault). Additionally, the Upper Elysian Park Blind Thrust fault-generated Coyote Pass escarpment transects the elevated portion of the LRT Alternative in the vicinity of Corporate Center Drive and Corporate Center Place, just east of I-710 in the City of Monterey Park.

Unconsolidated and/or water-saturated alluvial soil deposits would likely be encountered in excavations for the portal and along portions of the LRT tunnel. Open excavation and tunneling in unconsolidated and/or saturated alluvium have the potential for high groundwater inflows, flowing ground conditions, loss of ground outside the excavation, and settlement of the ground surface. Tunneling methods are available to handle saturated alluvium conditions and groundwater inflows. To control settlement, ground loss would be actively controlled at the tunnel face so that ground surface settlement is minimized. For preliminary design, Caltrans standard walls and mechanically stabilized earth (MSE) walls can be considered to support the proposed structures. At locations where ROW is limited, a slurry wall or soldier pile wall can be considered. A soil nail or tieback wall may be considered if a retaining wall supports a relatively high cut slope.

Freeway Tunnel Alternative

The Freeway Tunnel Alternative is underlain by a variety of geologic units, including artificial fill soils, alluvial soils, sedimentary bedrock (Fernando, Puente, and Topanga Formations), and igneous and metamorphic bedrock (Wilson Quartz Diorite). The Freeway Tunnel Alternative crosses one active fault (the Raymond fault) and two potentially active faults (the Eagle Rock and San Rafael faults). Considering the proposed improvements associated with the Freeway Tunnel Alternative, the primary geologic hazards that could affect the Alternative include fault-induced ground rupture,

seismic shaking, soil and bedrock variability, and groundwater. To support the deep excavation required for the tunnels, slurry walls with tiebacks are conceptually proposed. For preliminary design, Caltrans standard walls and MSE walls can be considered as potential retaining wall types. At the locations where ROW is limited, a slurry wall or soldier pile wall can be considered. A soil nail or tieback wall may be considered if a retaining wall supports a relatively high cut slope.

4.2.10.4 Reasonably Foreseeable Actions and Their Impacts

The reasonably foreseeable actions would occur in the areas that are planned for development or redevelopment. The reasonably foreseeable actions are listed in Table 3.1 and shown on Figure 3-1. Table 4.15 shows projects with particular relevance to geology/soils/seismicity/topography as well as their impacts.

4.2.10.5 Cumulative Impact

As shown in Table 4.15, the cumulative projects, which are all required to comply with regulations, agency permits, and BMPs, would have a less than adverse impact related to geology/soils/ seismicity and/or topography. Additionally, as described in Section 4.2.10.3, the primary geologic hazards that could affect the Build Alternatives include seismic shaking, liquefaction, groundwater, and expansive and compressible soils. However, these improvements would be designed and constructed in accordance with applicable Caltrans, Metro, and/or local (city and county) standards to account for the geologic hazards. Therefore, the SR 710 North Study, in combination with the cumulative projects listed in Table 4.15, would not contribute to cumulative impacts related to geologic hazards.

4.2.10.6 Avoidance, Minimization, and/or Mitigation Measures

As no impacts would occur related to geologic hazards, no avoidance, minimization, and/or mitigation measures are necessary.

4.2.11 Paleontological Resources

The analysis in this section is based on the *Paleontological Identification and Evaluation Report* (PIR/PER) (2014) prepared for the project.

4.2.11.1 Resource Study Area

The area studied in the PIR/PER for each Build Alternative included all areas in the Alternative's alignment where project activities will occur. However, cumulative impacts to paleontological resources may reach beyond this area; therefore, the RSA for the purpose of the paleontological resources cumulative impacts analysis is the study area. The study area is bounded by I-210 on the north, I-605 on the east, I-10 on the south, and I-5 and SR 2 on the west. The study area includes portions of the cities and communities of Alhambra, Arcadia, Commerce, Duarte, El Monte, Glendale, Irwindale, La Cañada Flintridge, Los Angeles, Monrovia, Montebello, Monterey Park, Pasadena, Rosemead, San Gabriel, San Marino, Sierra Madre, South Pasadena, and Temple City.

TABLE 4.15:
Reasonably Foreseeable Actions – Geology/Soils/Seismic/Topography

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
I-10 HOT Lanes	○	8	All (within RSA)	This project was completed in 2013 and was determined to have low to very low geologic risk. Caltrans standards meet or exceed all seismic standards. Therefore, this project would not contribute to impacts related to geology/soils/seismicity and/or topography.
San Gabriel Trench Grade Separation	○	11	All (within RSA)	Excavation activities associated with this project could result in the potential for soil to be exposed and eroded. During construction the potential exists for the release of fugitive dust, resulting in a temporary loss of topsoil. However, this loss would not be considered substantial with the implementation of BMPs required as part of the NPDES permit. Although this project is not located in a known fault zone, there is still a potential for fault rupture due to active and/or potentially active faults within 10 mi of this project. The implementation of all applicable engineering and design specifications, and compliance with applicable building codes and current engineering practices would ensure that impacts would be minimal. This project is not located within a designated liquefaction zone, and the construction of this project is not anticipated to be subjected to liquefaction. Additionally, no impacts related to landslides are anticipated because this project is located on flat terrain and is not in close proximity to any hillside areas.
Rosemead Boulevard Safety Enhancement & Beautification	○	12	All (within RSA)	This project site is not listed within an Alquist-Priolo Earthquake Fault Zone. No active faults are known to transect the site; therefore, the site is not expected to be adversely affected by surface rupturing. No fault rupture is delineated by the Alquist-Priolo Earthquake Fault Zone Map and no hazard is anticipated at the project site; therefore, no impact would occur. However, the project site is located in a seismically active region and may be subject to the effects of ground shaking. Measures to minimize the risk of loss, injury, and death from the effects of earthquakes and groundshaking on buildings are included within the CBC, with specific provisions for seismic design. Therefore, because construction of the proposed project is required to comply with all existing standards of the CBC, impacts related to groundshaking would be considered less than significant under CEQA. The potential for liquefaction hazards along the alignment is considered low. Because construction of the proposed project is in a relatively level area, no impact as a result of landslides or soil erosion would occur.
San Fernando Road Widening Between Elm Street and Eagle Rock Boulevard	○	14	All (within RSA)	This project was completed in 2012. The project site is not located within an Alquist-Priolo Earthquake Fault Rupture Zone; therefore, the potential for exposure of people or structures to hazards due to ground surface rupture is considered low. As such, no impact would occur. Implementation of this project would not create any new impacts related to liquefaction beyond those that already exist. Therefore, under CEQA, a less than significant impact related to liquefaction would occur. Additionally, landslides are not expected to occur. The overall soils in the general vicinity of the project site do not contain highly expansive soils.

TABLE 4.15:
Reasonably Foreseeable Actions – Geology/Soils/Seismic/Topography

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Riverside Drive Bridge and Grade Separation Replacement	○	15	All (within RSA)	This project would be designed to meet current requirements of the City of Los Angeles and Caltrans Seismic Design. This design would enhance the level of seismic safety to the existing crossing. The project would not increase the risk of exposing people or structures to potential substantial adverse effects beyond the existing level. The seismic hazard map for the Los Angeles quadrangle indicates that the area bounding the site on the west is susceptible to landsliding during earthquakes. The steep slopes of the Elysian Hills, which are located west of the project site, may also be susceptible to gravity-induced landsliding. However, this project does not involve excavation in or near the hillside previously involved in landslide occurrences and is, therefore, not expected to increase the risk exposure of people or structures to potential landslides beyond the existing level. Implementation of BMPs would minimize impacts of soil erosion and soil loss to a less than significant effect under CEQA.
Regional Connector Transit Corridor	○	17	All (within RSA)	This project would have the potential for adverse impacts with respect to liquefaction, seismically induced settlement, ground loss due to tunneling, and hazardous materials. Mitigation would be required to reduce the severity of these impacts to a less than adverse level.
Eastside Transit Corridor Phase 2 – Metro Gold Line Eastside Extension	○	18	All (within RSA)	This project is not anticipated to have substantial adverse impacts after minimization and/or mitigation with respect to liquefaction, landslides, seismically induced settlement or hazards, soil erosion, or loss of topsoil.
Metro Gold Line Foothill Extension	○	19	All (within RSA)	Under NEPA/CEQA, this project would have less than adverse/less than significant effects related to geology/seismicity. Compliance with regulations, required agency permits, and BMPs would reduce potential impacts below thresholds of significance.
Gold Line Transit Plaza	○	22	All (within RSA)	Under NEPA/CEQA, this project would have less than adverse/less than significant effects related to geology/seismicity. Compliance with regulations, required agency permits, and BMPs would reduce potential impacts below thresholds of significance.
Station Square Transit Village	○	23	All (within RSA)	Under NEPA/CEQA, this project would have less than adverse/less than significant effects related to geology/seismicity. Compliance with regulations, required agency permits, and BMPs would reduce potential impacts below thresholds of significance.
Alhambra Bicycle Master Plan	○	24	All (within RSA)	It is anticipated that this project would have a less than significant effect related to geology/seismicity under CEQA.
Lincoln Avenue Specific Plan	○	25	All (within RSA)	Under CEQA, this project would have a less than significant effect related to geology/seismicity. Compliance with regulations, required agency permits, and BMPs would reduce potential impacts below thresholds of significance.
Crown City Medical Center	○	26	All (within RSA)	Under CEQA, this project would have a less than significant effect related to geology/seismicity. Compliance with regulations, required agency permits, and BMPs would reduce potential impacts below thresholds of significance under CEQA.

TABLE 4.15:
Reasonably Foreseeable Actions – Geology/Soils/Seismic/Topography

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
16 East California Project	○	27	All (within RSA)	Under CEQA, this project would have a less than significant effect related to geology/seismicity. Compliance with regulations, required agency permits, and BMPs would reduce potential impacts below thresholds of significance.
Magellan Gateway Project	○	28	All (within RSA)	This project was completed in 2012 and, under CEQA, was found to have a less than significant effect related to geology/seismicity. Compliance with regulations, required agency permits, and BMPs would reduce potential impacts below thresholds of significance under CEQA.
Huntington Memorial Hospital Master Development Plan Amendment	○	31	All (within RSA)	Under CEQA, this project would have a less than significant effect related to geology/seismicity. Compliance with regulations, required agency permits, and BMPs would reduce potential impacts below thresholds of significance under CEQA.
Devil's Gate Reservoir Sediment Removal and Management Project	○	32	All (within RSA)	As stated in the EIR, this project would not have a significant impact under CEQA related to geology/seismicity.
Garfield Reservoir Replacement Project	○	33	All (within RSA)	It is anticipated that this project would not have an impact on geology/seismicity because it redevelops an existing site.
100 West Walnut Planned Development	○	36	All (within RSA)	While the project site does fall within the seismically active region of Southern California, according to the Safety Element of the City's General Plan, the project site is not located on or adjacent to any of these potential fault rupture zones and does not lie within a designated Alquist-Priolo Earthquake Fault Zone. Additionally, modern engineering practices and compliance with established building standards, including the California Building Code, will reduce impacts to a less than significant level under CEQA.
Hill and Colorado Project	○	37	All (within RSA)	While the project site does fall within the seismically active region of Southern California, according to the Safety Element of the City's General Plan, the project site is not located on or adjacent to any of these potential fault rupture zones and does not lie within a designated Alquist-Priolo Earthquake Fault Zone. Additionally, there are no significant impacts under CEQA related to the project site geology that could create substantial risks to life or property on or surrounding the project area.
Green Hotel Apartments Project	○	38	All (within RSA)	The EIR prepared for this project concluded there would be no impacts to geology/seismicity.

TABLE 4.15:
Reasonably Foreseeable Actions – Geology/Soils/Seismic/Topography

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Reuse of the Desiderio Army Reserve Center	○	39	All (within RSA)	The EIR prepared for this project concluded there would be no impacts to geology/seismicity.

[1] See Table 3.1 for the list of references for each project.
[2] The hollow bullet (○) indicates projects that would either have no impact to land use, or would not have an impact after typical avoidance, minimization and/or mitigation measures are incorporated.
[3] The solid bullet (●) indicates projects that either still have an adverse impact after mitigation or require extraordinary mitigation measures and therefore are included in the analysis for this subject area.
BMPs = best management practices
Caltrans = California Department of Transportation
CBC = California Building Code
EIR = Environmental Impact Report
HOT = High-Occupancy Toll
I-10 = Interstate 10
Metro = Los Angeles County Metropolitan Transportation Authority
mi = mile/miles
NEPA = National Environmental Policy Act
NPDES = National Pollutant Discharge Elimination System
RSA = Resource Study Area

4.2.11.2 Health and Historical Context

The project is located in the transition zone between the northern Peninsular Ranges Geomorphic Province and the south-central portion of the Transverse Ranges Geomorphic Province of Southern California. The Peninsular Ranges Geomorphic Province is a 900 mi long northwest-southeast-trending structural block that extends from the Transverse Ranges in the north to the tip of Baja California in the south and includes the Los Angeles Basin. This province is characterized by mountains and valleys that trend in a northwest-southeast direction, roughly parallel to the San Andreas fault. The total width of the province is approximately 225 mi, extending from the Colorado Desert in the east across the continental shelf to the Southern Channel Islands (i.e., Santa Barbara, San Nicolas, Santa Catalina, and San Clemente). It contains extensive pre-Cretaceous (more than 145 million years ago [Ma]) and Cretaceous (145 to 65 Ma) igneous and metamorphic rock covered by limited exposures of post-Cretaceous (less than 65 Ma) sedimentary deposits. The Transverse Ranges Geomorphic Province is characterized by steep mountains and valleys that trend in an east-west direction at an oblique angle to the northwest-southeast trend of the California coast (Norris and Webb 1976), hence the name “Transverse.” This type of trend is extremely rare elsewhere in the United States. Compression along the San Andreas fault is squeezing and rotating the Transverse Ranges, making this area one of the most rapidly rising regions on earth (California Geological Survey 2002). Tectonic activity in this province has also folded and faulted thick sequences of Cenozoic organic-rich sedimentary rocks, making the area an important source for oil.

Within this larger region, the project borders the western edge of the San Gabriel Valley, running from north to south along the San Rafael Hills and through the Repetto Hills. These low-lying hills rise out of the Los Angeles Basin, separating the San Gabriel Valley from the rest of the Basin. They contain exposures of marine sedimentary rocks that were deposited in the ancient Los Angeles Basin approximately 16 to 2.6 Ma. Combined, these deposits have a maximum thickness of 20,000 ft; however, because they have been uplifted, folded, faulted, and partially eroded, the thickness and amount of exposure of each unit varies throughout the region. It is from these sedimentary rocks that most of the petroleum in the Los Angeles Basin has been produced, and for this reason, oil wells have been drilled throughout the San Rafael and Repetto Hills. Also present within the project area are sediments that eroded from the San Rafael Hills, Repetto Hills, and San Gabriel Mountains. These deposits accumulated in the valleys and range from approximately 800,000 to 10,000 years ago.

There are eight geologic units within the project areas for the TSM/TDM, BRT, LRT, and Freeway Tunnel Alternatives: Holocene Alluvial Fan Deposits, Young Alluvial Fan Deposits, Young Alluvium, Old Alluvial Fan Deposits, Old Alluvium, the Fernando Formation, the Puente Formation, and the Topanga Group. In addition to these native deposits, there are areas of Artificial Fill that were placed during construction of interstates, freeways, and other roads. Artificial Fill does not have the potential to contain scientifically significant paleontological resources because of its disturbed context. The Holocene Alluvial Fan Deposits are too young to produce fossils that would be considered scientifically important. Both of these geologic units have no paleontological sensitivity; however, their thickness is variable and they may overlie other deposits that could contain scientifically important fossils. Although there are no known fossil localities within the boundaries of the project areas, paleontological resources have been recovered near the project areas and elsewhere in the region from the same or similar deposits as the Young Alluvial Fan Deposits, Young Alluvium, Old Alluvial Fan Deposits, Old Alluvium, the Fernando Formation, the Puente Formation, and the Topanga Group. These deposits have high paleontological sensitivity based on their age,

composition, and depositional environment as well as the scientifically significant fossil remains they have produced in other areas. The Young Alluvial Fan Deposits and Young Alluvium may contain scientifically significant fossils in their older sediments and are therefore considered to have low sensitivity from the surface to a depth of 10 ft and high sensitivity below that mark.

4.2.11.3 Project Impacts

TSM/TDM Alternative

Many of the improvements included in the TSM/TDM Alternative listed in Tables 1.2 and 1.3 (e.g., video detection systems, enhanced bus service, and bike routes) do not involve ground disturbance. However, other improvements (e.g., the installation of changeable message signs [CMS] and additional bus stops, and local street and intersection improvements) may require ground disturbance for their implementation. Therefore, the TSM/TDM Alternative has the potential to encounter paleontologically sensitive sediments and may impact nonrenewable paleontological resources.

BRT Alternative

The BRT Alternative will require minimal ground disturbance that is mainly concentrated in existing ROW. These improvements include widening roadways and sidewalks, modifications to the SR 710/ SR 60 interchange, and installation of ancillary structures (e.g., traffic signs, power poles, and small retaining walls). The construction of bus shelters, 31 of which are planned along the route, involves deeper excavation. Anticipated ground disturbance for their installation involves a 3 ft diameter drilled shaft that may extend up to 20 ft below the original ground surface. Therefore, the BRT Alternative has the potential to encounter paleontologically sensitive sediments and may impact nonrenewable paleontological resources.

LRT Alternative

The LRT Alternative will consist of three general categories of construction based on the methods, equipment, and section of the alignment: (1) the bored tunnel section, (2) the aerial section, and (3) the rail stations, the cut-and-cover tunnel at the south portal, and other improvements. The depth of excavation for each of these improvements will depend on more detailed geotechnical studies and design plans that will be prepared if the LRT Alternative is selected. Therefore, the LRT Alternative has the potential to encounter paleontologically sensitive sediments and may impact nonrenewable paleontological resources.

Freeway Tunnel Alternative

Excavation and ground disturbance for the Freeway Tunnel Alternative are also grouped into three categories based on the methods, equipment, and section of the alignment, including: (1) the central bored tunnel section, (2) cut-and-cover tunnels at the north and south portals, and (3) other modifications. The depth of excavation would range from 0 to 160 ft below the surface. Therefore, the Freeway Tunnel Alternative has the potential to encounter paleontologically sensitive sediments and may impact nonrenewable paleontological resources.

4.2.11.4 Reasonably Foreseeable Actions and Their Impacts

The reasonably foreseeable actions would occur in the areas that are planned for development or redevelopment. The reasonably foreseeable actions are listed in Table 3.1 and shown on Figure 3-1. Table 4.16 shows projects with particular relevance to paleontological resources as well as their paleontological impacts.

4.2.11.5 Cumulative Impact

Build Alternatives

As stated above in Sections 4.2.11.3 and 4.2.11.4, the Build Alternatives as well as 14 cumulative projects have the potential to encounter paleontologically sensitive sediments and may impact scientifically significant, nonrenewable paleontological resources. However, all of these projects, including the SR 710 North Study, will include a Paleontological Mitigation Plan (PMP), which includes measures such as preconstruction field surveys, full-time monitoring by a qualified paleontologist, and the recovery, identification, and appropriate storage of any paleontological resources found. Because these cumulative projects include this requirement, the cumulative projects' contribution to cumulative paleontological impacts would not be considerable.

4.2.11.6 Avoidance, Minimization, and/or Mitigation Measures

Each cumulative project is subject to the requirements of federal and/or State environmental laws for protection of paleontological resources. In addition, Caltrans has developed a set of guidelines similar to those of the Society of Vertebrate Paleontology for preparation of a PMP to reduce impacts to paleontological resources. As stated above, the cumulative projects subject to Caltrans oversight will be required to follow a PMP. For those cumulative projects that are not subject to Caltrans oversight, similar measures to those contained in the PMP will be implemented. For those projects in the RSA in which environmental documents are not available, similar measures would be required to comply with CEQA.

4.2.12 Hazardous Waste

The analysis in this section is based on the *Initial Site Assessment* (ISA) (2014) prepared for the SR 710 North Study.

4.2.12.1 Resource Study Area

The RSA for the purpose of the hazardous waste cumulative impacts analysis is the study area. The study area is bounded by I-210 on the north, I-605 on the east, I-10 on the south, and I-5 and SR 2 on the west. The study area includes portions of the cities and communities of Alhambra, Arcadia, Commerce, Duarte, El Monte, Glendale, Irwindale, La Cañada Flintridge, Los Angeles, Monrovia, Montebello, Monterey Park, Pasadena, Rosemead, San Gabriel, San Marino, Sierra Madre, South Pasadena, and Temple City.

4.2.12.2 Health and Historical Context

The study area primarily consists of the western San Gabriel Valley, the southernmost San Rafael Hills, the Repetto Hills, and the northern portion of the Central Basin between the Repetto Hills and the Merced Hills. The San Gabriel Valley includes two groundwater basins: the Raymond Basin, which is in the northwest portion of the San Gabriel Valley; and the San Gabriel Basin, which

TABLE 4.16:
Reasonably Foreseeable Actions – Paleontological Resources

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
I-10 HOT Lanes	○	8	All (within RSA)	No impact because the project would not encounter native soil.
San Gabriel Trench Grade Separation	●	11	All (within RSA)	Surficial and/or very shallow excavations within Quaternary younger alluvial deposits are unlikely to result in adverse impacts to significant paleontological resources; however, deeper excavations into this unit and any excavations within previously undisturbed Quaternary older alluvial deposits may have an adverse impact to paleontological resources.
Rosemead Boulevard Safety Enhancement & Beautification	●	12	All (within RSA)	Since the site has been graded and developed before, and paleontological resources are generally at deeper excavation levels, this project is not expected to impact paleontological resources. Nonetheless, construction activities associated with project implementation could unearth undocumented resources and result in a potentially significant impact under CEQA.
San Fernando Road Widening Between Elm Street and Eagle Rock Boulevard	●	14	All (within RSA)	No impact on paleontological resources would occur as a result of this project. However, in accordance with standard City procedures, a halt-work condition would be in place in the unlikely event that paleontological resources are discovered during construction.
Riverside Drive Bridge and Grade Separation Replacement	○	15	All (within RSA)	This project is located in an entirely built environment. Construction activities pertaining to this project would not extend into previously undisturbed soil. No paleontological or unique geologic features would likely be impacted.
Regional Connector Transit Corridor	●	17	All (within RSA)	This project has the potential to impact paleontological resources.
Eastside Transit Corridor Phase 2 – Metro Gold Line Eastside Extension	●	18	All (within RSA)	This project is anticipated to have the potential to impact paleontological resources due to grading and excavation activities.
Metro Gold Line Foothill Extension	●	19	All (within RSA)	Construction of the Build Alternatives for this project will result in ground-disturbing activities. Although no paleontological resources have been recorded in this project's ROW, paleontological resources may be encountered during deep excavations.
Gold Line Transit Plaza	●	22	All (within RSA)	This project is anticipated to have the potential to impact paleontological resources due to grading and excavation activities.
Station Square Transit Village	●	23	All (within RSA)	This project is anticipated to have the potential to impact paleontological resources due to grading and excavation activities.
Alhambra Bicycle Master Plan	○	24	All (within RSA)	This plan provides a vision to improve conditions for bicycling throughout Alhambra and to create local and regional connectivity. This project will not involve ground-disturbing activities and therefore will not result in paleontological impacts.
Lincoln Avenue Specific Plan	●	25	All (within RSA)	This project is anticipated to have the potential to impact paleontological resources due to grading and excavation activities.
Crown City Medical Center	●	26	All (within RSA)	This project is anticipated to have the potential to impact paleontological resources due to grading and excavation activities.
16 East California Project	●	27	All (within RSA)	This project is anticipated to have the potential to impact paleontological resources due to grading and excavation activities.

TABLE 4.16:
Reasonably Foreseeable Actions – Paleontological Resources

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Magellan Gateway Project	○	28	All (within RSA)	The site of this project has been previously disturbed. No archaeological or paleontological resources are known to occur on site and, due to the level of past disturbance, it is not anticipated that archaeological or paleontological resource sites exist within the project area.
El Monte Walmart	●	29	All within RSA	The site of this project has been previously disturbed. However, it is possible to encounter previously undiscovered paleontological resources during excavation.
Huntington Memorial Hospital Master Development Plan Amendment	●	31	All (within RSA)	The site of this project has been previously disturbed through grading and development. However, a paleontological resources records search revealed the identification of fossil specimens of turkey (*Parapavo californicus*) and mammoth (*Mammuthus*) nearby at depths of 14 ft below the surface in similar deposits that underlie the site. This demonstrates that significant fossils have been unearthed in a heavily urbanized nearby area and suggests that excavations into the older Quaternary Alluvium deposits within the site are likely to contain significant vertebrate fossils at depths of 14 ft below the surface. Therefore, construction of this project (i.e., primarily excavation associated with the underground parking garage) has the potential to result in adverse impacts associated with the permanent loss of, or loss of access to, a paleontological resource.
Garfield Reservoir Replacement Project	○	33	All (within RSA)	The site of this project has been previously disturbed. Due to the level of past disturbance and that the project proposes to replace an existing reservoir, it is not anticipated that archaeological or paleontological resource sites exist within the project area.
Arroyo Seco Pedestrian and Bicycle Trail	○	34	All (within RSA)	The site of this project has been previously disturbed. Due to the level of past disturbance and that the project proposes to replace an existing reservoir, it is not anticipated that archaeological or paleontological resource sites exist within the project area.
Olson San Gabriel Residential Community Project	●	35	All (within RSA)	The project site is located in an area identified as having a "high sensitivity" for paleontological resources. Therefore, construction of this project has the potential to result in significant impacts to nonrenewable paleontological resources.
100 West Walnut Planned Development	●	36	All (within RSA)	This project would require excavation related to the underground parking associated with the project. As such, there is the potential for project construction to result in impacts to unknown and previously unidentified paleontological resources.
Hill and Colorado Project	○	37	All (within RSA)	This project would require excavation related to the proposed underground parking. However, the project site has been subject to extensive ground disturbance due to previous development of the site and surrounding areas; consequently, any on-site paleontological resources have lost their original stratigraphic/geologic context and would not be considered a unique resource. The proposed project site contains no known or recorded paleontological resources, and the likelihood for unknown paleontological resources is low due to the proposed project site's highly disturbed nature. Therefore, this impact is less than significant under CEQA.
Green Hotel Apartments Project	○	38	All (within RSA)	The site of this project has been previously disturbed. Due to the level of past disturbance and that the project is proposed on an existing parking lot, it is not anticipated that archaeological or paleontological resource sites exist within the project area.

TABLE 4.16:
Reasonably Foreseeable Actions – Paleontological Resources

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Reuse of the Desiderio Army Reserve Center	○	39	All (within RSA)	This project would not directly or indirectly destroy a unique paleontological or archaeological resource site or unique geologic feature with implementation of standard mitigation measures during construction.

[1] See Table 3.1 for the list of references for each project.
[2] The hollow bullet (○) indicates projects that would either have no impact to land use, or would not have an impact after typical avoidance, minimization and/or mitigation measures are incorporated.
[3] The solid bullet (●) indicates projects that either still have an adverse impact after mitigation or require extraordinary mitigation measures and therefore are included in the analysis for this subject area.
CEQA = California Environmental Quality Act
ft = foot/feet
HOT = High-Occupancy Toll
I-10 = Interstate 10
Metro = Los Angeles County Metropolitan Transportation Authority
ROW = right of way
RSA = Resource Study Area

encompasses the rest of the San Gabriel Valley. These areas are in the transition zone between the northwest-southeast-trending Peninsular Ranges physiographic/geological province to the south and the east-west-trending Transverse Ranges province to the north.

Major drainages in the study area are the Los Angeles River in the western portion and the Rio Hondo and San Gabriel Rivers in the San Gabriel Valley portion to the east. Smaller intermittent drainages (from west to east) are the Alhambra/San Pasqual Wash, Rubio Wash, Eaton Wash, Arcadia Wash, and Santa Anita Wash in the western and central parts of the San Gabriel Valley. There are numerous southwest-northeast-trending dry drainages in the Repetto Hills that are remnants (i.e., antecedent drainages) of a drainage system that was active during the wetter periods of the Pleistocene geologic epoch (more than 20,000 years ago).

The study area is located mostly across three alluvial groundwater basins in the South Coast Hydrologic Region, which are (from north to south): the Raymond Basin, the San Gabriel Basin, and the Central Basin. These basins are separated by bedrock upland areas and/or faults. The bedrock upland areas within the study area are generally considered to be non-water bearing. However, perched groundwater may be present locally within faulted and/or fractured zones.

Land uses within the study area can be described as a mix of residential, commercial, and industrial.

More than 1,000 known sites with environmental impacts were identified within a 1 mi radius of the SR 710 North Study. Many of these sites were eliminated as posing an environmental threat due to the extent/intensity of their environmental impact, the media of impact (soil, soil vapor, and/or groundwater), or existing environmental regulatory case status. Based on the available information, six sites were determined to potentially pose an environmental impact.

4.2.12.3 Project Impacts

The following six sites were identified with hazardous waste concerns that could potentially impact the Build Alternatives:

Facility	Address	Media Affected	Build Alternative Affected
1. Former Circle K Stores (currently a Chase Bank)	1000 West Valley Boulevard, Alhambra	Soil	BRT
2. Fashion Master Cleaners	1433 Huntington Drive, South Pasadena	Soil Vapor, Groundwater	TSM/TDM BRT LRT (I-10)
3. Railroad ROW	North of Valley Boulevard and SR 710 and immediately south of Mission Road	Soil	TSM/TDM (Other Road Improvement T-1)
4. Elite Cleaners	1310 Fair Oaks Avenue, South Pasadena	Soil Vapor, Groundwater	BRT LRT
5. Blanchard Landfill	4531 East Blanchard Street, Monterey Park	Soil Vapor	LRT
6. Mercury Die/Mission Corrugated	3201 West Mission Road, Alhambra	Soil Vapor	TSM/TDM (Other Road Improvement T-1) LRT Freeway Tunnel

BRT = Bus Rapid Transit
LRT = Light Rail Transit
ROW = right of way
SR 710 = State Route 710
TDM = Transportation Demand Management
TSM = Transportation System Management

Because the six sites listed above could potentially impact the SR 710 North Study Build Alternatives, a Phase II investigation for off-site soil and groundwater impacts would be conducted prior to any construction activities. Additionally, because part of the study area includes freeways that have historically been in existence, there is a high potential for encountering aerially deposited lead (ADL) associated with exhaust from former lead-gas combustion motor vehicles along the sides of these older freeways. Therefore, prior to construction activities, an ADL investigation must be conducted along these areas. This investigation could be conducted during the recommended Phase II investigation. If a potential ADL impact is present within these areas, the Caltrans ADL guidance document should be followed to determine whether soil disturbed or excavated from these locations during construction can be reused or whether the soil needs to be environmentally managed and disposed as waste.

Transformers located in areas where construction activities will take place should be removed or relocated. However, prior to this removal, these transformers will need to be tested or investigated to determine whether polychlorinated biphenyls (PCBs) are present. If PCBs are present, proper disposal measures should be adopted according to regulatory requirements.

Yellow traffic markings, thermoplastic, and paint may contain hazardous levels of lead chromate. If present within the project limits on SR 710, these materials should be identified, characterized, and disposed of at a Class I or II disposal facility according to Caltrans and California regulatory requirements.

In addition, prior to the demolition of buildings, the presence of PCBs, asbestos, lead-based paints, mercury, and equipment containing chlorofluorocarbons (CFCs) should be surveyed and sampled for proper disposal, if necessary.

Some areas of the Build Alternatives fall within the footprint of the United States Environmental Protection Agency (EPA) Area 3 Superfund site. EPA's final remedial investigation report indicates that none of the Build Alternatives are in the concentrated contaminant plume areas shown in the report; however, the Build Alternatives are adjacent to the plume areas. Therefore, during construction activities, impacted groundwater could be encountered, and dewatering measures may have to be implemented. If dewatering is needed, proper storage, handling, and disposal of extracted groundwater should be planned and adopted.

4.2.12.4 Reasonably Foreseeable Actions and Their Impacts

The reasonably foreseeable actions would occur in the areas that are planned for development or redevelopment. The reasonably foreseeable actions are listed in Table 3.1 and shown on Figure 3-1. Table 4.17 shows projects with particular relevance to hazardous waste as well as their impacts.

4.2.12.5 Cumulative Impact

As shown in Table 4.17, only one cumulative project, the Eastside Transit Corridor Phase 2 – Metro Gold Line Eastside Extension, would potentially have a substantial impact related to hazardous waste. The Gold Line Eastside Extension is in the initial phases of environmental development, and although it is not known at this time, it is anticipated that any impact related to hazardous waste would be able to be avoided, minimized, and/or mitigated to be less than adverse. All other cumulative projects would implement avoidance, minimization, and/or mitigation measures to ensure a less than adverse impact related to hazardous waste. Additionally, as described in

TABLE 4.17:
Reasonably Foreseeable Actions – Hazardous Waste

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
I-10 HOT Lanes	○	8	All (within RSA)	This project was completed in 2013. The only impacts identified were temporary during construction and were related to the removal of yellow thermoplastic paint and the potential for disturbed soil to contain ADL. Additionally, operation of this facility would not generate hazardous materials or wastes. Therefore, this project would not contribute to impacts related to a cumulative impact related to hazardous waste within the RSA.
San Gabriel Trench Grade Separation	○	11	All (within RSA)	This project site is located within 0.125 mi of hazardous waste sites. As such, the potential for encountering contaminated soils and/or groundwater during project construction, particularly during excavation, exists. Once this project is constructed, operation of the project would not generate hazardous materials or wastes. However, avoidance, minimization, and/or mitigation measures would reduce this impact to less than adverse.
Rosemead Boulevard Safety Enhancement & Beautification	○	12	All (within RSA)	Hazardous materials associated with this project would consist mostly of construction-related equipment and materials. Use and/or storage of hazardous materials at the project site are expected to be minimal and would not constitute a level that would be subject to regulation. Implementation of mitigation measures and adherence to all local, State, and federal regulations would reduce impacts related to the release of hazardous materials into the environment and to ensure that hazardous materials would not pose a substantial risk to the surrounding area, which includes schools. With mitigation, these impacts would be reduced to a less than significant level under CEQA. Additionally, mitigation measures would ensure that in the event that previously unidentified contaminated soils are encountered during project construction, investigation and remediation efforts would be implemented prior to the recommencement of work. Accordingly, impacts would be less than significant with mitigation incorporated under CEQA.
San Fernando Road Widening Between Elm Street and Eagle Rock Boulevard	○	14	All (within RSA)	This project was completed in 2012. Under CEQA, operation of this project would have a less than significant impact related to exposing the public or the environment to hazardous waste. Therefore, this project would not contribute to impacts related to a cumulative impact related to hazardous waste within the RSA.
Riverside Drive Bridge and Grade Separation Replacement	○	15	All (within RSA)	This project would not have an impact related to exposing the public or the environment to hazardous waste.
Regional Connector Transit Corridor	○	17	All (within RSA)	This project would have potential impacts associated with hazardous materials during construction and operation. With mitigation, potential impacts would be less than adverse.
Eastside Transit Corridor Phase 2 – Metro Gold Line Eastside Extension	●	18	All (within RSA)	Hazardous materials are present and remediation efforts are underway at the former Operating Industries Inc./current Superfund site. Construction of the SR 60 LRT Alternative adjacent to the site has the potential to disrupt ongoing remediation efforts.
Metro Gold Line Foothill Extension	○	19	All (within RSA)	Under NEPA/CEQA, this project would have a potentially adverse/potentially significant impact related to hazardous waste. However, mitigation measures implemented during construction in addition to permits and BMPs would reduce impacts to below an adverse level.

TABLE 4.17:
Reasonably Foreseeable Actions – Hazardous Waste

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Gold Line Transit Plaza	○	22	All (within RSA)	Under NEPA/CEQA, it is anticipated that this project would have a potentially adverse/potentially significant impact related to hazardous waste. However, mitigation measures implemented during construction in addition to permits and BMPs would reduce impacts to below an adverse level.
Station Square Transit Village	○	23	All (within RSA)	Under NEPA/CEQA, it is anticipated that this project would have a potentially adverse/potentially significant impact related to hazardous waste. However, mitigation measures implemented during construction in addition to permits and BMPs would reduce impacts to below an adverse level.
Alhambra Bicycle Master Plan	○	24	All (within RSA)	The project design, mitigation measures, and conditions of approval will reduce impacts concerning hazards/hazardous materials to a less than significant level under CEQA.
Lincoln Avenue Specific Plan	○	25	All (within RSA)	Project grading and construction activities involving the demolition of existing buildings could disturb known or potential hazardous materials on site (e.g., asbestos-containing material or lead-based paint). However, with implementation of avoidance, minimization, and/or mitigation measures, this impact would be less than significant under CEQA. Under CEQA, operation of this project would have a less than significant impact related to exposing the public or the environment to hazardous waste.
Crown City Medical Center	○	26	All (within RSA)	Under CEQA, this project would have a less than significant impact related to exposing the public or the environment to hazardous waste.
16 East California Project	○	27	All (within RSA)	Although this project is anticipated to have a temporary construction impact related to hazardous waste, implementation of avoidance, minimization, and/or mitigation measures would reduce this impact to less than adverse. As this project redevelops an existing site, operational impacts related to hazardous waste are anticipated to be less than adverse.
Magellan Gateway Project	○	28	All (within RSA)	This project was completed in 2012. Under CEQA, this project would have a less than significant impact related to hazardous waste.
El Monte Walmart	○	29	All (within RSA)	At this time, it is unknown if the project site is contaminated. Therefore, it is anticipated that some hazardous waste cleanup would be needed prior to construction of this project. However, with implementation of standard avoidance, minimization, and/or mitigation measures, this impact would be reduced to a less than adverse level.
Huntington Memorial Hospital Master Development Plan Amendment	○	31	All (within RSA)	Under CEQA, this project would have a less than significant impact related to exposing humans or the environment to hazardous waste.
Garfield Reservoir Replacement Project	○	33	All (within RSA)	Project grading and construction activities involving demolition of existing buildings/structures could disturb known or potential hazardous materials on site. However, with implementation of avoidance, minimization, and/or mitigation measures, this impact would be less than adverse. Additionally, because this project proposes to replace an existing reservoir, adverse impacts during operation of this project related to hazardous waste are not anticipated.

TABLE 4.17:
Reasonably Foreseeable Actions – Hazardous Waste

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Arroyo Seco Pedestrian and Bicycle Trail	○	34	All (within RSA)	Because this project would be adding a pedestrian and bicycle trail to an existing recreational facility and no grading and/or excavation is needed, it is anticipated that this project would not result in adverse effects related to hazardous waste.
Olson San Gabriel Residential Community Project	○	35	All (within RSA)	Project grading and construction activities involving demolition of existing buildings/structures could disturb known or potential hazardous materials on site. However, with implementation of avoidance, minimization, and/or mitigation measures, this impact would be less than adverse. Additionally, this project is residential in nature; therefore, it does not represent a significant risk regarding hazardous materials. Therefore, potential impacts due to routine transport, use, or disposal of hazardous materials as a result of this project are considered less than significant under CEQA.
100 West Walnut Planned Development	○	36	All (within RSA)	Project grading and construction activities involving demolition of existing buildings/structures could disturb known or potential hazardous materials on site. Additionally, hazards to the public or the environment through the routine use, handling, transport, and storage of hazardous materials could occur. However, with implementation of avoidance, minimization, and/or mitigation measures, this impact would be less than adverse.
Hill and Colorado Project	○	37	All (within RSA)	Project grading and construction activities involving demolition of existing buildings/structures could disturb known or potential hazardous materials on site. However, with implementation of avoidance, minimization, and/or mitigation measures, this impact would be less than adverse. Additionally, operation of uses developed at the project site would generally not involve the routine transport, storage, use or disposal of hazardous materials or substances. Any use of hazardous materials would be limited, and their transportation, storage, and use would be subject to federal, State, and local regulation. Given the potential presence of hydrocarbons and the need to remove subgrade clarifiers and hydraulic lifts as part of this project, there is a potential that hazardous materials exist in the soil at the project site. Removal of this soil from the project site has the potential to result in a significant hazard to the public or environment during excavation and transport off the site, but would be avoided, minimized, and/or mitigated to a less than adverse level.
Green Hotel Apartments Project	○	38	All (within RSA)	Project grading and construction activities involving demolition of existing buildings/structures could disturb known or potential hazardous materials on site. However, with implementation of avoidance, minimization, and/or mitigation measures, this impact would be less than adverse. It is not anticipated that operation of this project would have an adverse effect related to hazardous waste.

TABLE 4.17:
Reasonably Foreseeable Actions – Hazardous Waste

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Reuse of the Desiderio Army Reserve Center	○	39	All (within RSA)	This project would not create a significant (under CEQA) hazard to the public or the environment through the routine transport, use, or disposal of hazardous material.

[1] See Table 3.1 for the list of references for each project.
[2] The hollow bullet (○) indicates projects that would either have no impact to land use, or would not have an impact after typical avoidance, minimization and/or mitigation measures are incorporated.
[3] The solid bullet (●) indicates projects that either still have an adverse impact after mitigation or require extraordinary mitigation measures and therefore are included in the analysis for this subject area.

ADL = aerially deposited lead
BMPs = best management practices
CEQA = California Environmental Quality Act
HOT = High-Occupancy Toll
I-10 = Interstate 10
LRT = Light Rail Transit
Metro = Los Angeles County Metropolitan Transportation Authority
mi = mile/miles
NEPA = National Environmental Policy Act
RSA = Resource Study Area
SR 60 = State Route 60

Section 4.2.12.3, six sites have been identified within the SR 710 North study area to have a potential hazardous waste impact on the project. However, a Phase II investigation would be conducted prior to any construction activities for these sites and would provide appropriate minimization, avoidance, and mitigation measures to prevent unnecessary exposure to contaminants during construction activities. Depending on the results of the Phase II, subsequent sampling to determine the presence and/or absence of contaminated soil and/or groundwater or to characterize the extent of contamination on site may be required. The results of these studies will be used as part of the evaluation of any property to be acquired. Additionally, measures to avoid and or minimize construction-related impacts from the removal of yellow thermoplastic paint and/or soil contaminated with ADL would be implemented. Therefore, the SR 710 North Study, in combination with the cumulative projects listed in Table 4.17, would not contribute to a cumulative impact related to hazardous waste.

4.2.12.6 Avoidance, Minimization, and/or Mitigation Measures

To avoid, minimization, and/or mitigate for potential impacts related to hazardous waste, a Phase II investigation will be conducted for the six identified properties. Additionally, this Phase II investigation, will address appropriate methods for handling and disposal of ADL and yellow thermoplastic paint, if present.

4.2.13 Air Quality

The analysis in this section is based on the *Air Quality Analysis* (2014) prepared for the SR 710 North Study.

4.2.13.1 Resource Study Area

For the purpose of the air quality cumulative impacts analysis, the RSA for air quality impacts includes all areas adjacent to the study area that would be affected by construction emissions and vehicle emissions from operation of the completed project. The RSA includes portions of the cities and communities of Alhambra, Arcadia, Commerce, Duarte, El Monte, Glendale, Irwindale, La Cañada Flintridge, Los Angeles, Monrovia, Montebello, Monterey Park, Pasadena, Rosemead, San Gabriel, San Marino, Sierra Madre, South Pasadena, and Temple City that are adjacent to the study area.

Regionally the RSA also includes a portion of the South Coast Air Basin (Basin) within Los Angeles County. The study area and the other past, present, and future projects considered in the analysis in are located in Los Angeles County, which is within the Basin. A single RSA would not effectively consider the appropriate areas for potential short-term air quality impacts during construction of the SR 710 North Study. Short-term air quality impacts can result from equipment operations as well as from dust generated during grading or travel on unpaved surfaces. An RSA for short-term air quality impacts would focus on a specific area under construction at the time, the roads and intersections in the vicinity of the construction zone, and other projects under construction at the same time in the same area. As a result, an RSA for short-term air quality impacts focuses on areas in proximity to active construction areas for the proposed SR 710 North Study and other nearby cumulative projects under construction at the same time.

4.2.13.2 Health and Historical Context

The RSA is located in a largely urbanized area. The health of the resource changes with emissions levels in the area surrounding the project. Over time, as the RSA has become more urbanized, the air quality in the Basin has been substantially degraded by short- and long-term emissions of pollutants and dust generated by a wide variety of land uses, including agricultural, urban, industrial, and manufacturing uses. However, it should be noted that with implementation of federal and State emission regulations and improvements in stationary and mobile source emission control technology, air quality has improved in the Basin compared to the frequent Stage 2 and Stage 3 smog alerts that occurred in the 1960s and 1970s.

The SR 710 North Study is under the jurisdiction of the SCAQMD. The SCAQMD maintains ambient air quality monitoring stations throughout the Basin. The closest monitoring station to the project area is the South Wilson Avenue Pasadena Station and the next closest station is the North Main Street Los Angeles Station. The following air quality information briefly describes the various types of pollutants monitored within the vicinity of the project study area:

- **Carbon Monoxide (CO):** The Basin is in attainment for the State and in Attainment/Maintenance for the federal CO standards. State and federal standards were not exceeded at either monitoring station between 2010 and 2012.
- **Ozone (O_3):** The Basin is a nonattainment area for both federal and State O_3 standards. The State 1-hour standard was exceeded at both monitoring stations. The State and federal 8-hour standards were exceeded at both monitoring stations.
- **Nitrogen Dioxide (NO_2):** The Basin is in nonattainment for the State and in Attainment/ Maintenance for the federal NO_2 standards. State standards were not exceeded at either monitoring station. The federal 1-hour standard was exceeded at both monitoring stations in 2011.
- **Sulfur Dioxide (SO_2):** The entire Basin is in attainment with both federal and State SO_2 standards. State and federal standards were not exceeded at either monitoring station between 2010 and 2012.
- **Respirable Particulate Matter (PM_{10}):** The Basin is a nonattainment area for State PM_{10} standards and a maintenance/ attainment area for the federal standards. The State 24-hour standard was exceeded at the Los Angeles Station in 2011 and 2012. The federal 24-hour standard was not exceeded between 2010 and 2012. The average annual concentrations exceeded the State standard in each of the past 3 years.
- **Fine Particulate Matter ($PM_{2.5}$):** The Basin is a nonattainment area for both the federal and State $PM_{2.5}$ standards. The federal 24-hour standard was exceeded at both stations. The State annual standard was exceeded in each of the past 3 years at the Los Angles Station. The average annual concentrations did not exceed the federal standard in the past 3 years.
- **Lead:** The Los Angeles County portion of the Basin is in nonattainment for federal and State lead standards.

4.2.13.3 Project Impacts

Compliance with SCAQMD Rule 403 and Caltrans Standard Specifications Sections 14.9-02 and 14-9.03 during construction will reduce construction-related air quality impacts from fugitive dust

emissions and construction equipment emissions. These measures would address public health concerns related to airborne dust (e.g., Valley Fever).

The project is located in Los Angeles County, which is among the counties listed as containing serpentine and ultramafic rock. However, the portion of the County in which the project lies is not known to contain serpentine or ultramafic rock. Therefore, the impact from naturally occurring asbestos (NOA) during project construction would be minimal to none.

The SR 710 North Study will help to improve traffic flow and reduce congestion on roadway links in the project vicinity. The project is located in an attainment/maintenance area for federal CO standards. Using the Caltrans Transportation Project-Level Carbon Monoxide Protocol (Protocol), a screening CO hot-spot analysis was conducted to determine whether the SR 710 North Study would result in any CO hot spots. It was determined that the SR 710 North Study will not result in any exceedances of the 1-hour or 8-hour CO standards.

The SR 710 North Study is within a federal nonattainment area for particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) and within a maintenance area for particulate matter less than 10 microns in diameter (PM_{10}). Therefore, per 40 Code of Federal Regulations (CFR), Part 93, analyses are required for conformity purposes. The TSM/TDM, BRT, and LRT Alternatives, and the No Truck operational variations of the Freeway Tunnel Alternatives single-bore and dual-bore design variations meet the Clean Air Act requirements and 40 CFR 93.116. If any of the three operational variations of the Freeway Tunnel Alternatives single-bore and dual-bore design variations that include truck traffic is identified as the preferred alternative, a revised PM Conformity Hot Spot Analysis form will be submitted for review and concurrence by the Transportation Conformity Working Group (TCWG). A detailed hot-spot analysis may be required in this case. These operational variations include the Freeway Tunnel Alternative without tolls, Freeway Tunnel Alternative with tolls, and Freeway Tunnel Alternative with tolls and express bus.

The SR 710 North Study is required to include an MSAT analysis as part of the NEPA process for highways. The analysis indicates that a substantial decrease in MSAT emissions can be expected between the existing (2012) and future (2020, 2025, and 2035) No Build conditions. This decrease is prevalent throughout the highest priority MSATs and the analyzed alternatives. This decrease is also consistent with the EPA study that projects a substantial reduction in on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde between 2000 and 2050. Based on the analysis for this project, reductions in MSATs expected by 2035 are: 59 percent of diesel PM, 67 percent of benzene, 70 percent of 1,3-butadiene, 24 percent of naphthalene, 46 percent of polycyclic organic matter, 73 percent of acrolein, and 46 percent of formaldehyde. These projected reductions are achieved while total VMTs increase by 11.3 percent between 2012 and 2035. Implementation of the Build Alternatives would result in a slight increase in MSAT emissions within the SR 710 North Study area. However, the increase in MSAT emissions would be negligible. While the Build Alternatives would result in a small increase in localized MSAT emissions, the EPA's vehicle and fuel regulations, coupled with fleet turnover, will cause substantial reductions over time that will cause regionwide MSAT levels to be substantially lower than they are today. It is expected that there would be similar MSAT emissions in the study area under the Build Alternatives relative to the No Build Alternative in the design year.

The SR 710 North Study is included in the SCAG 2012 RTP for Los Angeles County (Project ID: 1M0101). The project is also in the 2013 FTIP, which was found to be conforming by the Federal

Highway Administration (FHWA)/Federal Transit Administration (FTA) on December 14, 2012 (Project ID: 18790). The tolled operational variation of the Freeway Tunnel Alternative dual-bore design variation is consistent with the scope of the design concept of the RTP and FTIP, and therefore, the State Implementation Plan (SIP). Should the TSM/TDM, LRT, or BRT Alternative, the Freeway Tunnel Alternative single-bore design variation, or the non-tolled operational variation of the Freeway Tunnel Alternative dual-bore design variation be selected, the RTP and FTIP would have to be amended.

4.2.13.4 Reasonably Foreseeable Actions and Their Impacts

The reasonably foreseeable actions would occur in the areas that are planned for development or redevelopment. The reasonably foreseeable actions are listed in Table 3.1 and shown on Figure 3-1. Table 4.18 shows projects with particular relevance to air quality as well as their impacts.

4.2.13.5 Cumulative Impact

Temporary (Construction-Related) Impacts

As shown below in Table 4.18, nine of the cumulative projects would have a temporary substantial and unavoidable impact related to air quality during construction. Three of these nine projects (Regional Connector Transit Corridor, Devil's Gate Reservoir Sediment Removal , and 100 West Walnut Planned Development) could be constructed concurrently with the SR 710 North Study. However, as stated in Section 4.2.13.3, compliance with SCAQMD Rule 403 and Caltrans Standard Specifications Sections 14.9-02 and 14-9.03 during construction will reduce the SR 710 North Study's construction-related air quality impacts from fugitive dust emissions and construction equipment emissions. Therefore, the SR 710 North Study, in combination with these projects, would not contribute to a cumulative air quality impact.

Permanent (Operational) Impacts

As shown below in Table 4.18, seven of the cumulative projects would contribute to a permanent adverse air quality impact in the RSA. For the SR 710 North Study, implementation of the proposed Build Alternatives would result in a slight increase in MSAT emissions within the SR 710 North Study area. However, the increase in MSAT emissions under the Build Alternatives would be negligible. While the Build Alternatives would result in a small increase in localized MSAT emissions, the EPA's vehicle and fuel regulations, coupled with fleet turnover, will cause substantial reductions over time that will cause regionwide MSAT levels to be substantially lower than they are today.

4.2.13.6 Avoidance, Minimization, and/or Mitigation Measures

The following required regulatory measures would reduce or minimize air pollutant emissions associated with construction activities:

- The Construction Contractor will adhere to the requirements of SCAQMD rules and regulations on cutback and emulsified asphalt paving materials.
- To reduce fugitive dust emissions, the Construction Contractor will adhere to the requirements of SCAQMD Rule 403. The best available control measures specified in SCAQMD Rule 403 will be incorporated into the project construction.
- The Construction Contractor will utilize electric or alternative-fuel-powered equipment in lieu of gasoline or diesel-powered engines where feasible.

TABLE 4.18:
Reasonably Foreseeable Actions – Air Quality

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
I-710 South Corridor Project	●	1	All (within RSA)	The I-710 South Corridor Project Build Alternatives would improve air quality and reduce public health risk in the South Coast Air Basin and the I-710 Area of Impact AOI. Along I-710, air quality will be improved and public health risk will be reduced at most locations, but there are some near-roadway locations where there will be an increase in emissions and an increase in cancer risk. Alternatives 6B and 6C have the fewest areas with these near-roadway impacts. The near-roadway impacts are generated by the on-road vehicles, the emissions of which are controlled by the ARB and EPA. There are no feasible mitigation measures to reduce these localized near-roadway impacts; therefore, these localized near-roadway impacts would be unavoidable adverse impacts. However, Caltrans will provide funding for four new air quality monitoring stations within the I-710 South Corridor.
I-5 Corridor Improvement Project (I-605 to I-710)	○	2	All (within RSA)	The project is anticipated to have short-term construction impacts. Because this project increases capacity and relieves congestion, it is anticipated that it will have a beneficial effect on air quality.
I-5 Improvement Project between SR 118 to SR 170	○	3	All (within RSA)	The project would have short-term construction impacts; however, the project is intended to meet the long-term environmental goals of improving traffic flow conditions and improving regional air quality via increased auto occupancy. Therefore, this project would not result in an increase in air pollutant emissions or adverse effects on or deterioration of ambient air quality.
I-5 North Improvement Projects from SR 134 to SR 170	○	4	All (within RSA)	The project would have short-term construction impacts; however, the project is intended to meet the long-term environmental goals of improving traffic flow conditions and improving regional air quality via increased auto occupancy. Therefore, this project would not result in an increase in air pollutant emissions or adverse effects on or deterioration of ambient air quality.
I-5/Western Avenue Interchange Improvements	○	5	All (within RSA)	This project was completed in 2012. Operation of this project is not anticipated to have an adverse impact on air quality because it is an interchange improvement project, which will improve traffic operations.
San Bernardino Freeway (I-10)/San Gabriel River Freeway (I-605) Direct Connector Project	○	6	All (within RSA)	This project is currently under construction and will include minor improvements to an existing interchange. Although it may be contributing to temporary adverse air quality impacts, the construction of this project would be complete before the initiation of construction for the SR 710 North Study. Therefore, these impacts would not contribute to a cumulative temporary air quality impact. Additionally, because this project would improve traffic flow and relieve congestion, it is anticipated to have a beneficial effect on air quality in this area.
San Bernardino Freeway (I-10) add One HOV Lane from I-605 to SR 57/71 and I-210	○	7	All (within RSA)	This project was completed in 2013. It was determined that this project would have a beneficial effect on air quality.
I-10 HOT Lanes	○	8	All (within RSA)	This project was completed in 2013 and was included in the adopted and conforming 2008 RTP and RTIP, indicating that the project is conforming with the purpose of the SIP. This project would provide traffic flow improvement and congestion relief through the main components of the project.

TABLE 4.18:
Reasonably Foreseeable Actions – Air Quality

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
The I-110 (Harbor Freeway)/Transitway HOT Lanes Project (182nd Street to Adams Boulevard) and on I-105 from Crenshaw Boulevard to Compton Avenue	○	9	All (within RSA)	This project was completed in 2012 and was included in amendment #1 of the2008 RTP and amendment #08-01 of the 2008 RTIP. It has been determined that this project is not likely to result in adverse impact on the ambient air quality in the project vicinity.
I-110 Widening and Rehabilitation Project	○	10	All (within RSA)	This project was completed in 2012 and will serve to decrease congestion. Therefore, it would not have long-term operational air quality impacts.
San Gabriel Trench Grade Separation Project	●	11	All (within RSA)	This project would result in adverse and unavoidable regional NO_X and localized particulate matter impacts during construction. This project would decrease mobile emissions when compared to baseline conditions and would not exceed the federal thresholds. Therefore, this project would not result in an adverse regional operational air quality impact.
Rosemead Boulevard Safety Enhancement & Beautification	○	12	All (within RSA)	Minor and temporary pollutant emissions would result from construction of this project. In addition, no substantial increase in operational emissions above existing levels would result from the operation of the proposed project.
Washington Boulevard Improvement Project	○	13	All (within RSA)	This project includes widening Washington Boulevard, thus relieving congestion. Therefore, this project is not anticipated to have an adverse impact on air quality.
San Fernando Road Widening Between Elm Street and Eagle Rock Boulevard	○	14	All (within RSA)	This project could contribute to regional air pollutant emissions during construction (short-term) but would not result in any operational emissions (long-term). However, it was determined that short-term regional mass emissions would not exceed any significance thresholds. As such, project emissions during construction would be less than significant under CEQA. Also, it was determined there would be no change due to project-related operations-period mass emissions, and no impact would occur as a result of project emissions during operations.
Riverside Drive Bridge and Grade Separation Replacement	○	15	All (within RSA)	It was determined that this project would not have an adverse impact on air quality.
Valley Boulevard/I-605 Project	○	16	All (within RSA)	The reconfiguration of the Valley Boulevard on- and off-ramps to I-605 will improve mobility and circulation, and will relieve the current congestion at Valley Boulevard. Therefore, this project would not have an adverse impact on air quality.
Regional Connector Transit Corridor	●	17	All (within RSA)	Even with implementation of mitigation during construction, regional construction emissions of VOCs, NO_X, CO, and $PM_{2.5}$ would remain substantial and unavoidable. Under NEPA and CEQA, this project would have no adverse or significant effects from operational emissions. Although regional construction emissions under the Build Alternatives would be adverse and unavoidable, the net benefits to air quality associated with the reduction

TABLE 4.18:
Reasonably Foreseeable Actions – Air Quality

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
				in regional VMT would override the temporary adverse construction impacts and provide a net beneficial effect.
Eastside Transit Corridor Phase 2 – Metro Gold Line Eastside Extension	○	18	All (within RSA)	This project is not expected to have an adverse impact on air quality.
Metro Gold Line Foothill Extension	●	19	All (within RSA)	Short-term PM_{10} and NO_X emissions and dust nuisance impacts generated by construction activities could remain adverse after mitigation. However, it is anticipated that compliance with regulations and BMPs would reduce potential operational air quality impacts below thresholds of significance.
Wilshire Boulevard Bus Rapid Transit Project – Phases I and II	○	20	All (within RSA)	Criteria pollutant emissions for both construction and operation of the proposed project would result in a less than significant regional air quality impact under CEQA.
California High Speed Rail Project	○	21	All (within RSA)	It is anticipated that this project would have temporary construction-related air quality impacts. Operation of this project is anticipated to have a benefit to air quality.
Gold Line Transit Plaza	○	22	All (within RSA)	It is anticipated that the proposed action would not result in an adverse impact on air quality because the project includes construction of a Gold Line station and would not increase transit in the area.
Station Square Transit Village	○	23	All (within RSA)	It is anticipated that the proposed action would not result in an adverse impact on air quality because the project includes construction of a Gold Line station and would not increase transit in the area.
Alhambra Bicycle Master Plan	○	24	All (within RSA)	It has been determined that project design, mitigation measures, and conditions of approval will reduce impacts concerning air quality.
Lincoln Avenue Specific Plan	●	25	All (within RSA)	The Lincoln Avenue Specific Plan is a regionally important project whose operational phase emissions would substantially contribute to air pollutant emissions in the South Coast Air Basin and potentially conflict with the assumptions in the AQMP.
Crown City Medical Center	○	26	All (within RSA)	Short-term construction emissions generated by the Crown City Medical Center would not exceed the SCAQMD regional significance thresholds or cumulatively contribute to the nonattainment designations of the South Coast Air Basin. Additionally, under CEQA, build out of the Crown City Medical Center would not generate a substantial increase in criteria air pollutant emissions that exceed SCAQMD regional significance thresholds or significantly contribute to the nonattainment designations of the South Coast Air Basin.
16 East California Project	○	27	All (within RSA)	This project would be replacing existing structures. Therefore, it is anticipated that the project would not have an adverse impact on air quality.
Magellan Gateway Project	●	28	All (within RSA)	This project was completed in 2012. It was determined that long-term operation of this project would result in significant unavoidable air pollutant emissions impacts under CEQA.

TABLE 4.18:
Reasonably Foreseeable Actions – Air Quality

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
El Monte Walmart	○	29	All (within RSA)	This project is anticipated to have temporary construction-related air quality impacts. Although it may be contributing to temporary adverse air quality impacts, the construction of this project would be complete before the initiation of construction for the SR 710 North Study. Therefore, these impacts would not contribute to a cumulative temporary air quality impact. Additionally, project-generated operational emissions may contribute to an air quality impact in the area. However, due to the size of this project, it is anticipated that this impact would be less than adverse.
Olive Pit Mining and Reclamation Operations and Long-Term Reuse Project	●	30	All (within RSA)	Extension of the duration of mining operations along with the subsequent reclamation and development of the Olive Pit could generate emissions or dust that may have a significant effect on local and/or regional air quality.
Huntington Memorial Hospital Master Development Plan Amendment	●	31	All (within RSA)	This project is anticipated to have temporary construction-related air quality impacts. Due to the size of the project and its potential construction, operation, and traffic-induced air pollutants, the project may violate an air quality standard or contribute to an existing or projected air quality violation.
Devil's Gate Reservoir Sediment Removal and Management Project	●	32	All (within RSA)	Sediment removal activities have the potential to violate an air quality standard or contribute substantially to an existing or projected air quality violation. Although minimization and/or mitigation measures would be implemented, the resulting temporary impact to air quality would remain significant under CEQA. However, reservoir management activities will not violate an air quality standard or contribute substantially to an existing or projected air quality violation.
Garfield Reservoir Replacement Project	○	33	All (within RSA)	This project is anticipated to have temporary construction-related air quality impacts. Although it may be contributing to temporary adverse air quality impacts, it is anticipated that the construction of this project would be complete before the initiation of construction for the SR 710 North Study. Therefore, these impacts would not contribute to a cumulative temporary air quality impact. Additionally, it is anticipated that this project would not contribute to a long-term impact on air quality because it is replacing an existing reservoir.
Arroyo Seco Pedestrian and Bicycle Trail	○	34	All (within RSA)	This project proposes to construct a less than 1 mi long pedestrian/bicycle trail in an existing recreational facility (golf course). Due to the nature of this project, it is anticipated that it would not have an adverse effect on air quality.
Olson San Gabriel Residential Community Project	○	35	All (within RSA)	Grading and other construction activities would result in combustion emissions from heavy-duty construction vehicles, haul trucks, utility engines, and vehicles transporting the construction crew. Additionally, this project would produce air pollutants over the long term from vehicles used by project residents, visitors, etc. However, emissions during construction and operation of this project are expected to not exceed the SCAQMD daily thresholds for criteria pollutants due to the size of the site and characteristics of the project. Therefore, this impact is less than significant.

TABLE 4.18:
Reasonably Foreseeable Actions – Air Quality

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
100 West Walnut Planned Development	●	36	All (within RSA)	This project is anticipated to have temporary construction-related air quality impacts. Additionally, it is anticipated that this project would generate air emissions during its operational phase from motor vehicle travel, energy consumption, and on-site activities associated with project operations.
Hill and Colorado Project	●	37	All (within RSA)	Construction and operation of new development at the project site could result in an increase in stationary and mobile source air emissions from construction and operational activities.
Green Hotel Apartments Project	○	38	All (within RSA)	Construction of this project would generate emissions that would not exceed but would nearly approach the $PM_{2.5}$ emissions thresholds; as such, mitigation is included to ensure that the project would not expose sensitive receptors to substantial pollutant concentrations during construction. Additionally, this project would create emissions from operational/area sources and from increased vehicle trips, but would not violate any air quality standard or contribute substantially to an existing or projected air quality violation.
Reuse of the Desiderio Army Reserve Center	○	39	All (within RSA)	This project would not produce substantial amounts of pollution during construction or operation.

[1] See Table 3.1 for the list of references for each project.
[2] The hollow bullet (○) indicates projects that would either have no impact to land use, or would not have an impact after typical avoidance, minimization and/or mitigation measures are incorporated.
[3] The solid bullet (●) indicates projects that either still have an adverse impact after mitigation or require extraordinary mitigation measures and therefore are included in the analysis for this subject area.

AQMP = Air Quality Management Plan
ARB = California Air Resources Board
BMPs = best management practices
Caltrans = California Department of Transportation
CEQA = California Environmental Quality Act
CO = carbon monoxide
EPA = United States Environmental Protection Agency
HOT = High-Occupancy Toll
HOV = High-Occupancy Vehicle
I-10 = Interstate 10
I-105 = Interstate 105
I-110 = Interstate 110
I-210 = Interstate 210
I-5 = Interstate 5
I-605 = Interstate 605
I-710 = Interstate 710
I-710 = Interstate 710
Metro = Los Angeles County Metropolitan Transportation Authority
mi = mile/miles
NEPA = National Environmental Policy Act
NO_X = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
RSA = Resource Study Area
RTIP = Regional Transportation Improvement Program
RTP = Regional Transportation Plan
SCAQMD = South Coast Air Quality Management District
SIP = State Implementation Plan
SR 118 = State Route 118
SR 118 = State Route 118
SR 134 = State Route 134
SR 170 = State Route 170
SR 170 = State Route 170
SR 57/71 = State Route 57/State Route 71
SR 710 = State Route 710
VMT = vehicle miles traveled
VOCs = volatile organic compounds

- The construction contracts and/or grading plans will include a statement that work crews will shut off equipment when not in use.
- The Construction Contractor will time the construction activities so as not to interfere with peak-hour traffic and will minimize obstruction of through traffic lanes adjacent to the site. If necessary, a flagger will be retained to maintain safety adjacent to existing roadways.
- The grading plans will include a statement that the Construction Contractor will ensure that all construction equipment is tuned and maintained in accordance with manufacturer specifications.

In addition to the SCAQMD standard measures to reduce construction emissions, Caltrans Standard Construction Specifications will be adhered to in order to reduce emissions.

In addition to the standard regulatory requirements listed above, the following measures are recommended for implementation to reduce air pollutants generated by vehicle and equipment exhaust during the project construction phase.

Fugitive Dust Source Controls

- Stabilize open storage piles and disturbed areas by covering and/or applying water or chemical/ organic dust palliative where appropriate. This applies to both inactive and active sites during workdays, weekends, holidays, and windy conditions.
- Install wind fencing, phase grading operations where appropriate, and operate water trucks for stabilization of surfaces under windy conditions.
- When hauling material and operating non-earthmoving equipment, prevent spillage and limit speeds to 15 miles per hour (mph). Limit speed of earthmoving equipment to 10 mph.

Mobile and Stationary Source Controls

- Reduce use, trips, and unnecessary idling from heavy equipment.
- Solar powered instead of diesel powered CMS would be used.
- Electricity from power poles rather than from generators will be used where feasible.
- Maintain and tune engines per manufacturer's specifications to perform at EPA certification levels and to perform at verified standards applicable to retrofit technologies. Employ periodic, unscheduled inspections to limit unnecessary idling and to ensure that construction equipment is properly maintained, tuned, and modified consistent with established specifications.
- Prohibit any tampering with engines and require continuing adherence to manufacturer's recommendations.
- Use new, clean (diesel or retrofitted diesel) equipment that meets the most stringent applicable federal or State standards and commit to the best available emissions control technology. Use Tier 3, or higher, engines for construction equipment with a rated horsepower exceeding 75. Use Tier 2, or higher, engines for construction equipment with a rated horsepower of less than 75. If non-road construction equipment that meets or exceeds Tier 2 or 3 engine standards is not available, the Construction Contractor will be required to use the best available emissions control technologies on all equipment.

- Utilize EPA-registered particulate traps and other appropriate controls where suitable to reduce emissions of diesel particulate matter and other pollutants at the construction site.

Administrative Controls

- Meet EPA diesel fuel requirements for off-road and on-highway and use alternative fuels where appropriate (e.g., natural gas and electric).
- Identify sensitive receptors in the project area (e.g., residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes), and specify the means by which impacts to these populations will be minimized. For example, locate construction equipment and staging zones away from sensitive receptors and away from fresh air intakes to building and air conditioners.

Operational Impacts

No mitigation is identified.

4.2.14 Noise and Vibration

The analysis in this section is based on the *Noise Study Report* (NSR) and the Noise Abatement Decision Report (NADR) (2014) prepared for the SR 710 North Study.

4.2.14.1 Resource Study Area

For the purpose of the noise and vibration cumulative impacts analysis, the RSA for noise impacts includes all areas adjacent to the study area where there are sensitive land uses that would be affected by construction noise and traffic noise generated by the operation of the completed project. The study area focuses on those areas in the vicinity of the Build Alternatives with potential noise-sensitive uses, including residential uses, parks, and open space uses, or areas of frequent human activity.

4.2.14.2 Health and Historical Context

The study area is located in a largely urbanized area. Noise in this area is generated by traffic on the freeways and area roads, equipment operations, urban uses, aircraft, and other noise sources typical in urban and developed areas. The health of the resource is affected by noise from I-710, I-210, I-10, SR 110, State Route 19 (SR 19), local arterial roadways, and surrounding noise-generating land uses such as large commercial or industrial operations. As the study area has become more densely developed over time and traffic volumes have increased, the background levels of noise in much of the RSA have increased and, in some areas, already exceed the applicable noise standards.

Land uses in the vicinity of the BRT Alternative include single-family and multifamily residences, two schools, two preschools, a daycare center, seven churches, two parks, three hotels, hospitals/ medical centers, a museum, and office, industrial, and commercial uses.

Land uses in the vicinity of the LRT Alternative project area include single-family and multifamily residences, vacant land, and office, commercial, and recreational uses.

Land uses in the vicinity of the Freeway Tunnel Alternative include single-family and multifamily residences, four schools and Cal State LA, two churches, a hospital, a museum with gardens, a golf

course, vacant land, and office, commercial, and recreational uses. In addition, a planned office development is located within the project area.

4.2.14.3 Project Impacts

TSM/TDM Alternative

Potential long-term noise impacts associated with operations of the TSM/TDM Alternative are solely from traffic noise. Of the 227 receptors, 70 receptors would approach or exceed the Noise Abatement Criteria (NAC) under the TSM/TDM Alternative. Of the 70 receptors that would approach or exceed the NAC under the TSM/TDM Alternative, 43 are not considered for abatement due to driveway or pedestrian access or due to abatement placed along the ROW of the TSM/TDM Alternative that would not break the line of sight to the impacted receivers. No receptors would experience a substantial increase over their corresponding modeled existing noise levels. Of the nine modeled noise barriers evaluated for the TSM/TDM Alternative, all nine were determined to be feasible.

BRT Alternative

Potential long-term noise impacts associated with operations of the BRT Alternative are solely from traffic noise. Of the 506 receptors, 129 receptors would approach or exceed the FHWA NAC under the BRT Alternative. Of the 129 receptors that would approach or exceed the NAC under the BRT Alternative, 120 of them are not considered for abatement due to driveway or pedestrian access or due to abatement placed along the ROW of the BRT Alternative that would not break the line of sight to the impacted receivers. No receptors would experience a substantial increase of 12 A-weighted decibels (dBA) or more over their corresponding modeled existing noise levels. However, noise abatement measures were evaluated for receptors located in the project limits that would be or would continue to be exposed to traffic noise levels approaching or exceeding the NAC. Of the six sound barriers for the BRT Alternative, five sound barriers were capable of reducing noise levels by 5 dBA, as required to be considered feasible.

LRT Alternative

Under the LRT Alternative, 17 receptors would experience moderate to severe noise impacts based on the criteria in the FTA Transit Noise and Vibration Assessment (2006). However, noise abatement measures were evaluated for receptors that would be or would continue to be exposed to noise levels approaching or exceeding the NAC. With the implementation of the recommended barrier heights, the future noise level impacts would be reduced to no impact at all receptors within 1,000 ft of the LRT Alternative alignment (limits of analysis).

Freeway Tunnel Alternative

Potential long-term noise impacts associated with operations of the Freeway Tunnel Alternative are solely from traffic noise. Of the 137 receptors, 66 receptors would approach or exceed the NAC under the Freeway Tunnel Alternative single-bore design variation, and 75 receptors would approach or exceed the NAC under the dual-bore design variation. No receptors would experience a substantial increase over their corresponding modeled existing noise levels. However, noise abatement measures were evaluated for receptors located in the project limits that would be or would continue to be exposed to traffic noise levels approaching or exceeding the 67 dBA NAC. Of

the 18 modeled sound barriers evaluated for the Freeway Tunnel Alternative, 16 of them are capable of reducing noise levels by 5 dBA, as required to be considered feasible.

Construction of the SR 710 North Study is expected to require the use of earthmovers, bulldozers, water trucks, and pickup trucks. Noise associated with the use of construction equipment is estimated to be 88 dBA maximum instantaneous noise level (L_{max}) at a distance of 50 ft from the active construction area for the grading phase. The maximum noise level generated by each grader is assumed to be approximately 85 dBA L_{max} at 50 ft from the scraper in operation. Each bulldozer would generate approximately 85 dBA L_{max} at 50 ft. The maximum noise level generated by water trucks and pickup trucks is approximately 55 dBA L_{max} at 50 ft from these vehicles. Each doubling of the sound source with equal strength increases the noise level by 3 dBA. Each piece of construction equipment operates as an individual point source. The worst-case composite noise level at the nearest residence during this phase of construction would be 88 dBA L_{max} (at a distance of 50 ft from an active construction area). Implementation of measures during construction would minimize this noise to acceptable levels.

4.2.14.4 Reasonably Foreseeable Actions and Their Impacts

The reasonably foreseeable actions would occur in the areas that are planned for development or redevelopment. The reasonably foreseeable actions are listed in Table 3.1 and shown on Figure 3-1. Table 4.19 shows projects with particular relevance to noise as well as their impacts.

4.2.14.5 Cumulative Impact

As shown in Section 4.2.14.3 and in Table 4.19, the Build Alternatives as well as the cumulative projects could result in short-term noise effects during construction. Although this impact would be temporary and would be minimized by implementation of minimization measures, there is the potential that the SR 710 North Study, Regional Connector Transit Corridor Project, Olson San Gabriel Residential Community, 100 West Walnut Planned Development, and the Green Hotel Apartments would be under construction concurrently, thus causing a temporary cumulative noise impact in the cities/communities of East Los Angeles, El Sereno, Pasadena, South Pasadena, as well as adjacent cities. However, each project would be responsible for following applicable noise ordinances during construction, thereby reducing this temporary impact.

As shown in Table 4.19, only one of the cumulative projects, the I-10 High-Occupancy Toll (HOT) Lanes would result in substantial adverse, unmitigable, long-term noise impacts. However, as described in Section 4.2.14.3, the Build Alternatives would not result in a substantial adverse noise impact since abatement measures are proposed and none of the receptors reach a noise level that exceeds 12 dBA. Therefore, the SR 710 North Study would not contribute to a cumulative noise impact.

4.2.14.6 Avoidance, Minimization, and/or Mitigation Measures

As stated above in Section 4.2.14.3, noise abatement measures were evaluated for receptors located in the project limits that would be or would continue to be exposed to traffic noise levels approaching or exceeding the NAC. A *Noise Abatement Decision Report* (NADR) (2014) that was prepared for this project found two sound walls for the TSM/TDM Alternative, one sound wall for the BRT Alternative, and one sound wall for the Freeway Tunnel Alternative dual-bore design variation to be reasonable and feasible.

TABLE 4.19:
Reasonably Foreseeable Actions – Noise and Vibration

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
I-10 HOT Lanes	●	8	BRT (intersects) LRT (intersects) Freeway Tunnel (intersects)	This project was completed in 2013. However, a noise barrier is proposed for this project along Ramona Boulevard, east of the I-10/I-710 intersection and will extend to the Warwick pedestrian overcrossing. However, 10 other locations were determined to not be reasonable because the estimated noise barrier construction cost exceeded the total reasonable allowance. Therefore, this project is assumed to be contributing to increased noise in the RSA.
San Gabriel Trench Grade Separation Project	○	11	TSM/TDM (intersects)	Construction of this project is anticipated to result in a temporary increase in noise. This project would result in a substantial reduction of noise exposure near the tracks at sensitive land uses. The reduced noise levels would be a combined result of the acoustic shielding provided by the trench and elimination of the requirement to sound train horns prior to the grade crossing. However, the tracks would be shifted closer to three sensitive receptors but would not result in a substantial increase in noise.
Rosemead Boulevard Safety Enhancement & Beautification Project	○	12	TSM/TDM (intersects)	Construction activities associated with the proposed project could result in a small but temporary increase in ambient noise levels. However, this project would comply with the requirements of the local jurisdiction, which limits the hours during which construction activity may occur. Compliance with the local jurisdiction's noise ordinance, as it relates to construction activities, would ensure that potential noise impacts during construction of the proposed project would be less than significant under CEQA. During operation, the proposed project would not generate noise levels on site that would exceed City standards at nearby residential uses. Implementation of the proposed project would not generate noise levels that are greater than what currently exist because the project is an improvement of an existing roadway and does not generate new traffic. The proposed project would not create additional population and would not create additional vehicular traffic in the area. Therefore, traffic-related noise levels would not increase at the proposed project area or within the surrounding community. As such, implementation of the proposed project would result in a less than significant impact under CEQA.
Regional Connector Transit Corridor	○	17	Freeway Tunnel (2,800 ft)	Construction activities associated with the proposed project could result in a small but temporary increase in ambient noise levels. However, this project would comply with the requirements of the local jurisdiction, which limits the hours during which construction activity may occur. Compliance with the local jurisdiction's noise ordinance, as it relates to construction activities, would ensure that potential noise impacts during construction of the proposed project would be less than adverse. However, sensitive and historic buildings in the vicinity of construction may be susceptible to vibration damage. With implementation of mitigation measures, construction-related vibration impacts to historic and sensitive buildings that are located within 21 ft of the anticipated vibration-producing construction activity would be reduced to a less than adverse level. Potential noise and vibration impacts from construction of this project would not be adverse. Proposed mitigation measures would reduce potential noise and vibration impacts from construction to less than adverse levels.

TABLE 4.19:
Reasonably Foreseeable Actions – Noise and Vibration

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Eastside Transit Corridor Phase 2 – Metro Gold Line Eastside Extension	○	18	BRT (intersects) LRT (0.5 mi)	Based on the Alternatives Analysis completed for this project, it is anticipated that the Build Alternatives would have a less than adverse noise impact.
Alhambra Bicycle Master Plan	○	24	BRT (intersects)	It is anticipated that this project would not have a substantial adverse noise impact.
Lincoln Avenue Specific Plan	○	25	Freeway Tunnel (100 ft)	Construction activities would have the potential to cause vibration that would have the potential to cause architectural damage to historic homes and annoyance to sensitive receptors in the vicinity of the Specific Plan. Additionally, project construction would have the potential to cause substantial noise increases to sensitive uses along haul routes and to uses in the vicinity of the Specific Plan. Interior noise levels at new residential habitable rooms would have the potential to exceed the 45 dBA L_{dn} noise standard. Additionally, the development of commercial/office/retail uses would have the potential to introduce stationary noise sources that could exceed the noise regulation limits in the Municipal Code. However, with mitigation, these impacts would be reduced to less than significant under CEQA.
Crown City Medical Center	○	26	Freeway Tunnel (0.25 mi)	Project-related construction activities would generate ground-borne vibration that would exceed the FTA's threshold for vibration-induced architectural damage. However, with implementation of minimization measures, this impact would be reduced to a level below significance. Under CEQA, project implementation would result in a less than significant increase in traffic volumes and a corresponding increase in long-term operation-related noise that would exceed local standards, but would be considered less than significant.
16 East California Project	○	27	BRT (1,000 ft) LRT (460 ft) Freeway Tunnel (0.4 mi)	It is anticipated that project-related construction activities would generate ground-borne vibration and an increase in noise. However, with implementation of minimization measures, this impact would be reduced to a level below significance. Under CEQA, it is anticipated that project implementation would result in a less than significant increase in traffic volumes and a corresponding increase in long-term operation-related noise that would exceed local standards but would be considered less than significant.

TABLE 4.19:
Reasonably Foreseeable Actions – Noise and Vibration

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Huntington Memorial Hospital Master Development Plan Amendment	○	31	BRT (750 ft) LRT (900 ft) Freeway Tunnel (200 ft)	Demolition and construction activities, including the use of heavy equipment (e.g., bulldozers, backhoes, cranes, and loaders) would generate noise on a short-term basis. However, it is anticipated that these impacts can be minimized to a level below significance. Operation of this project may increase existing noise levels as a result of project-related traffic, parking lot, and loading dock activity; mechanical equipment; increased operations of the Central Energy Plant; and landscaping. It is anticipated that these impacts can be mitigated to a level below significance.
Garfield Reservoir Replacement Project	○	33	TSM/TDM (0.25 mi) BRT (800 ft)	It is anticipated that project-related construction activities would generate ground-borne vibration and an increase in noise. However, with implementation of standard minimization measures, this impact would be reduced to a less than adverse level. Additionally, because this project is replacing an existing reservoir, it is not anticipated to generate noise beyond the existing condition.
Olson San Gabriel Residential Community Project	○	35	TSM/TDM (0.5 mi)	It is anticipated that project-related construction activities would generate ground-borne vibration and an increase in noise. However, with implementation of standard minimization measures, this impact would be reduced to a less than adverse level. Additionally, due to its location adjacent to railroad tracks, some of the future project residents may experience exterior and interior noise levels in excess of City standards. The project noise study identified a number of construction improvements and enhancements that would reduce potential noise impacts in these areas to less than significant levels under CEQA.
100 West Walnut Planned Development	○	36	TSM/TDM (0.5 mi) BRT (0.25 mi)	It is anticipated that project-related construction activities would generate ground-borne vibration and an increase in noise. However, with implementation of standard minimization measures, this impact would be reduced to a less than adverse level. Additionally, increased traffic levels associated with the proposed project have the potential to increase ambient noise levels above existing levels. However, it is anticipated that abatement would be provided to reduce noise to a less than adverse level.
Hill and Colorado Project	○	37	BRT (intersects)	It is anticipated that project-related construction activities would generate ground-borne vibration and an increase in noise. However, with implementation of standard minimization measures, this impact would be reduced to a less than adverse level. Additionally, operations under the proposed project have the potential to permanently increase ambient noise levels above existing levels, thereby affecting sensitive noise receptors in the local area. However, it is anticipated that abatement would be provided to reduce noise to a less than adverse level.
Green Hotel Apartments Project	○	38	TSM/TDM (0.25 mi) BRT (intersects) LRT (0.5 mi) Freeway Tunnel (0.25 mi)	It is anticipated that project-related construction activities would generate ground-borne vibration and an increase in noise. However, with implementation of standard minimization measures, this impact would be reduced to a less than adverse level. Additionally, the project would not result in a substantial permanent increase in ambient noise levels in the project vicinity above existing levels.

TABLE 4.19:
Reasonably Foreseeable Actions – Noise and Vibration

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Reuse of the Desiderio Army Reserve Center	○	39	BRT (0.5 mi) Freeway Tunnel (0.25 mi)	This project would not result in a substantial permanent increase in ambient noise levels in the project vicinity above existing levels.

[1] See Table 3.1 for the list of references for each project.
[2] The hollow bullet (○) indicates projects that would either have no impact to land use, or would not have an impact after typical avoidance, minimization and/or mitigation measures are incorporated.
[3] The solid bullet (●) indicates projects that either still have an adverse impact after mitigation or require extraordinary mitigation measures and therefore are included in the analysis for this subject area.

BRT = Bus Rapid Transit
CEQA = California Environmental Quality Act
dBA = A-weighted decibels
ft = foot/feet
FTA = Federal Transit Administration
HOT = High-Occupancy Toll
I-10 = Interstate 10
I-710 = Interstate 710
L_{dn} = day-night average noise level
LRT = Light Rail Transit
Metro = Los Angeles County Metropolitan Transportation Authority
mi = mile/miles
RSA = Resource Study Area
TDM = Transportation Demand Management
TSM = Transportation System Management

Typical noise levels at 50 ft from an active construction area range up to 88 dBA L_{max} during the noisiest construction phases. Compliance with the construction hours specified in the Municipal Codes of the Cities of Alhambra, Monterey Park, Pasadena, San Marino, and South Pasadena, in the Los Angeles County Code, and in Caltrans Standard Special Provisions (SSP) will be required to minimize construction noise impacts on sensitive land uses adjacent to the project site. Construction noise is regulated by, and will conform to, Caltrans Standard Specifications in Section 14-8.02, "Noise Control," and also by SSP S5-310, "Noise Control." The noise level from contractor operations between the hours of 9:00 p.m. and 6:00 a.m. shall not exceed 86 dBA L_{max} at a distance of 50 ft. The contractor should use an alternative warning method instead of a sound signal unless required by safety laws. In addition, the contractor will equip all internal combustion engines with the manufacturer-recommended muffler and will not operate any internal combustion engine on the job site without the appropriate muffler.

4.2.15 Energy

The analysis in this section is based on the *Energy Technical Report* (2014) prepared for the SR 710 North Study.

4.2.15.1 Resource Study Area

Because energy consumption is typically tracked on a regional or State level, consideration of cumulative effects related to energy consumption is considered in the context of the SCAG planning region.

4.2.15.2 Health and Historical Context

California is rich in conventional and renewable energy resources. It has large crude oil and substantial natural gas deposits in six geological basins located in the Central Valley and along the Pacific Coast. Most of those reserves are concentrated in the southern San Joaquin Basin. Seventeen (17) of the 100 largest oil fields in the United States are located in California, including the Belridge South oil field (the third largest oil field in the contiguous United States). In addition, federal assessments indicate that large undiscovered deposits of recoverable oil and gas lie offshore in the federally administered Outer Continental Shelf, which in 2008 was reopened for potential oil and gas leasing. California's renewable energy potential is extensive. The State's hydroelectric power potential ranks second in the United States behind Washington State, and substantial geothermal and wind power resources are found along the coastal mountain ranges and the State's eastern border with Nevada. High solar energy potential is found in southeastern California's sunny deserts.

California is the most populous State in the United States, and its total energy demand is second only to Texas. Although California is a leader in the energy-intensive chemical, forest products, glass, and petroleum industries, the State has one of the lowest per capita energy consumption rates in the country. The California government's energy-efficiency programs have contributed to the low per capita energy consumption.

Much of the energy consumed in the SCAG region is for residential, commercial, and transportation purposes. Driven by high demand from California's many motorists, major airports, and military bases, the transportation sector is the State's largest energy consumer. More motor vehicles are registered in California than in any other State, and worker commute times are among the longest in the country. Transportation-related activities account for approximately half of all the petroleum

products consumed in California. While State and federal policies (e.g., the California Low-Emission Vehicle Program and the Federal Energy Policy Act of 1992) are increasing the use of alternative fuel and low-emission vehicles, the consumption of nonrenewable resources (e.g., fossil fuels) remains high.

4.2.15.3 Project Impacts

Build Alternatives

Construction energy effects involve the one-time, nonrecoverable energy costs associated with construction of roads and structures. The Los Angeles Department of Water and Power (LADWP) and the Pasadena Water and Power Utility have both committed to build electrical substations at each end of the freeway tunnel in any of the Freeway Tunnel Alternatives and at one end of the rail tunnel in the LRT Alternative to handle the electrical demands of the tunneling equipment. Thus, it is anticipated that the large construction energy demands from any of the project Build Alternatives, particularly the various tunnel alternatives, will be accommodated by both power utilities. The construction of the Build Alternatives would require substantial increases to total indirect energy consumption in the study area:

- **TSM/TDM Alternative:** 40 percent increase
- **BRT Alternative:** 93 percent increase with relatively minor construction costs
- **LRT Alternative:** 980 percent increase with greater construction costs for LRT stations and maintenance facilities
- **Freeway Tunnel Alternative Single-Bore Design Variation:** Over 220 percent increase
- **Freeway Tunnel Alternative Dual-Bore Design Variation:** Over 200 percent increase

When including the construction costs for all transportation projects for the region, as described in the 2012 SCAG RTP, at $525 billion (not including this project), the project-related construction cost increases of between $0.21 billion to $5.75 billion result in changes to total indirect energy consumption in the region of approximately 1 percent or less for all Build Alternatives compared to the No Build Alternative. The estimated energy needed to construct the various Build Alternatives would range from approximately 17 trillion to 926 trillion BTUs. There are very small or no direct energy savings associated with any of the Build Alternatives, so the payback period for the energy consumed during construction is not quantifiable.

Without the capacity improvements proposed in the Build Alternatives, congested traffic conditions would be more prevalent throughout the SR 710 North Study area and, to a lesser extent, the region. These conditions contribute to a higher energy consumption rate because vehicles use extra fuel while idling in stop-and-go traffic or moving at slow speeds through congested roadways. Some of the Build Alternatives would increase average travel speeds by removing bottlenecks and reducing delays. However, annual VMT in the SR 710 North Study area would also increase when comparing most of the Build Alternatives with the 2035 baseline condition (No Build). The exception is the LRT Alternative, which would have a lower annual VMT. For operational energy consumption in the region, all Build Alternatives would result in the same 22 percent increase in operational energy consumption. The TSM/TDM, BRT, and LRT Alternatives would result in an increase in operational energy consumption from the 2035 baseline condition (No Build), from approximately 0.7 to 6 percent. For operational energy consumption in the region, none of the Build Alternatives

would result in a measurable change in operational energy consumption compared to the 2035 baseline condition (No Build Alternative).

4.2.15.4 Reasonably Foreseeable Actions and Their Impacts

The reasonably foreseeable actions would occur in the areas that are planned for development or redevelopment. The reasonably foreseeable actions are listed in Table 3.1 and shown on Figure 3-1. Table 4.20 shows projects with particular relevance to energy as well as their energy impacts.

4.2.15.5 Cumulative Impact

Build Alternatives

As shown below in Table 4.20, all the transportation and transit cumulative projects will reduce energy consumption by either easing congestion or providing public transit and taking vehicles off the study area local arterials and highways. Although the cumulative land development projects listed below in Table 4.20 would result in additional energy consumption, it is anticipated that they would be designed to reduce energy consumption and would comply with the energy standards in the California Energy Code, Part 6 of the California Building Standards Code (Title 24) as well as applicable city regulations/codes. Additionally, as stated in Section 4.2.15.3, all the SR 710 North Study Build Alternatives would result in a 22 percent increase in operational energy consumption. However, for operational energy consumption in the region, none of the SR 710 North Study Build Alternatives would result in a measurable change. Therefore, the SR 710 North Study, in combination with the cumulative projects, would not contribute to an adverse cumulative energy effect.

4.2.15.6 Avoidance, Minimization, and/or Mitigation Measures

For the SR 710 North Study, as part of the Plans, Specifications, and Estimates (PS&E), a construction efficiency plan will be prepared that may include the reuse of existing rail, steel, and lumber wherever possible (e.g., for falsework, shoring, and other applications during the construction process); recycling of asphalt taken up from roadways, if practicable and cost-effective; use of newer, more energy-efficient equipment where feasible and maintenance of older construction equipment to keep in good working order; promoting of scheduling of construction operations to efficiently use construction equipment (i.e., only haul waste when haul trucks are full and combine smaller dozer operations into a single comprehensive operation, where possible); and promotion of construction employee carpooling.

Each cumulative project is subject to the requirements of federal and/or State environmental laws for the consumption/use of energy. For those projects in the RSA in which environmental documents are not available, similar measures would be required to comply with CEQA and/or NEPA.

4.2.16 Natural Communities

The analysis in this section is based on the *Natural Environment Study* (NES) (2014) prepared for the SR 710 North Study.

TABLE 4.20:
Reasonably Foreseeable Actions – Energy

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
I-710 South Corridor Project	○	1	All (within RSA)	Compared to 2008 existing conditions: • Energy consumption in 2035 for Alternatives 6B and 6C energy consumption increases by approximately 14 percent. Compared to 2035 No Build conditions: • 2035 Alternative 5A energy consumption decreases by 0.1 percent. • 2035 Alternative 6A energy consumption does not change. • 2035 Alternative 6B energy consumption decreases by 2.0 percent. • 2035 Alternative 6C energy consumption decreases by 1.6 percent.
I-5 Corridor Improvement Project (I-605 to I-710)	○	2	All (within RSA)	As this project increases capacity and relieves congestion, it is anticipated that energy consumption will decrease.
I-5 Improvement Project between SR 118 to SR 170	○	3	All (within RSA)	This project will not result in the increased use of fuel or energy in large amounts or in a wasteful manner.
I-5 North Improvement Projects from SR 134 to SR 170	○	4	All (within RSA)	This project will not result in the increased use of fuel or energy in large amounts or in a wasteful manner.
I-5/Western Avenue Interchange Improvements	○	5	All (within RSA)	This project was completed in 2012 and is a minor interchange improvement project that will serve to decrease congestion in the immediate area. Therefore, it will not have long-term operational energy impacts.
San Bernardino Freeway (I-10)/San Gabriel River Freeway (I-605) Direct Connector Project	○	6	All (within RSA)	This project is currently under construction and will include minor improvements to an existing interchange. Because this project would improve traffic flow and relieve congestions, it is anticipated that energy consumption will decrease.
San Bernardino Freeway (I-10) add One HOV Lane from I-605 to SR 57/71 and I-210	○	7	All (within RSA)	A large quantity of nonrenewable energy resources would be consumed during construction of this project. This includes burning of fossil fuels for construction equipment and vehicle operations. Due to the addition of HOV lanes, which would relieve congestion, energy consumption would decrease as a result of this project.
I-10 HOT Lanes	○	8	All (within RSA)	This project would increase freeway speeds and encourage transit use and carpooling. Reductions in VMT and energy usage would occur since vehicle idling time would be reduced, and access to HOT lanes would encourage patrons to use transit or carpool lanes, thereby reducing the number of single-occupant automobile trips. When balancing energy used during construction and operation against energy saved by relieving congestion and other transportation efficiencies, the project would not have substantial energy impacts.

TABLE 4.20:
Reasonably Foreseeable Actions – Energy

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
The I-110 (Harbor Freeway)/Transitway HOT Lanes Project (182nd Street to Adams Boulevard) and on I-105 from Crenshaw Boulevard to Compton Avenue	○	9	All (within RSA)	When balancing energy used during construction and operation against energy saved by relieving congestion and other transportation efficiencies, the project would not have any meaningful or substantial energy impacts.
I-110 Widening and Rehabilitation Project	○	10	All (within RSA)	This project was completed in 2012 and will serve to decrease congestion. Therefore, it will not have long-term operational energy impacts.
San Gabriel Trench Grade Separation Project	○	11	All (within RSA)	This project would not increase vehicle trips but would improve traffic flow by eliminating existing grade crossings. Therefore, this project would not have an adverse impact on energy consumption.
Rosemead Boulevard Safety Enhancement & Beautification	○	12	All (within RSA)	The proposed project would not result in stationary or mobile emission sources or energy use beyond existing conditions.
Washington Boulevard Improvement Project	○	13	All (within RSA)	This project includes widening Washington Boulevard, which would relieve congestion. Therefore, this project is not anticipated to have an adverse impact on energy consumption.
San Fernando Road Widening Between Elm Street and Eagle Rock Boulevard	○	14	All (within RSA)	This project would not add new vehicle trips and therefore would not have an adverse impact on energy consumption.
Riverside Drive Bridge and Grade Separation Replacement	○	15	All (within RSA)	This project would not increase roadway capacity but would provide an operational improvement to traffic/circulation along Riverside Drive in the project area. Therefore, this project will not have an adverse impact on energy consumption.
Valley Boulevard/I-605 Project	○	16	All (within RSA)	The reconfiguration of the Valley Boulevard on- and off-ramps to I-605 will improve mobility and circulation, and will relieve the current congestion at Valley Boulevard. Therefore, this project will not have an adverse impact on energy consumption.
Regional Connector Transit Corridor	○	17	All (within RSA)	All alternatives for this project would result in a net decrease in VMT throughout the region when compared to the No Build Alternative. This decrease in VMT would result in a net decrease in energy consumption.
Eastside Transit Corridor Phase 2 – Metro Gold Line Eastside Extension	○	18	All (within RSA)	This project is not expected to increase energy consumption compared to the No Build Alternative.
Metro Gold Line Foothill Extension	○	19	All (within RSA)	This project would result in slightly greater energy consumption than the No Build Alternative during operation but would result in a less than a 1 percent increase in energy consumption for the project study area. Thus, the project would not result in an adverse impact to the availability of fossil fuels or electricity within the region or State given the current and projected available resources. The change in long-term energy does not exceed the 1 percent threshold and

TABLE 4.20:
Reasonably Foreseeable Actions – Energy

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
				therefore would result in a less than significant impact under CEQA and less than adverse impact under NEPA.
Wilshire Boulevard Bus Rapid Transit Project – Phases I and II	○	20	All (within RSA)	The overall effect of the proposed action is expected to result in increased use of public transportation. In turn, this would result in decreased traffic congestion and vehicle idling, thereby increasing the transportation-related energy efficiency in the project corridor for both public transportation and private vehicle use. Therefore, the proposed action would result in less energy consumption than baseline conditions and, as such, would result in a beneficial energy impact.
California High Speed Rail Project	○	21	All (within RSA)	The preferred High Speed Rail System Alternative would result in energy savings, air quality improvement and transportation capacity improvements, as compared to the No Project Alternative. The Preferred High Speed Rail System Alternative would also provide increased efficiency in energy use for transportation and decreased energy consumption (e.g., oil fuels consumption).
Gold Line Transit Plaza	○	22	All (within RSA)	It is anticipated that the proposed action would not result in an adverse increase in energy consumption because the project includes construction of a Gold Line station and would not increase transit in the area. Any energy consumption generated by features of the station (i.e., lighting) would be nominal.
Station Square Transit Village	○	23	All (within RSA)	It is anticipated that the proposed action would not result in an adverse increase in energy consumption because the project includes construction of a Gold Line station and would not increase transit in the area. Any energy consumption generated by features of the station (i.e., lighting) would be nominal.
Alhambra Bicycle Master Plan	○	24	All (within RSA)	Overall, this project would be consistent with the Assembly Bill 32 goal of reducing statewide GHG emissions to 1990 levels by year 2020.
Lincoln Avenue Specific Plan	○	25	All (within RSA)	This project would not conflict with an adopted energy conservation plan and would not cause inefficient and wasteful use of nonrenewable resources. Upon implementation of regulatory requirements and standard conditions of approval, project impacts would be less than significant under CEQA.
Crown City Medical Center	○	26	All (within RSA)	Build out of the Crown City Medical Center would result in a substantial increase in GHG emissions but would not conflict with statewide, regional, and local GHG emissions reductions strategies. Therefore, the project would not have an adverse impact on energy consumption/use.
16 East California Project	○	27	All (within RSA)	It is anticipated that the project would not result in any unusual characteristics that would result in excessive long-term operational building energy demand. The project would involve operations typical of an office building, requiring electricity and natural gas for typical lighting, climate control, and day-to-day activities. Additionally, the project would be replacing existing structures that require similar energy usage. Therefore, the project would not be considered inefficient, wasteful, or unnecessary in comparison to other similar office buildings.

TABLE 4.20:
Reasonably Foreseeable Actions – Energy

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Magellan Gateway Project	○	28	All (within RSA)	The project would not result in any unusual characteristics that would result in excessive long-term operational building energy demand. The project would involve operations typical of an industrial warehousing facility, requiring electricity and natural gas for typical lighting, climate control, and day-to-day activities. Additionally, the proposed project would be designed to: take advantage of shade throughout the project site; incorporate efficient lighting and heating/cooling systems; install cool roofs, pavements, and shade trees; and limit the hours of operation of outdoor lighting. Therefore, the project would not be considered inefficient, wasteful, or unnecessary in comparison to other similar industrial warehousing facilities in the region.
El Monte Walmart	●	29	All (within RSA)	It is anticipated that this project would result in an increase in energy demand.
Olive Pit Mining and Reclamation Operations and Long-Term Reuse Project	○	30	All (within RSA)	It is anticipated that this project would result in a short-term increase in energy demand as a result of construction activities. However, because the site is re-using an existing operation, it is not anticipated that this project would result in an increase in energy demand beyond that of the existing condition.
Huntington Memorial Hospital Master Development Plan Amendment	○	31	All (within RSA)	This project would be designed to comply with the performance levels of an amended California Green Building Standards Code, which would reduce energy consumption compared to standard building practices. Furthermore, the project would comply with the energy standards in the California Energy Code, Part 6 of the California Building Standards Code (Title 24). Compliance with existing regulations and a reduction in overall building area would ensure that the proposed project would not conflict with adopted energy plans, and no impact would occur in this regard.
Devil's Gate Reservoir Sediment Removal and Management Project	○	32	All (within RSA)	It is anticipated that this project would result in a short-term increase in energy demand as a result of construction activities. Reductions in mobile-source and energy production GHG emissions would occur with or without development of this project. Overall, this project would be consistent with the AB 32 goal of reducing statewide GHG emissions to 1990 levels by year 2020.
Garfield Reservoir Replacement Project	○	33	All (within RSA)	It is anticipated that this project would result in a short-term increase in energy demand as a result of construction activities. However, because the site is re-using an existing operation, it is not anticipated that this project would result in an increase in energy demand beyond that of the existing condition.
Arroyo Seco Pedestrian and Bicycle Trail	○	34	All (within RSA)	Because this project proposes to implement a pedestrian and bicycle trail in an existing recreational facility, it is anticipated that it would not result in an increase in energy demand.
Olson San Gabriel Residential Community Project	○	35	All (within RSA)	It is anticipated that this project would result in a short-term increase in energy demand as a result of construction activities. This project would produce GHG emissions that are considered potentially significant under CEQA. However, with implementation of mitigation measures, this project's contribution to energy consumption would be less than significant under CEQA.
100 West Walnut Planned Development	○	36	All (within RSA)	It is anticipated that this project would result in a short-term increase in energy demand as a result of construction activities. Additionally, this project is anticipated to result in an increase in energy demand beyond that of the existing condition. However, this project would also incorporate energy conservation features as required by the Pasadena Municipal Code and the California Energy Code and would result in a less than adverse impact related to energy consumption.

TABLE 4.20:
Reasonably Foreseeable Actions – Energy

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Hill and Colorado Project	○	37	All (within RSA)	It is anticipated that this project would result in a short-term increase in energy demand as a result of construction activities. Additionally, this project would result in increased use of energy resources compared to existing conditions. However, site development would be constructed in compliance with the City's Amended Green Building Standards and California's Green Building Standards Code Tier 2 requirements, meaning construction would incorporate energy saving measures.
Green Hotel Apartments Project	○	38	All (within RSA)	It is anticipated that this project would result in a short-term increase in energy demand as a result of construction activities. Additionally, this project would generate GHG emissions as a result of vehicles traveling to and from the apartments, natural gas combustion from space heating, disposal of solid waste, and electricity used directly by the building and indirectly to supply water to the site and to treat wastewater. However, these emissions would not exceed the SCQAMD proposed screening-level significant threshold for commercial land uses.
Reuse of the Desiderio Army Reserve Center	○	39	All (within RSA)	It is anticipated that this project would result in a short-term increase in energy demand as a result of construction activities. Additionally, as adopted per Pasadena Municipal Code (PMC Section 14.04.010) this project is required to comply with the amended 2010 edition of the California Green Building Standards Code. In addition, this project does not conflict with the energy-related policies in the 2012 Open Space and Conservation Element of the General Plan. Therefore, no impact is identified for this issue.

[1] See Table 3.1 for the list of references for each project.
[2] The hollow bullet (○) indicates projects that would either have no impact to land use, or would not have an impact after typical avoidance, minimization and/or mitigation measures are incorporated.
[3] The solid bullet (●) indicates projects that either still have an adverse impact after mitigation or require extraordinary mitigation measures and therefore are included in the analysis for this subject area.

AB 32 = Assembly Bill 32
CEQA = California Environmental Quality Act
GHG = greenhouse gas
HOT = High-Occupancy Toll
HOV = High-Occupancy Vehicle
I-10 = Interstate 10
I-105 = Interstate 105
I-110 = Interstate 110
I-210 = Interstate 210
I-5 = Interstate 5
I-605 = Interstate 605
I-710 = Interstate 710
Metro = Los Angeles County Metropolitan Transportation Authority
NEPA = National Environmental Policy Act
RSA = Resource Study Area
SCADMD = South Coast Air Quality Management District
SR 118 = State Route 118
SR 134 = State Route 134
SR 170 = State Route 170
SR 57/71 = State Route 57/State Route 71
VMT = vehicle miles traveled

4.2.16.1 Resource Study Area

The RSA for natural communities is consistent with the biological study area (BSA) established for the SR 710 North Study. The BSA is an approximately 3,410 ac area that includes portions of the Cities of Los Angeles, Pasadena, South Pasadena, Alhambra, San Gabriel, Rosemead, San Marino, and Monterey Park, as well as unincorporated portions of Los Angeles County. Existing land uses in and adjacent to the BSA primarily include: transportation, residential, commercial, industrial, infrastructure, and recreational land uses.

4.2.16.2 Health and Historical Context

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

The BSA contains primarily disturbed/developed habitats with small isolated areas of natural vegetation. By far the most common plant community/land cover type present is disturbed/developed, which represents more than 95 percent (3,223.2 ac) of the BSA. Additional plant communities identified included nonnative grassland (85.8 ac), nonnative woodland (79.7 ac), nonnative riparian woodland (0.5 ac), wetland complex (1.5 ac), giant reed semi-natural stands (0.2 ac), laurel sumac scrub (5.0 ac), coast live oak woodland (5.9 ac), white alder groves (1.0 ac), black cottonwood forest (0.8 ac), and arroyo willow thickets (2.3 ac). The California Department of Fish and Wildlife (CDFW) considers the latter four plant community types to be sensitive and/or natural communities of special concern, along with the riparian habitats of the riparian nonnative woodland, wetland complex, and giant reed breaks.

Natural communities in the BSA that are considered sensitive include: (1) riparian wetland habitats, (2) riparian non-wetland habitats, (3) coast live oak woodland, and (4) black cottonwood forest. In addition to the riparian habitats and coast live oak woodland, only one native-dominated plant community (laurel sumac shrub) was identified in the BSA.

Three types of riparian and riverine communities are present within the BSA: (1) riparian non-wetland habitats, (2) wetlands, and (3) riverine (streams).

In total, 4.9 ac of riparian non-wetland habitats, 1.5 ac of wetlands, and 4.4 ac of stream habitats were identified and were located along two streams (Arroyo Seco and Laguna Channel). One wetland was located in the median of the I-210 in the City of Pasadena. The riparian and riverine communities present in the BSA are not considered to be of high quality due to the presence of invasive species, high human disturbance (foot traffic, litter, etc.), and minimal signs of reproduction (few saplings, seedlings etc.), as is typical in an urban environment.

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

The SR 710 North Study is not located within any Significant Ecological Areas, which are identified as ecologically important land and water systems by the County of Los Angeles. Other protected lands (i.e., wildlife refuges, state parks) that occur within or adjacent to the BSA include several recreational city parks and the Lower Arroyo Seco Park in Pasadena, which is a city park that contains native and naturalized vegetation that provides habitat for local wildlife.

4.2.16.3 Project Impacts

As stated above in Section 4.2.16.2, natural communities in the BSA that are considered sensitive include: (1) riparian wetland habitats, (2) riparian non-wetland habitats, (3) coast live oak woodland, and (4) black cottonwood forest. Of these, only riparian wetland habitats are within areas where ground-disturbing activities (permanent or temporary) are planned as part of one or more of the Build Alternatives. Additionally, while the presence of the laurel sumac shrub community does not warrant avoidance and minimization efforts, it does stand out as one of the few natural communities in the BSA, which is dominated by disturbed/developed areas.

Riparian, Wetland, and Riverine Communities

Temporary indirect impacts may include construction noise, dust, lighting, litter, and vibration as well as personnel and vehicle activities outside designated areas. Should the Freeway Tunnel Alternative (single bore or dual bore design variation) or the LRT Alternative be selected, measures would be required to avoid and minimize temporary impacts to riparian and riverine communities in the BSA.

The SR 710 North Study has been refined to avoid and minimize impacts to wetlands and other waters. Specifically, the Freeway Tunnel Alternative single-bore and dual-bore design variations have minimized impacts to the northernmost section of the Laguna Channel, near the tunnel portal. Additional segments of the Laguna Channel have been completely eliminated from the impact areas. However, implementation of the SR 710 North Study, specifically the Freeway Tunnel Alternative (either single bore or dual bore), would result in adverse effects on riparian and riverine habitats in the BSA. Compensatory mitigation would result in the creation or restoration of more habitat than is lost and is likely to completely offset any impacts from the SR 710 North Study, especially considering that the functions and values of the habitats that would be impacted are relatively low. Permanent indirect impacts are not anticipated. Therefore, the SR 710 North Study would not have an adverse effect on riparian, wetland, or riverine communities.

Coast Live Oak Woodland

It is not anticipated that the SR 710 North Study would have any direct, indirect, permanent, or temporary impacts to the coast live oak woodland community because this community exists well outside the zones in which construction activities are planned to occur.

4.2.16.4 Reasonably Foreseeable Actions and Their Impacts

The reasonably foreseeable actions would occur in the areas that are planned for development or redevelopment. The reasonably foreseeable actions are listed in Table 3.1 and shown on Figure 3-1. Table 4.21 shows projects with particular relevance to natural communities as well as their impacts.

4.2.16.5 Cumulative Impact

As shown in Table 4.21, the cumulative projects would either have no impact to natural communities or, upon implementation of avoidance, minimization, and/or mitigation measures, would not have a substantial adverse impact on natural communities.

Additionally, as discussed in Section 4.2.16.3, implementation of the SR 710 North Study, specifically the Freeway Tunnel Alternative (single-bore and dual-bore design variations) and the LRT Alternative would result in adverse effects on riparian and riverine habitats in the BSA. However, compensatory mitigation would result in the creation or restoration of more habitat than is lost and is likely to completely offset any impacts from the SR 710 North Study, especially considering that the functions and values of the habitats that would be impacted are relatively low. Therefore, the SR 710 North Study would not likely contribute incrementally to cumulative effects on riparian, wetland, or riverine communities.

Based on the above discussion, the SR 710 North Study, in combination with the cumulative projects listed in Table 4.21, would not contribute to a cumulative impact on natural communities in the RSA.

4.2.16.6 Avoidance, Minimization, and/or Mitigation Measures

Implementation of the Freeway Tunnel Alternative (single-bore or dual-bore design variation) will require the following measures to avoid and minimize impacts to riparian and riverine communities in the BSA:

- Prior to any construction or ground-disturbing activities, Caltrans will require the Construction Contractor to place a highly visible barrier such as Environmentally Sensitive Area (ESA) fencing or other marker around any riparian or riverine habitats to be preserved. No grading or fill activities will be authorized within the marked areas. No structures of any kind or incidental storage of equipment or supplies will be allowed within the marked areas. Silt fence barriers will be installed along the ESA boundary to prevent inadvertent deposition of fill.
- Caltrans will require the Construction Contractor to identify designated areas in developed or nonsensitive upland habitat areas on the construction plans for equipment maintenance, staging, fueling and other related activities. Those areas will be selected such that spills and runoff would not enter riparian or riverine habitats.
- Caltrans will require the Construction Contractor to have a qualified biologist monitor during construction in the vicinity of riparian and riverine areas to ensure that all avoidance and minimization measures are properly applied and followed.

Caltrans will compensate for impacts to waters and habitats subject to the jurisdiction of the United States Army Corps of Engineers (USACE) and/or the California Department of Fish and Wildlife (CDFW) at a ration equal to or greater than 1:1 as the CDFW determined by permitting consultation for the project. The USACE has a no net loss policy. This measure will be implemented by Caltrans as agreed upon through consultation with the USACE and/or the CDFW.

TABLE 4.21:
Reasonably Foreseeable Actions – Natural Communities

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
I-10 HOT Lanes	○	8	BRT (intersects) LRT (intersects) Freeway Tunnel (intersects)	This project was completed in 2013. Because this project converted the existing HOV lane to a HOT lane and restriped the existing roadway to accommodate an additional HOT lane, no meaningful or substantial consequences to natural communities would occur as a result of the implementation of this project.
San Gabriel Trench Grade Separation Project	○	11	TSM/TDM (intersects)	No sensitive habitats listed by CNDDB were identified within the project area. Although habitats within the project area are not considered sensitive, they may provide suitable nesting or foraging habitat for a variety of birds. Also, no wetlands or other waters of the United States were identified within the project area. Implementation of avoidance and/or minimization measures would ensure a less than adverse impact on natural communities.
Rosemead Boulevard Safety Enhancement & Beautification Project	○	12	TSM/TDM (intersects)	No sensitive natural communities (no native habitat, natural wetlands, or other natural community) occur on the project site. Therefore, this project would not have an adverse impact on natural communities.
Regional Connector Transit Corridor	○	17	Freeway Tunnel (2,800 ft)	With implementation of proposed mitigation measures, this project would not have an adverse impact on natural communities.
Eastside Transit Corridor Phase 2 – Metro Gold Line Eastside Extension	○	18	BRT (intersects) LRT (0.5 mi)	Because this project would operate within existing ROW, it is anticipated that this project would not have a substantial adverse impact on natural communities.
Alhambra Bicycle Master Plan	○	24	BRT (intersects)	During construction of Bicycle Master Plan projects, significant impacts under CEQA to SEAs, SEA buffers, coastal ESHAs, or other relatively undisturbed and natural areas would potentially occur. Implementation of mitigation measures incorporated into the project would lessen these impacts to less than significant levels under CEQA. Therefore, no unavoidable significant project impacts would occur under CEQA.
Lincoln Avenue Specific Plan	○	25	Freeway Tunnel (100 ft)	It has been determined that this project would not have an impact to natural communities.
Crown City Medical Center	○	26	Freeway Tunnel (0.25 mi)	It has been determined that this project would have a less than significant impact on natural communities under CEQA.
16 East California Project	○	27	BRT (1,000 ft) LRT (460 ft) Freeway Tunnel (0.4 mi)	As this project redevelops an existing site, it is anticipated that there will be a less than significant impact on natural communities under CEQA.
Huntington Memorial Hospital Master Development Plan Amendment	○	31	BRT (750 ft) LRT (900 ft) Freeway Tunnel (200 ft)	It has been determined that this project would have no impact on natural communities.
Garfield Reservoir Replacement Project	○	33	TSM/TDM (0.25 mi) BRT (800 ft)	Because the site is re-using an existing operation, it is not anticipated that this project would result in adverse effects to natural communities.
Arroyo Seco Pedestrian and Bicycle Trail	○	34	Freeway Tunnel (0.5 mi)	Because this project proposes to implement a pedestrian and bicycle trail within an existing recreational facility (golf course), it is anticipated that it would not result in adverse effects to natural communities.

TABLE 4.21:
Reasonably Foreseeable Actions – Natural Communities

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Olson San Gabriel Residential Community Project	○	35	TSM/TDM (0.5 mi)	The project site contains no riparian habitat or other sensitive biological resources, and the adjacent Rubio Wash is a concrete-lined flood control channel that also contains no riparian or other habitat. Therefore, impacts in this regard are less than significant under CEQA.
100 West Walnut Planned Development	○	36	TSM/TDM (0.5 mi) BRT (0.25 mi)	The project site is located in a highly urbanized area that does not contain any natural areas or water features. There are no native resident, migratory fish, or wildlife species or established native resident or migratory wildlife corridors on site or within the project vicinity, nor would the project impede any use of native wildlife nursery sites. Only wildlife commonly found in developed, urban areas are expected to be found within the project site. Therefore, no impacts to natural communities are anticipated.
Hill and Colorado Project	○	37	BRT (intersects)	Given the highly urbanized setting of the project site, this project would not have an impact on natural communities.
Green Hotel Apartments Project	○	38	TSM/TDM (0.25 mi) BRT (intersects) LRT (0.5 mi) Freeway Tunnel (0.25 mi)	Given the highly urbanized setting of the project site, this project would not have an impact on natural communities.
Reuse of the Desiderio Army Reserve Center	○	39	BRT (0.5 mi) Freeway Tunnel (0.25 mi)	Demolition of the structures and parking areas and construction of the new bungalows could cause short-term impacts to biological resources. Although limited vegetation occurs on the site, large vehicles used for demolition and construction have the potential to crush low-growing grass vegetation. Required BACMs would be used to reduce the amount of airborne dust, which would help lessen potential short-term impacts to the biological resources. Additionally, the vegetation in a portion of the project site would be enhanced by planting new non-invasive vegetation, which would minimize any future impacts to the vegetation in the area.

1 See Table 3.1 for the list of references for each project.
2 The hollow bullet (○) indicates projects that would either have no impact to land use, or would not have an impact after typical avoidance, minimization and/or mitigation measures are incorporated.
3 The solid bullet (●) indicates projects that either still have an adverse impact after mitigation or require extraordinary mitigation measures and therefore are included in the analysis for this subject area.

BACMs = best available control measures
BRT = Bus Rapid Transit
CEQA = California Environmental Quality Act
CNDDB = California Natural Diversity Database
ESHA = Environmentally Sensitive Habitat Area
ft =foot/feet
HOT = High-Occupancy Toll
HOV = High-Occupancy Vehicle
I-10 = Interstate 10
LRT = Light Rail Transit
Metro = Los Angeles County Metropolitan Transportation Authority
mi = mile/miles
ROW = right of way
SEA = Sensitive Environmental Area
TDM = Transportation Demand Management
TSM = Transportation System Management

4.2.17 Wetlands and Other Waters

The analysis in this section is based on the NES (2014) for the SR 710 North Study.

4.2.17.1 Resource Study Area

The RSA for wetlands and other waters is consistent with the BSA established for the SR 710 North Study. The BSA is an approximately 3,410 ac area that includes portions of the Cities of Los Angeles, Pasadena, South Pasadena, Alhambra, San Gabriel, Rosemead, San Marino, and Monterey Park, as well as unincorporated portions of Los Angeles County. Existing land uses within and adjacent to the BSA primarily include: transportation, residential, commercial, industrial, infrastructure, and recreational land uses.

4.2.17.2 Health and Historical Context

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

Two streams, the Arroyo Seco and the Laguna Channel, were identified along with two wetlands, two areas of non-wetland riparian habitat, and several ditch features. In all, 27 features were identified in the BSA. The streams provide the only potential habitat value in the BSA for fish and other riparian aquatic species. However, habitat quality is limited by the fact that large portions of these streams have been channelized for flood control, like most streams and rivers in the Los Angeles region.

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

The Laguna Channel, which is also a tributary of the Los Angeles River, is mostly channelized in a concrete-lined rectangular channel in the BSA. The sole earthen bottom portion of this stream in the BSA is associated with an abutting wetland that provides potential habitat for plants and wildlife and with riparian non-wetland habitats.

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

A number of excavated ditches were identified in the BSA, created to drain storm water, hillside runoff, and nuisance flows, most of which were concrete lined. These features rarely carry water, support little vegetation, and have very limited habitat value. None of these ditch features were identified as subject to the jurisdiction of the USACE, CDFW, or Regional Water Quality Control Board (RWQCB).

Waters and wetlands potentially subject to USACE jurisdiction include the abovementioned Arroyo Seco and Laguna Channel, totaling 4.43 jurisdictional acres, and an abutting 0.44 ac wetland. Areas potentially subject to CDFW jurisdiction included those subject to Corps jurisdiction as well as 4.91 ac of non-wetland riparian vegetation. Waters and wetlands potentially subject to RWQCB jurisdiction included all of the above as well as an isolated 1.09 ac wetland, with the exception of non-wetland riparian plant communities.

4.2.17.3 Project Impacts

As stated previously in Section 4.2.16.3, the SR 710 North Study has been refined to avoid and minimize impacts to wetlands and other waters. Specifically, the Freeway Tunnel Alternative single-bore and dual-bore design variations have minimized impacts to the northernmost section of the Laguna Channel, near the tunnel portal. Additional segments of the Laguna Channel have been completely eliminated from the impact areas.

Neither the TSM/TDM Alternative nor the BRT Alternative would impact any drainage features of any type, including ditches draining upland areas.

Of the potentially jurisdictional features identified within the BSA, only the Laguna Channel stream channel would be impacted by any of the Build Alternatives. The TSM/TDM, BRT, and LRT Alternatives would have no anticipated impacts to Corps jurisdictional waters, and the Freeway Tunnel Alternatives (both single- and dual-bore) would both have permanent impacts (0.06 ac and 0.51 ac, respectively) and temporary impacts (0.02 ac and 0.22 ac, respectively).

Impacts to drainages and habitats potentially subject to CDFW jurisdiction varied among the Build Alternatives, with the TSM/TDM, BRT, and LRT Alternatives having no anticipated impacts, and the Freeway Tunnel Alternatives (both single-and dual-bore) having both permanent impacts (0.06 ac and 0.51 ac, respectively) and temporary impacts (0.02 ac and 0.22 ac, respectively) to non-wetland waters. Additionally, the Freeway Tunnel Alternative (both single- and dual-bore) would have 1.09 ac of permanent impacts to wetland waters.

Impacts to waters potentially subject to RWQCB jurisdiction varied among the Build Alternatives, with the TSM/TDM, BRT, and LRT Alternatives having no anticipated impacts, and the Freeway Tunnel Alternatives (both single-and dual-bore) having both permanent impacts (0.06 ac and 0.51 ac, respectively) and temporary impacts (0.02 ac and 0.22 ac, respectively). Only the Freeway Tunnel Alternative (1.09 ac each for both the single-bore and dual-bore design variations of the Freeway Tunnel Alternative) would impact the Laguna Channel (non-wetland waters) and the wetland associated with the Del Mar Pump Station.

4.2.17.4 Reasonably Foreseeable Actions and Their Impacts

The reasonably foreseeable actions would occur in the areas that are planned for development or redevelopment. The reasonably foreseeable actions are listed in Table 3.1 and shown on Figure 3-1.

Table 4.22 shows projects with particular relevance to wetlands and other waters as well as their impacts.

4.2.17.5 Cumulative Impact

As shown in Table 4.22, the cumulative projects would either have no impact to wetlands or other waters or, upon implementation of avoidance, minimization, and/or mitigation measures, would not have a substantial adverse impact on wetlands and other waters.

As discussed above in Section 4.2.17.3, the Freeway Tunnel Alternatives (both single-bore and dual-bore) would have both permanent and temporary impacts to non-wetland and wetland areas subject to Corps, CDFW, and/or RWQCB jurisdiction. However, with the avoidance, minimization, and/or mitigation/compensation measures outlined below in Section 4.2.17.6, impacts would not be substantially adverse.

Based on the above discussion, the SR 710 North Study, in combination with the cumulative projects listed in Table 4.22, would not contribute to a cumulative impact on wetlands and other waters in the RSA.

4.2.17.6 Avoidance, Minimization, and/or Mitigation Measures

Areas identified as being under the jurisdiction of the USACE will be avoided wherever possible. Caltrans will obtain a Dredge and Fill Permit from the USACE if any USACE jurisdictional areas are to be impacted and prior to approval of Plans, Specifications, and Estimates (PS&E). The measures specified in the Dredge and Fill Permit would minimize temporary and permanent project impacts to drainages and habitats subject to USACE jurisdiction. In addition, commonly used best management practices (BMPs) will be used to minimize project impacts. For streams, compensatory mitigation at a minimum 1:1 ratio would be required to meet the “no net loss” national goal. Compensatory measures may include restoration of previously existing waters, enhancement of the functions of existing waters, establishment of new waters, preservation of existing aquatic sites, participation in an in-lieu fee program, and/ or participation in a mitigation bank approved by the USACE.

Areas identified as being under the jurisdiction of CDFW will be avoided wherever possible. Caltrans will obtain an SAA from the CDFW under Section 1600 of the Department of Fish and Game Code if any CDFW jurisdictional areas are to be impacted and prior to approval of PS&E. The measures specified in the SAA would minimize temporary and permanent project impacts to drainages and habitats subject to CDFW jurisdiction. In addition, commonly used BMPs will be used to minimize project impacts. Those measures may include restoration of previously existing waters, enhancement of the functions of existing waters, establishment of new waters, preservation of existing aquatic sites, and/or participation in a mitigation bank approved by the CDFW.

Areas identified as being under the jurisdiction of the RWQCB will be avoided wherever possible. Caltrans will obtain a Section 401 Water Quality Certification from the RWQCB if any RWQCB jurisdictional areas are to be impacted and prior to approval of PS&E. In addition, commonly used BMPs will be used to minimize project impacts. Compensatory mitigation may be identified to offset temporary and permanent impacts to RWQCB jurisdictional waters. The RWQCB has published preliminary draft compensatory mitigation requirements to ensure achievement of the RWQCB’s no net loss and long-term net gain policy for aquatic resources. Mitigation ratios would be determined

TABLE 4.22:
Reasonably Foreseeable Actions – Wetlands and Other Waters

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
I-10 HOT Lanes	○	8	BRT (intersects) LRT (intersects) Freeway Tunnel (intersects)	This project was completed in 2013. Because this project converted the existing HOV lane to a HOT lane and restriped the existing roadway to accommodate an additional HOT lane, impacts to wetlands and other waters would not occur as a result of operation of this project.
San Gabriel Trench Grade Separation Project	○	11	TSM/TDM (intersects)	No part of the existing UPRR or this project (such as walls or support structures) would be in areas defined as federally protected wetlands. In addition, the Alhambra Wash and Rubio Wash are not defined as federally protected wetlands.
Rosemead Boulevard Safety Enhancement & Beautification Project	○	12	TSM/TDM (intersects)	The proposed project would not have an effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, or coastal resources) through direct removal, filling, hydrological interruption, or other means.
Regional Connector Transit Corridor	○	17	Freeway Tunnel (2,800 ft)	With implementation of proposed mitigation measures, this project would not have an adverse impact on wetlands and other waters.
Eastside Transit Corridor Phase 2 – Metro Gold Line Eastside Extension	○	18	BRT (intersects) LRT (0.5 mi)	Because this project would operate within existing ROW, it is anticipated that this project would not have a substantial adverse impact on wetlands and other waters.
Alhambra Bicycle Master Plan	○	24	BRT (intersects)	Under CEQA, during construction of the Bicycle Master Plan projects, significant impacts to rivers, creeks, channels, and flood control facilities would potentially occur. Implementation of mitigation measures incorporated into this project would lessen these impacts to less than significant levels; therefore, no unavoidable significant project impacts would occur.
Lincoln Avenue Specific Plan	○	25	Freeway Tunnel (100 ft)	It has been determined that this project would not have an impact to wetlands and other waters.
Crown City Medical Center	○	26	Freeway Tunnel (0.25 mi)	Under CEQA, it has been determined that this project would have a less than significant impact on wetlands and other waters.
16 East California Project	○	27	BRT (1,000 ft) LRT (460 ft) Freeway Tunnel (0.4 mi)	As this project redevelops an existing site, it is anticipated that there will be a less than significant impact on wetlands and other waters under CEQA.
Huntington Memorial Hospital Master Development Plan Amendment	○	31	BRT (750 ft) LRT (900 ft) Freeway Tunnel (200 ft)	Under CEQA, it has been determined that this project would not have an impact on wetlands and other waters.
Garfield Reservoir Replacement Project	○	33	TSM/TDM (0.25 mi) BRT (800 ft)	Because the site is re-using an existing operation, it is not anticipated that this project would result in adverse effects to wetlands and other waters.
Arroyo Seco Pedestrian and Bicycle Trail	○	34	Freeway Tunnel (0.5 mi)	Because this project proposes to implement a pedestrian and bicycle trail in an existing recreational facility (golf course), it is anticipated that it would not result in adverse effects to wetlands and other waters.
Olson San Gabriel Residential Community Project	○	35	TSM/TDM (0.5 mi)	The project site does not contain any jurisdictional waters or wetlands, so there will be no significant impacts in this regard.

TABLE 4.22:
Reasonably Foreseeable Actions – Wetlands and Other Waters

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
100 West Walnut Planned Development	○	36	TSM/TDM (0.5 mi) BRT (0.25 mi)	The project site is located in a highly urbanized area and is currently developed with buildings, surface parking areas, and limited landscaping. In addition, the area surrounding the project site is almost entirely developed with structures and/or impervious surfaces. There are no federally protected waters or wetlands (as defined by Section 404 of the Clean Water Act) on the project site, and no water features or other topographic depressions are present on the project site that could support wetlands. No impacts to wetlands would occur as a result of this project.
Hill and Colorado Project	○	37	BRT (intersects)	There are no federally protected waters or wetlands (as defined by Section 404 of the Clean Water Act) on the project site, and no water features or other topographic depressions are present on the project site that could support wetlands. Therefore, no impacts to wetlands would occur with implementation of the proposed project.
Green Hotel Apartments Project	○	38	TSM/TDM (0.25 mi) BRT (intersects) LRT (0.5 mi) Freeway Tunnel (0.25 mi)	Given the highly urbanized setting of the project site, this project would not have an impact on wetlands and other waters.
Reuse of the Desiderio Army Reserve Center	○	39	BRT (0.5 mi) Freeway Tunnel (0.25 mi)	The project site contains limited vegetation. Additionally, the vegetation in a portion of the project site would be enhanced by planting new non-invasive vegetation, which would minimize any future impacts to the vegetation in the area. Therefore, it is not anticipated that this project would have an impact to wetlands and other waters.

[1] See Table 3.1 for the list of references for each project.
[2] The hollow bullet (○) indicates projects that would either have no impact to land use, or would not have an impact after typical avoidance, minimization and/or mitigation measures are incorporated.
[3] The solid bullet (●) indicates projects that either still have an adverse impact after mitigation or require extraordinary mitigation measures and therefore are included in the analysis for this subject area.

BRT = Bus Rapid Transit
CEQA = California Environmental Quality Act
ft = foot/feet
HOT = High-Occupancy Toll
HOV = High-Occupancy Vehicle
I-10 = Interstate 10
LRT = Light Rail Transit
Metro = Los Angeles County Metropolitan Transportation Authority
mi = mile/miles
ROW = right of way
TDM = Transportation Demand Management
TSM = Transportation System Management
UPRR = Union Pacific Railroad

in consultation with the RWQCB at the time of issuance of the certification. The measures specified in the Section 401 Water Quality Certification would minimize project impacts to drainages and habitats subject to RWQCB jurisdiction. Those measures may include restoration of previously existing waters, enhancement of the functions of existing waters, establishment of new waters, preservation of existing aquatic sites, and/or participation in a mitigation bank approved by the RWQCB.

4.2.18 Plant Species

The analysis in this section is based on the NES (2014) prepared for the SR 710 North Study.

4.2.18.1 Resource Study Area

The RSA for natural communities is consistent with the BSA established for the SR 710 North Study. The BSA is an approximately 3,410 ac area that includes portions of the Cities of Los Angeles, Pasadena, South Pasadena, Alhambra, San Gabriel, Rosemead, San Marino, and Monterey Park, as well as unincorporated portions of Los Angeles County. Existing land uses in and adjacent to the BSA primarily include: transportation, residential, commercial, industrial, infrastructure, and recreational land uses.

4.2.18.2 Health and Historical Context

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

The BSA contains primarily disturbed/developed habitats with small isolated areas of natural vegetation. By far the most common plant community/land cover type present is disturbed/developed, which represents more than 95 percent of the BSA. Additional plant communities identified included nonnative grassland, nonnative woodland, nonnative riparian woodland, wetland complex, giant reed semi-natural stands, laurel sumac scrub, coast live oak woodland, white alder groves, black cottonwood forest, and arroyo willow thickets. The CDFW considers the latter four plant community types as sensitive and/or natural communities of special concern, along with the riparian habitats of the riparian nonnative woodland, wetland complex, and giant reed breaks. The only sensitive plant community that could be impacted is wetland complex, which would be permanently impacted by the Freeway Tunnel Alternative. A total of 54 sensitive plant species have the potential to occur on or within the vicinity of the BSA. Two nonlisted special-status species that might be directly impacted are Coulter's goldfields and Southern California black walnut.

A small population (approximately 300 individuals) of Coulter's goldfields was identified within a freeway edge along I-10 near the I-710/I-10 interchange. No other suitable habitat for Coulter's goldfields occurs within the BSA.

A single young Southern California black walnut was observed growing in the understory of a stand of unmaintained Aleppo pine woodland, upslope from westbound I-210 in the City of Pasadena. No other individuals of this species were identified within the BSA. Due to the conspicuous nature of trees such as the Southern California black walnut during botanical surveys, the potential for the species to be present but not observed is low. Therefore, with the exception of the individual described above, the species is considered absent from the BSA.

Focused botanical surveys during 2013 determined that suitable habitat was present for the following additional 14 special-status plants: California muhly, California saw-grass, Davidson's bush-mallow, Greata's aster, Los Angeles sunflower, Parish's gooseberry, Peruvian dodder, Robinson's pepper-grass, San Bernardino aster, Santa Barbara morning-glory, slender mariposa-lily, Sonoran maiden fern, southern tarplant, and white rabbit-tobacco. None of these species were found in the BSA during botanical surveys conducted throughout the entire BSA in 2013. Botanical surveys were conducted during the appropriate blooming period for all of these plants with the exception of Parish's gooseberry, Santa Barbara morning-glory, and slender mariposa-lily. Therefore, California muhly, California saw-grass, Davidson's bush-mallow, Greata's aster, Los Angeles sunflower, Peruvian dodder, Robinson's pepper-grass, San Bernardino aster, Santa Barbara morning-glory, Sonoran maiden-fern, southern tarplant, and white-rabbit tobacco are considered absent from the BSA. Although not likely blooming, Santa Barbara morning-glory has readily identifiable parts aboveground year-round and is therefore also considered absent. Parish's gooseberry and slender mariposa-lily are considered potentially present.

Please refer to Section 4.2.20 for a discussion of threatened and endangered plant species.

4.2.18.3 Project Impacts

Coulter's Goldfields

Should the Freeway Tunnel Alternative (single-bore or dual-bore) be selected, the SR 710 North Study has the potential to have a permanent direct impact on the entire population of Coulter's goldfields at this location through disturbance and/or removal of the population. This population of Coulter's goldfields is currently highly impacted by the level of development (freeways, infrastructure, etc.) within its vicinity. There are over 130 records of this plant in southern California that occur after 1930 (Calflora), and this plant may be included in hydroseed mixes applied to highway margins, as appears to be the case with this population. As such, the removal of this population would not constitute a substantial effect to the southern California regional population of this subspecies. If it is determined that this population exists as a result of the species' inclusion in a seed mix during planting, then this species would not be considered impacted by the Freeway Tunnel Alternative because it would not be considered a naturally occurring population. The LRT Alternative has the potential to result in permanent indirect impacts through the increase in proximity of development to the vicinity of the population and the adverse impacts associated with that development. These impacts would be minimized by implementation of the avoidance and minimization efforts outlined below in Section 4.2.18.6. These indirect impacts are not anticipated to result in a permanent loss of this population. No other SR-710 North Study Build Alternatives would have any direct, indirect, temporary, or permanent impacts on this population. If it is

determined that this population exists as a result of the species' inclusion in a seed mix during planting, then this species would not be considered impacted by the SR 710 North Study because it would not be considered a naturally occurring population.

Southern California Black Walnut

Should the Freeway Tunnel Alternative be selected, and encroachment on the tree be avoided through the avoidance and minimization efforts described below in Section 4.2.18.6, the impacts to this Southern California black walnut individual would be considered temporary. Should the avoidance of the tree not be possible, the SR-710 North Study has the potential to have a permanent direct effect on this individual through disturbance of the tree. Direct effects are anticipated because of the tree's location approximately 4 ft outside of the permanent and temporary impact zones of the Freeway Tunnel Alternative (both single- and dual-bore). Parts of the canopy and root system of this tree likely overlap with the permanent impacts zone. The selection of the Freeway Tunnel Alternative would likely result in impacts to all or part of this individual. As only one individual was determined to be present in the BSA, the impacts to this individual are not likely to warrant compensatory mitigation. This impact would not reduce the viability of the local or global population of this species. At this time, no temporary impacts are anticipated for the tree as a result of the implementation of the SR 710 North Study. No other Build Alternatives would have any direct, indirect, temporary, or permanent impacts on this population. The SR 710 North Study would not directly impact any other known populations of Southern California black walnut due to the absence of the species from the remainder of the BSA, as determined through botanical surveys.

Other Special-Status Plant Species

The SR 710 North Study would not have any direct, indirect, permanent, or temporary impacts on any known populations of California muhly, California saw-grass, Davidson's bush-mallow, Greata's aster, Los Angeles sunflower, Peruvian dodder, Robinson's pepper-grass, San Bernardino aster, Sonoran maiden fern, southern tarplant, or white rabbit-tobacco due to the current absence of these species from the BSA, as determined through botanical surveys.

The SR 710 North Study would not have any direct, indirect, permanent, or temporary impacts on the plant communities that provide suitable habitat for Parish's gooseberry or slender mariposa-lily. Therefore, it is not anticipated that the SR 710 North Study would have any impacts on these species.

4.2.18.4 Reasonably Foreseeable Actions and Their Impacts

The reasonably foreseeable actions would occur in the areas that are planned for development or redevelopment. The reasonably foreseeable actions are listed in Table 3.1 and shown on Figure 3-1. Table 4.23 shows projects with particular relevance to plant species as well as their impacts.

4.2.18.5 Cumulative Impact

As shown in Table 4.23, the cumulative projects would either have no impact to plant species or, upon implementation of avoidance, minimization, and/or mitigation measures, would not have a substantial adverse impact on plant species.

TABLE 4.23:
Reasonably Foreseeable Actions – Plant Species

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
I-10 HOT Lanes	○	8	BRT (intersects) LRT (intersects) Freeway Tunnel (intersects)	This project was completed in 2013. Since all vegetation within and beyond the existing prism of the roadway are ornamental, impacts to biological resources are extremely minimal.
San Gabriel Trench Grade Separation Project	○	11	TSM/TDM (intersects)	No special-status plant species were determined to occur within the project area. Therefore, no impacts to special-status plant species are expected as a result of implementation of the proposed project.
Rosemead Boulevard Safety Enhancement & Beautification Project	○	12	TSM/TDM (intersects)	The project site does not contain suitable habitat for any special-status plant species, and no special-status species would be expected to occur on or in the immediate vicinity of the project site during construction or operation activities.
Regional Connector Transit Corridor	○	17	Freeway Tunnel (2,800 ft)	With implementation of proposed mitigation measures, this project would not have an adverse impact on plant species.
Eastside Transit Corridor Phase 2 – Metro Gold Line Eastside Extension	○	18	BRT (intersects) LRT (0.5 mi)	Because this project would operate within existing ROW, it is anticipated that this project would not have a substantial adverse impact on plant species.
Alhambra Bicycle Master Plan	○	24	BRT (intersects)	During construction of the Bicycle Master Plan projects, significant impacts to unique native trees, including oak trees, western sycamore, California walnut, and Joshua trees, would potentially occur under CEQA. Implementation of mitigation measures incorporated into the project would lessen these impacts to less than significant levels under CEQA. Therefore, no unavoidable significant project impacts would occur under CEQA.
Lincoln Avenue Specific Plan	○	25	Freeway Tunnel (100 ft)	It has been determined that this project would not have an impact to plant species.
Crown City Medical Center	○	26	Freeway Tunnel (0.25 mi)	It has been determined that this project would have a less than significant impact on plant species under CEQA.
16 East California Project	○	27	BRT (1,000 ft) LRT (460 ft) Freeway Tunnel (0.4 mi)	As this project redevelops an existing site, it is anticipated that there will be a less than significant impact on plant species under CEQA.
Huntington Memorial Hospital Master Development Plan Amendment	○	31	BRT (750 ft) LRT (900 ft) Freeway Tunnel (200 ft)	It has been determined that this project would not have an impact on plant species.
Garfield Reservoir Replacement Project	○	33	TSM/TDM (0.25 mi) BRT (800 ft)	Because the site is re-using an existing operation, it is not anticipated that this project would result in adverse effects to special-status plant species.
Arroyo Seco Pedestrian and Bicycle Trail	○	34	Freeway Tunnel (0.5 mi)	Because this project proposes to implement a pedestrian and bicycle trail in an existing recreational facility (golf course), it is anticipated that it would not result in adverse effects to special-status plant species.
Olson San Gabriel Residential Community Project	○	35	TSM/TDM (0.5 mi)	This project site contains several types of trees that are listed in the City's tree preservation ordinance. The project would therefore comply with the ordinance. Therefore, any impacts would be mitigated to a less than significant level under CEQA.

TABLE 4.23:
Reasonably Foreseeable Actions – Plant Species

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
100 West Walnut Planned Development	○	36	TSM/TDM (0.5 mi) BRT (0.25 mi)	The project site is located in a highly urbanized area and is currently developed with buildings, surface parking areas, and limited landscaping. However, the site does contain some canopy trees that would require removal. With compliance with the provisions of the City of Pasadena's Tree Ordinance, project impacts to on-site tree resources would be less than significant under CEQA.
Hill and Colorado Project	○	37	BRT (intersects)	The project site is located in a highly urbanized setting and does not contain any special-status plant species. Additionally, the project site does not contain any tree species protected under the City of Pasadena's Trees and Tree Protection Ordinance; therefore, no impacts to protected trees would occur.
Green Hotel Apartments Project	○	38	TSM/TDM (0.25 mi) BRT (intersects) LRT (0.5 mi) Freeway Tunnel (0.25 mi)	Given the highly urbanized setting of the project site, this project would not have an impact on special-status plant species.
Reuse of the Desiderio Army Reserve Center	○	39	BRT (0.5 mi) Freeway Tunnel (0.25 mi)	The project site contains limited vegetation. Additionally, the vegetation in a portion of the project site would be enhanced by planting new non-invasive vegetation, which would minimize any future impacts to the vegetation in the area. Therefore, it is not anticipated that this project would have an adverse impact to special-status plant species.

[1] See Table 3.1 for the list of references for each project.
[2] The hollow bullet (○) indicates projects that would either have no impact to land use, or would not have an impact after typical avoidance, minimization and/or mitigation measures are incorporated.
[3] The solid bullet (●) indicates projects that either still have an adverse impact after mitigation or require extraordinary mitigation measures and therefore are included in the analysis for this subject area.

BRT = Bus Rapid Transit
CEQA = California Environmental Quality Act
ft = foot/feet
HOT = High-Occupancy Toll
I-10 = Interstate 10
LRT = Light Rail Transit
Metro = Los Angeles County Metropolitan Transportation Authority
mi = mile/miles
ROW = right of way
TSM = Transportation System Management
TDM = Transportation Demand Management

Additionally, as stated above in section 4.2.18.3, with implementation of the suggested avoidance and minimization measures, the Build Alternatives would not have any temporary or indirect impacts on the Coulter's goldfields population. However, even with implementation of avoidance and minimization measures, the Southern California black walnut does have the potential to be impacted by the Freeway Tunnel Alternative (single- and dual-bore variations). Impacts on Southern California black walnut from the Freeway Tunnel Alternative construction activities would be limited to the existing tree discovered during botanical surveys. The contribution to cumulative impacts to this species takes into account the avoidance and minimization efforts described below. Therefore, cumulative impacts resulting from the removal of this individual tree would not likely reduce the viability of the local or global population of this species.

Therefore, based on the above discussion, the SR 710 North Study, in combination with the cumulative projects listed in Table 4.23, would not contribute to a cumulative impact on plant species in the RSA.

4.2.18.6 Avoidance, Minimization, and/or Mitigation Measures

Coulter's Goldfields

Should the LRT or Freeway Tunnel Alternative be selected and documentation of the planting efforts of the population of Coulter's goldfields in the biological study area (BSA) be unavailable, Metro will address the effects of the LRT Alternative on the Coulter's goldfields population as follows:

- The disturbance of this population will be avoided to the greatest extent possible during final design.
- Prior to any construction or ground-disturbing activities near the population, the Resident Engineer will require the Construction Contractor to plan a highly visible barrier such as ESA fencing or other marker near or around any part of the population that will not be directly impacted to avoid effects on that part of the population. No access or work would be authorized within the ESA.
- The Resident Engineer will require the Construction Contractor to have a qualified biologist monitor construction in the vicinity of the ESA for the duration of any ground-disturbing activities in the vicinity of the ESA to ensure that all indirect effects to the population are minimized.

Should the Freeway Tunnel Alternative be selected and documentation of the planting efforts of the population of Coulter's goldfields in the BSA be unavailable, Caltrans will address the effects of the Freeway Tunnel Alternative on the Coulter's goldfields population as follows:

- The removal of this population will be avoided to the greatest extent possible during final design. If during Plans, Specifications and Estimates (PS&E), direct impacts to Coulter's goldfields is avoided by project design, prior to any construction or ground-disturbing activities near the population, the Resident Engineer will require the Construction Contractor to plan a highly visible barrier (e.g., Environmentally Sensitive Area [ESA] fencing or other marker) near or around any part of the population that will not be directly impacted to avoid effects on that part of the population. No access or work will be authorized within the ESA.
- The Resident Engineer will require the Construction Contractor to have a qualified biologist monitor construction in the vicinity of the ESA for the duration of any ground-disturbing

activities in the vicinity of the ESA to ensure that indirect effects to the population are minimized.

- Should removal of the Coulter's goldfields population be required, the California Department of Transportation (Caltrans) will consult with the California Department of Fish and Wildlife (CDFW) to determine the appropriate mitigation-to-impact ratio for this population, which will be a minimum of 1:1. Mitigation may include replacement within a State-owned ROW. Caltrans will coordinate with the CDFW prior to construction to determine the appropriate mitigation actions required and to ensure the actions are carried out.

Southern California Black Walnut

The Caltrans Resident Engineer will require the Construction Contractor to implement the following to address the effect of the Freeway Tunnel Alternative on the Southern California black walnut:

- The removal and/or disturbance of this individual will be avoided to the greatest extent possible during final design and construction. A qualified biologist will establish the dripline of this tree, which will be identified on the design plans, and an ESA will be established.
- Prior to any construction or ground-disturbing activities, the Resident Engineer will require the Construction Contractor to plan a highly visible barrier (e.g., ESA fencing or other marker) near or around any part of the population that will not be directly impacted to avoid effects on that part of the population. No access or work will be authorized within the ESA.
- The Resident Engineer will require the Construction Contractor to have a qualified arborist monitor construction within the vicinity of any established ESA for the duration of any ground-disturbing activities.
- Should the removal of the individual Southern California black walnut be required, Caltrans will coordinate with CDFW prior to construction to determine the need for compensatory mitigation and to ensure the mitigation actions are carried out.

Trees Protected by City and/or County Ordinances

The following will be required to address project effects on protected trees:

- Prior to construction or ground-disturbing activities, the Resident Engineer will require the Construction Contractor to plan a highly visible barrier (e.g., Environmentally Sensitive Area [ESA] fencing or other marker) near or around any part of the population that will be placed around the dripline or trunk of protected trees within and adjacent to the limits of disturbance such that no work will occur within the protected area. If this is infeasible, the Resident Engineer will require the Construction Contractor to obtain appropriate tree removal permits for each impacted protected tree from the appropriate local agency (i.e., Cities of Los Angeles, Pasadena, South Pasadena, and Rosemead, or the County of Los Angeles).
- Compensatory mitigation may be required at the discretion of the agency with jurisdiction over protected trees; therefore, the compensatory mitigation would vary by jurisdiction. Compensation will be provided consistent with the requirements of the appropriate local agency's tree protection ordinance.
- Per Caltrans policy, impacts to any oak trees (excluding California scrub oaks) located within the State-owned ROW with trunk sizes above an 8-inch diameter at breast height will be replaced by

Metro at a mitigation-to-impact ratio of 3:1. Heritage oaks (oaks with a diameter at breast height greater than 36 inches) will be replaced at a mitigation-to-impact ratio of 10:1.

4.2.19 Animal Species

The analysis in this section is based on the NES (2014) prepared for the SR 710 North Study.

4.2.19.1 Resource Study Area

The RSA for natural communities is consistent with the BSA established for the SR 710 North Study. The BSA is an approximately 3,410 ac area that includes portions of the Cities of Los Angeles, Pasadena, South Pasadena, Alhambra, San Gabriel, Rosemead, San Marino, and Monterey Park, as well as unincorporated portions of Los Angeles County. Existing land uses within and adjacent to the BSA primarily include: transportation, residential, commercial, industrial, infrastructure, and recreational land uses.

4.2.19.2 Health and Historical Context

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

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

There are no known migration corridors or wildlife linkages within the BSA; however, the area likely serves as a stopover site during bird migration. Trees and other vegetation within the BSA provide potential foraging and roosting sites for migrating birds, as do the trees and vegetation in the surrounding area. Historically, the Los Angeles River Watershed served as habitat to the federally endangered steelhead salmon (Oncorhynchus mykiss). However, due to the dramatic population decline of this species, as well as river modifications such as channelization and alterations

associated with flood control and metropolitan development, it is very unlikely to be present within the BSA.

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

A total of 71 special-status wildlife species have the potential to occur within the BSA. Fifteen (15) of these plant species are federally and/or State-listed endangered, threatened, rare, or proposed endangered or threatened, or are considered Fully Protected Species by the state of California. These species are discussed in Section 4.2.20, Threatened and Endangered Species. Additional protected or special-status animal species have the potential to occur in the BSA and are discussed below.

No American peregrine falcons were observed in the BSA during focused bird surveys conducted in 2013. The nearest previously observed nesting location of this species was located at the AT&T building in Pasadena at the northwest corner of East Colorado Boulevard and South Marengo Avenue, approximately 0.25 mi from the BRT Alternative, 0.8 mi from the LRT Alternative, and 0.35 mi from the Freeway Tunnel. This nest site has been used repeatedly for several years. In general, the BSA does contain tall buildings in downtown Pasadena that provide additional potential nesting habitat for American peregrine falcon.

A habitat assessment for riparian obligate birds was conducted in March and August 2013 to determine whether suitable habitat for special-status riparian birds was present within the BSA. Two areas of potentially suitable streamside vegetation within the BSA were identified during pedestrian surveys and plant community mapping and were then the subject of the focused habitat assessment. It is unlikely that yellow warbler and/or yellow-breasted chat breed within and/or adjacent to the BSA, although sporadic use outside the breeding season by non-territorial individuals of yellow warbler and yellow-breasted chat likely does occur.

Three sites included expanses of open low vegetation and were considered to have the potential to be suitable for burrowing owls. These sites were visited by an avian biologist to evaluate their potential to provide habitat. The habitat assessment resulted in the determination that no suitable burrowing owl habitat is present within the BSA. Although the areas were all open grassy areas with few trees and shrubs, there was no evidence of small mammal burrows or colonies that would provide a suitable prey base. Further, no burrowing owls, suitable burrows, or burrowing owl signs were observed during surveys. It is unlikely that burrowing owls occur within and adjacent to the BSA. Therefore, burrowing owl is considered absent from the BSA.

Five bridges and one nearby foraging area within the BSA were identified as having characteristics suitable for bat roosting, and passive and active acoustic bat surveys were conducted at these locations to determine bat presence. Bat calls recorded at the bridge locations that were identified to the phonic group level did indicate that the following special-status species are potentially using

the BSA as foraging habitat near the bridges: hoary bat, long-legged myotis, Yuma myotis, pocketed free-tailed bat, and silver-haired bat.

Suitable habitat is present in the BSA for the following special-status wildlife species: monarch butterfly, coast range newt, western spadefoot, coast horned lizard, coast patch-nosed snake, two-striped garter snake, San Bernardino ring-necked snake, western pond turtle, California legless lizard, rosy boa, coastal whiptail, south coast garter snake, Allen's hummingbird, Costa's hummingbird, Lawrence's goldfinch, merlin, Nuttall's woodpecker, oak titmouse, and Cooper's hawk. For monarch butterfly, the habitat for winter roosting aggregations was considered marginal because all known monarch wintering sites are located closer to the coast where winter weather is moderated by the oceanic influence. Overnight fall roosts, which occur during migration, could occur in trees within the BSA. Of these species only the Allen's hummingbird, Nuttall's woodpecker, oak titmouse, and Cooper's hawk and were observed within the BSA during 2013 surveys. None of these four species were observed nesting during 2013 surveys. In addition, two pairs of red-tailed hawks (*Buteo jamaicensis*) exhibited territorial and breeding behavior at two locations within or adjacent to the BSA. One pair, seen repeatedly near the southern end of the BSA, was observed mating, and a potential nest location was discovered in a eucalyptus tree approximately 500 ft outside of the BSA. No fledglings were noted at any time in or around the nest despite subsequent visits to this area, so it is assumed that the nesting attempt was not successful. A second pair of red-tailed hawks was repeatedly noted as acting territorial near the Del Mar Pump Station in the northern portion of the BSA, but no nest site was documented. In addition to the species mentioned above, 78 avian species protected under the Migratory Bird Treaty Act (MBTA) were identified incidentally and during focused avian surveys in the BSA (see Appendix F, Avian Surveys, of the NES).

4.2.19.3 Project Impacts

American Peregrine Falcon

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

Special-Status Riparian Bird Species (Yellow-Breasted Chat and Yellow Warbler)

The SR 710 North Study would not directly impact any known populations of yellow warbler and/or yellow-breasted chat, or habitats known to be used by these species. The Freeway Tunnel Alternative (both single-bore and dual-bore design variations) and the LRT Alternative would have indirect temporary impacts on the potential non-breeding habitat provided by the riparian areas, through noise, lighting, dust, etc., and therefore have indirect temporary impacts on any sensitive riparian bird species if present. Direct impacts to sensitive riparian birds, should they use the sites outside the breeding season, are not anticipated because they may leave the vicinity during construction and forage elsewhere.

Burrowing Owl

The SR 710 North Study would not directly impact any habitat for, or known populations of, burrowing owl due to the absence of the species from the BSA as determined through a focused burrowing owl habitat assessment.

Special-Status Bat Species

The SR 710 North Study would not directly impact any known bat populations due to the absence of roosting bat detections at the bridges proposed for demolition and/or widening as determined through focused bat habitat assessment surveys. Should bats begin utilizing any of the bridges, then the Freeway Tunnel Alternative (both single-bore and dual-bore design variations) and the TSM/TDM Alternative would have the potential to have temporary indirect impacts through the loss of the roosting location. Preconstruction bat surveys would be conducted prior to ground-disturbing activities. Based on these factors, the Freeway Tunnel Alternative (both single-bore and dual-bore design variations) and the TSM/TDM Alternative are considered unlikely to affect bats directly or indirectly. While suitable foraging habitat for bats is present, no appreciable amount of habitat would be removed as a result of implementation of any of the SR 710 North Study Build Alternatives.

Other Wildlife Species

It is anticipated that the Build Alternatives would have no impacts within areas of suitable habitat for coast horned lizard, coast patch-nosed snake, two-striped garter snake, western pond turtle, south coast garter snake, California legless lizard, rosy boa, and coastal whiptail.

Suitable habitat for monarch butterfly, coast range newt, western spadefoot, San Bernardino ring-necked snake, Cooper's hawk, Allen's hummingbird, Costa's hummingbird, Lawrence's goldfinch, merlin, Nuttall's woodpecker, oak titmouse, any nesting or breeding birds of prey protected under California Fish and Game Code Sections 3503 and 3503.5 (e.g., red-tailed hawk), and any other nesting or breeding birds protected under the MBTA has the potential to be impacted by the SR 710 North Study. Impacts to these species would still be adverse after the avoidance and minimization efforts described below in Section 4.2.19.6.

4.2.19.4 Reasonably Foreseeable Actions and Their Impacts

The reasonably foreseeable actions would occur in the areas that are planned for development or redevelopment. The reasonably foreseeable actions are listed in Table 3.1 and shown on Figure 3-1. Table 4.24 shows projects with particular relevance to animal species as well as their impacts.

4.2.19.5 Cumulative Impact

As shown below in Table 4.24, the cumulative projects would either have no impact to animal species or, upon implementation of avoidance, minimization, and/or mitigation measures, would not have a substantial adverse impact on animal species.

As stated in Section 4.2.19.3, suitable habitat for monarch butterfly, coast range newt, western spadefoot, two-striped garter snake, western pond turtle, south coast garter snake, San Bernardino ring-necked snake, Cooper's hawk, Allen's hummingbird, Costa's hummingbird, Lawrence's goldfinch, merlin, Nuttall's woodpecker, oak titmouse, any nesting or breeding birds of prey protected under California Fish and Game Code Sections 3503 and 3503.5 (e.g., red-tailed hawk), and any other nesting or breeding birds protected under the MBTA has the potential to be impacted by the SR 710 North Study even after avoidance and minimization efforts. Therefore, the SR 710 North Study has the potential to contribute to a cumulative impact on nesting or breeding birds under the MBTA.

TABLE 4.24:
Reasonably Foreseeable Actions – Animal Species

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
I-10 HOT Lanes	○	8	BRT (intersects) LRT (intersects) Freeway Tunnel (intersects)	This project was completed in 2013. Because this project converted the existing HOV lane to a HOT lane and restriped the existing roadway to accommodate an additional HOT lane, no meaningful or substantial consequences would occur to animal species as a result of implementation of this project.
San Gabriel Trench Grade Separation Project	○	11	TSM/TDM (intersects)	No special-status plant species were determined to occur within the project area. Therefore, no impacts to special-status plant species are expected as a result of implementation of the proposed project.
Rosemead Boulevard Safety Enhancement & Beautification Project	○	12	TSM/TDM (intersects)	With the exception of common birds protected under the federal MBTA and CDFG Code, the project site does not contain suitable habitat for any special-status wildlife species, and no special-status species would be expected to occur on or in the immediate vicinity of the project site during construction or operation activities. However, as the proposed project would result in the removal and replacement of some trees along the ROW, implementation of a mitigation measure is required to prevent potential direct and indirect impacts to nesting birds in violation of the MBTA and CDFG Code, thereby reducing potential impacts to less than significant under CEQA.
Regional Connector Transit Corridor	○	17	Freeway Tunnel (2,800 ft)	Indirect impacts to migratory birds from this project would not be adverse because the project area provides only low quality habitat for a small number of migratory birds and only a small number of birds (if any) could be displaced. Mitigation would reduce these potential indirect impacts to a less than adverse level.
Eastside Transit Corridor Phase 2 – Metro Gold Line Eastside Extension	○	18	BRT (intersects), LRT (0.5 mi)	As this project would operate within existing ROW, it is anticipated that this project would not have a substantial adverse impact on animal species.
Alhambra Bicycle Master Plan	○	24	BRT (intersects)	During construction of the Bicycle Master Plan projects, under CEQA, significant impacts to sensitive species or their habitat would potentially occur. Implementation of mitigation measures incorporated into the project would lessen these impacts to less than significant levels. Therefore, no unavoidable significant project impacts would occur.
Lincoln Avenue Specific Plan	○	25	Freeway Tunnel (100 ft)	It has been determined that this project would not have an impact to animal species.
Crown City Medical Center	○	26	Freeway Tunnel (0.25 mi)	Under CEQA, it has been determined that this project would have a less than significant impact on animal species.
16 East California Project	○	27	BRT (1,000 ft) LRT (460 ft) Freeway Tunnel (0.4 mi)	As this project redevelops an existing site, it is anticipated that there will be a less than significant impact on animal species under CEQA.

TABLE 4.24:
Reasonably Foreseeable Actions – Animal Species

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Huntington Memorial Hospital Master Development Plan Amendment	○	31	BRT (750 ft) LRT (900 ft) Freeway Tunnel (200 ft)	This project proposes to remove 66 trees on the project site. Given the presence of the number of mature trees on site, there is a potential for adverse effects on migratory birds using these trees for nesting, which are protected under the MBTA of 1918. While the potential for nesting birds to be present in any of the affected trees on site is considered low and construction would have to be occurring during the nesting season, their presence cannot be ruled out. Incorporation of appropriate mitigation measures would ensure that no adverse impacts to migratory nesting birds would occur due to project implementation.
Garfield Reservoir Replacement Project	○	33	TSM/TDM (0.25 mi) BRT (800 ft)	Because the site is re-using an existing operation, it is not anticipated that this project would result in adverse effects to special-status animal species.
Arroyo Seco Pedestrian and Bicycle Trail	○	34	Freeway Tunnel (0.5 mi)	Because this project proposes to implement a pedestrian and bicycle trail in an existing recreational facility (golf course), it is anticipated that it would not result in adverse effects to special-status animal species.
Olson San Gabriel Residential Community Project	○	35	TSM/TDM (0.5 mi)	The project site does not contain suitable habitat for candidate, non-listed sensitive, or special-interest species, but the few nonnative landscaped trees on site may provide nesting opportunities for smaller birds, mainly songbirds. With mitigation, this potentially significant impact would be less than significant under CEQA.
100 West Walnut Planned Development	○	36	TSM/TDM (0.5 mi) BRT (0.25 mi)	There are no known candidate, sensitive, or special-status species on or in the immediate vicinity of the project site. Further, the project site and surrounding area do not provide suitable habitat for sensitive species, and the project would not directly affect or modify the habitat of any identified sensitive species. As such, no impacts to special-status animal species would occur.
Hill and Colorado Project	○	37	BRT (intersects)	Given the highly urbanized setting and lack of suitable habitat in the project vicinity to support sensitive or special-status species, the proposed project would not directly affect or modify the habitat of any identified sensitive species. Therefore, no impacts to candidate, sensitive, or special-status species or their habitat would occur with implementation of the proposed project.
Green Hotel Apartments Project	○	38	TSM/TDM (0.25 mi) BRT (intersects) LRT (0.5 mi)	Given the highly urbanized setting of the project site, this project would not have an impact on special-status animal species.

TABLE 4.24:
Reasonably Foreseeable Actions – Animal Species

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Reuse of the Desiderio Army Reserve Center	○	39	BRT (0.5 mi) Freeway Tunnel (0.25 mi)	The project site contains limited vegetation. Additionally, the vegetation in a portion of the project site would be enhanced by planting new non-invasive vegetation, which would minimize any future impacts to the vegetation in the area. Therefore, it is not anticipated that this project would have an adverse impact to special-status animal species.

[1] See Table 3.1 for the list of references for each project.
[2] The hollow bullet (○) indicates projects that would either have no impact to land use, or would not have an impact after typical avoidance, minimization and/or mitigation measures are incorporated.
[3] The solid bullet (●) indicates projects that either still have an adverse impact after mitigation or require extraordinary mitigation measures and therefore are included in the analysis for this subject area.

BRT = Bus Rapid Transit
CDFG Code = California Department of Fish and Game Code
CEQA = California Environmental Quality Act
ft = foot/feet
HOT = High-Occupancy Toll
HOV = High-Occupancy Vehicle
I-10 = Interstate 10
LRT = Light Rail Transit
MBTA = Migratory Bird Treaty Act
Metro = Los Angeles County Metropolitan Transportation Authority
mi = mile/miles
ROW = right of way
TDM = Transportation Demand Management
TSM = Transportation System Management

4.2.19.6 Avoidance, Minimization, and/or Mitigation Measures

Bats

Due to the presence of marginally suitable roosting habitat within the TSM/TDM and Freeway Tunnel Alternatives, the following avoidance and minimization efforts will be implemented:

- The proposed construction on any bridge structures will be scheduled outside the bat maternity season.
- Preconstruction bat surveys will be conducted by a qualified bat biologist prior to ground-disturbing and/or bridge construction activities. The surveys will be conducted at least 30 days prior to the start of project construction activities and should take place during the maternity season (April–August). If it is determined during the preconstruction bridge surveys that a structure is being used as a bat roost site, work will be avoided within 100 ft of the roost site. No work will take place between 10:00 p.m. and sunrise, and airspace access to the bridge would be restricted. Lights will not be used under the structure, and combustion equipment will not be parked or operated under the structure. A qualified bat biologist will be on site for the duration of construction activities that may impact bats. If it is determined that the above activities cannot be avoided, bats will be excluded from the bridge using CDFW approved exclusionary devices to the extent necessary to prevent mortality to the colony. Exclusion will take place prior to April 15. The Caltrans will confer with CDFW to identify and implement appropriate avoidance and minimization efforts that are satisfactory to CDFW.
- [This measure applies to the TSM/TDM (individually or as part of the other Build Alternatives) and Freeway Tunnel Alternatives only.]

Monarch Butterfly

To avoid negative impacts on winter roosting aggregations of monarch butterfly and the species' egg, caterpillar, and pupal stages, the following avoidance and minimization measures will be implemented in areas of potentially suitable habitat for this species:

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

- [This measure applies to the TSM/TDM, BRT, LRT, and Freeway Tunnel Alternatives.]

Amphibians and Reptiles

To avoid negative impacts to coast range newt, western spadefoot, two-striped garter snake, western pond turtle, San Bernardino ring-necked snake, and south coast garter snake, the following avoidance and minimization measures will be implemented in areas of potentially suitable habitat for these species:

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

Birds

To avoid negative impacts on Cooper's hawk, Allen's hummingbird, Costa's hummingbird, Lawrence's goldfinch, merlin, Nuttall's woodpecker, oak titmouse, any nesting or breeding birds of prey protected under California Fish and Game Code Sections 3503 and 3503.5, and any other nesting or breeding birds protected under the Migratory Bird Treaty Act (MBTA), the following avoidance and minimization efforts will be implemented:

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

confirm appropriate buffers and determine when it is safe to remove the buffers. If there are no breeding/nesting birds, no further action is necessary.

- [This measure applies to the TSM/TDM, BRT, LRT, and Freeway Tunnel Alternatives.]

Bridge and Crevice-nesting Birds

The following would be implemented to address impacts to bridge- and crevice-nesting birds (i.e., swifts and swallows) present at bridges affected by the TSM/TDM and Freeway Tunnel Alternatives:

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

4.2.20 Threatened and Endangered Species

The analysis in this section is based on the NES (2014) prepared for the SR 710 North Study.

4.2.20.1 Resource Study Area

The RSA for natural communities is consistent with the BSA established for the SR 710 North Study. The BSA is an approximately 3,410 ac area that includes portions of the Cities of Los Angeles, Pasadena, South Pasadena, Alhambra, San Gabriel, Rosemead, San Marino, and Monterey Park, as well as unincorporated portions of Los Angeles County. Existing land uses within and adjacent to the BSA primarily include: transportation, residential, commercial, industrial, infrastructure, and recreational land uses.

4.2.20.2 Health and Historical Context

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

Although no federally listed or candidate species were observed, habitat suitable for nonbreeding use by least Bell's vireo (approximately 170 ft from the nearest planned ground-disturbing

activities), southwestern willow flycatcher, western yellow-billed cuckoo and Townsend's big-ear bat was determined to be present within the BSA.

The wetland complex habitat present in the BSA is marginally suitable for the marsh sandwort due to its low quality. The California Natural Diversity Database (CNDDB) includes one recorded observation of marsh sandwort in this area from 1900 in the Cienega community of Los Angeles County, approximately 8.5–9.5 mi southwest of the BSA, which is an area that is now urban with no remaining habitat. As there was only marginally suitable habitat, there are no known occurrences of this species within 8.5–9.5 mi of the BSA. The potential for the species to be present but not observed is low.

There is marginally suitable habitat present on site within the laurel sumac scrub and coast live oak woodland areas of the BSA for the slender-horned spineflower and thread-leaved brodiaea. The CNDDB includes five records of slender-horned spineflower observations near the BSA and six records of thread-leaved brodiaea. The nearest 20th century occurrence of slender-horned spine flower was documented in 1920 near the Rubio Wash in Altadena, approximately three mi from the BSA; this population has since been extirpated as a result of urbanization. The nearest 21st century occurrence was documented in 2006 at the Big Tujunga Wash near Sunland, approximately 11.5 mi from the BSA. This species is normally associated with Riversidean or Venturan coastal sage scrub on alluvial terraces adjacent to natural rivers and streams. There are no known extant occurrences of this species within 11.5 mi of the BSA; therefore, the potential for the species to be present is low. The nearest 21st century occurrence was documented in 2013 in the City of Glendora, approximately 12.7 mi from the BSA. There are no known extant occurrences of this species within 12.7 mi of the BSA, and it was not observed during focused surveys; therefore, the potential for the species to be present is low. However, due to botanical surveys being conducted outside the appropriate blooming period for this species, the absence of this species from the BSA cannot be confirmed.

The two wetland complex habitats present within the BSA in Pasadena and Monterey Park are marginally suitable for Gambel's watercress but not ideal habitat due to high human disturbance. This species is nearly extinct in the United States. The CNDDB includes one recorded observation of Gambel's watercress in this area from 1904 in the Cienega community of Los Angeles County, approximately 8.5–9.5 mi southwest of the BSA, which is an area that is now urban with no remaining habitat. Because there is only low quality, marginally suitable habitat present in the BSA and there are no known occurrences of this species within 8.5–9.5 mi of the BSA, the potential for the species to be present but not observed is low. Therefore, the species is considered absent from the BSA and is not discussed further in this section.

Limited marginally suitable foraging and roosting habitat for the Townsend's big-eared bat is present within the BSA primarily on five of the project bridges. No suitable roosting habitat is present within the BSA.

4.2.20.3 Project Impacts

The SR 710 North Study would not have any indirect, direct, permanent, or temporary impacts on any known populations of marsh sandwort or Gambel's watercress due to the absence of the species from the BSA as determined through botanical surveys. Additionally, the SR 710 North Study would not have any direct, indirect, permanent, or temporary impacts on any suitable habitat for

the slender-horned spineflower. Therefore, it is not anticipated that the SR 710 North Study would have any direct or indirect impacts, either permanent or temporary, on this species.

It is expected that the SR 710 North Study would not have impacts to least Bell's vireo, southwestern willow flycatcher, or the western yellow-billed cuckoo because the habitat is not suitable for use by breeding pairs, and the distance to the nearest ground-disturbing activities (approximately 170 ft) is expected to be sufficient to avoid direct impacts to nonbreeding birds.

The SR 710 North Study would not directly impact any known bat populations, including the Townsend's big-eared bat, due to the absence of roosting bat detections at the bridges proposed for demolition and/or widening as determined through focused bat habitat assessment surveys. Should bats begin utilizing any of the bridges, then the Freeway Tunnel Alternative (both single-bore and dual-bore design variations) and the TSM/TDM Alternative would have the potential to have temporary indirect impacts through the loss of the roosting location. Preconstruction bat surveys would be conducted prior to ground-disturbing activities. Based on these factors, the Freeway Tunnel Alternative (both single-bore and dual-bore design variations) and the TSM/TDM Alternative are considered unlikely to affect bats directly or indirectly. While suitable foraging habitat for bats is present, no appreciable amount of habitat would be removed as a result of implementation of any of the SR 710 North Study Build Alternatives. Indirect temporary adverse impacts to foraging Townsend's big-eared bat may occur from noise, lighting, dust, and vibration, etc., if nighttime construction activities take place. However, the bats may leave the vicinity during instances of nighttime construction and forage elsewhere; therefore, there would be no take of Townsend's big-eared bat pursuant to the definition of take in the California Endangered Species Act (CESA) regarding "hunt, pursue, catch, captive, or kill" of a species.

4.2.20.4 Reasonably Foreseeable Actions and Their Impacts

The reasonably foreseeable actions would occur in the areas that are planned for development or redevelopment. The reasonably foreseeable actions are listed in Table 3.1 and shown on Figure 3-1. Table 4.25 shows projects with particular relevance to threatened and endangered species as well as their impacts.

4.2.20.5 Cumulative Impact

As shown in Table 4.25, the cumulative projects would either have no impact to threatened and/or endangered species or, upon implementation of avoidance, minimization, and/or mitigation measures, would not have a substantial adverse impact on threatened and/or endangered species.

As stated above in Section 4.2.20.3, the SR 710 North Study would not have any indirect, direct, permanent, or temporary impacts to threated and/or endangered species.

Based on the above discussion, the SR 710 North Study, in combination with the cumulative projects listed in Table 4.25, would not contribute to a cumulative impact on threatened and/or endangered species in the RSA.

TABLE 4.25:
Reasonably Foreseeable Actions – Threatened and Endangered Species

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
I-10 HOT Lanes	○	8	BRT (intersects) LRT (intersects) Freeway Tunnel (intersects)	This project was completed in 2013. Because this project converted the existing HOV lane to a HOT lane and restriped the existing roadway to accommodate an additional HOT lane, no sensitive species are expected in the project area.
San Gabriel Trench Grade Separation Project	○	11	TSM/TDM (intersects)	The project area likely provides nesting habitat for nesting avian species whose nests and young are protected under the MBTA and CDFG Codes. Specifically, adult western scrub jays were observed feeding fledglings within the mixed ornamental-oak habitats adjacent to West Main Street, indicating this habitat is used for nesting activity. Construction activities associated with this project would have both direct and indirect impacts to these sensitive resources. However, with implementation of avoidance and minimization measures, impacts are anticipated to be less than adverse.
Rosemead Boulevard Safety Enhancement & Beautification Project	○	12	TSM/TDM (intersects)	Implementation of this project would not impact, either directly, indirectly, or through habitat modifications, any endangered, threatened, or rare species.
Regional Connector Transit Corridor	○	17	Freeway Tunnel (2,800 ft)	With implementation of proposed mitigation measures, this project would not have an adverse impact on threatened and endangered species.
Eastside Transit Corridor Phase 2 – Metro Gold Line Eastside Extension	○	18	BRT (intersects) LRT (0.5 mi)	As this project would operate within existing ROW, it is anticipated that this project would not have a substantial adverse impact on threatened and endangered species.
Alhambra Bicycle Master Plan	○	24	BRT (intersects)	During construction of the Bicycle Master Plan projects, under CEQA, significant impacts to sensitive species or their habitat would potentially occur. Implementation of mitigation measures incorporated into the project would lessen these impacts to less than significant levels. Therefore, no unavoidable significant project impacts would occur.
Lincoln Avenue Specific Plan	○	25	Freeway Tunnel (100 ft)	It has been determined that this project would not have an impact to threatened and endangered species.
Crown City Medical Center	○	26	Freeway Tunnel (0.25 mi)	Under CEQA, it has been determined that this project would have a less than significant impact on threatened and endangered species.
16 East California Project	○	27	BRT (1,000 ft) LRT (460 ft) Freeway Tunnel (0.4 mi)	As this project redevelops an existing site, it is anticipated that there will be a less than significant impact on threatened and endangered species under CEQA.
Huntington Memorial Hospital Master Development Plan Amendment	○	31	BRT (750 ft) LRT (900 ft) Freeway Tunnel (200 ft)	It has been determined that this project would not have an impact on threatened and endangered species.
Garfield Reservoir Replacement Project	○	33	TSM/TDM (0.25 mi) BRT (800 ft)	Because the site is re-using an existing operation, it is not anticipated that this project would result in adverse effects to threatened and endangered species.
Arroyo Seco Pedestrian and Bicycle Trail	○	34	Freeway Tunnel (0.5 mi)	Because this project proposes to implement a pedestrian and bicycle trail in an existing recreational facility (golf course), it is anticipated that it would not result in adverse effects to threatened and endangered species.

TABLE 4.25:
Reasonably Foreseeable Actions – Threatened and Endangered Species

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Olson San Gabriel Residential Community Project	○	35	TSM/TDM (0.5 mi)	No species listed by the State and/or federal government as endangered or threatened was identified on site during the field surveys, and all have no or little chance of occurring on the project site due to its completely disturbed nature.
100 West Walnut Planned Development	○	36	TSM/TDM (0.5 mi) BRT (0.25 mi)	There are no known candidate, sensitive, or special-status species on or in the immediate vicinity of the project site. Further, the project site and surrounding area do not provide suitable habitat for sensitive species, and the project would not directly affect or modify the habitat of any identified sensitive species. As such, no impacts to threatened and endangered species would occur.
Hill and Colorado Project	○	37	BRT (intersects)	Given the highly urbanized setting and lack of suitable habitat in the project vicinity to support sensitive or special-status species, the proposed project would not directly affect or modify the habitat of any identified sensitive species. Therefore, no impacts to candidate, sensitive, or special-status species or their habitat would occur with implementation of the proposed project.
Green Hotel Apartments Project	○	38	TSM/TDM (0.25 mi) BRT (intersects) LRT (0.5 mi) Freeway Tunnel (0.25 mi)	Given the highly urbanized setting of the project site, this project would not have an impact on threatened and endangered species.
Reuse of the Desiderio Army Reserve Center	○	39	BRT (0.5 mi) Freeway Tunnel (0.25 mi)	The project site contains limited vegetation. Additionally, the vegetation in a portion of the project site would be enhanced by planting new non-invasive vegetation, which would minimize any future impacts to the vegetation in the area. Therefore, it is not anticipated that this project would have an adverse impact to threatened and endangered species.

[1] See Table 3.1 for the list of references for each project.
[2] The hollow bullet (○) indicates projects that would either have no impact to land use, or would not have an impact after typical avoidance, minimization and/or mitigation measures are incorporated.
[3] The solid bullet (●) indicates projects that either still have an adverse impact after mitigation or require extraordinary mitigation measures and therefore are included in the analysis for this subject area.

BRT = Bus Rapid Transit
CDFG Code = California Department of Fish and Game Code
CEQA = California Environmental Quality Act
ft = foot/feet
HOT = High-Occupancy Toll
HOV = High-Occupancy Vehicle
I-10 = Interstate 10
LRT = Light Rail Transit
MBTA = Migratory Bird Treaty Act
Metro = Los Angeles County Metropolitan Transportation Authority
mi = mile/miles
ROW = right of way
TDM = Transportation Demand Management
TSM = Transportation System Management

4.2.20.6 Avoidance, Minimization, and/or Mitigation Measures

As no impacts to threatened and/or endangered species are anticipated, no avoidance, minimization and/or mitigation measures are required. However, measures outlined in Sections 4.2.16.6, 4.2.17.6, 4.2.18.6, and 4.2.19.6 would avoid and/or minimize effects to other natural communities of concern and special-status plant and animal species. If it is determined that a threatened and/or endangered species may be affected, those measures would avoid and/or minimize impacts to these species as well.

4.2.21 Invasive Species

The analysis in this section is based on the NES (June 2014) prepared for the SR 710 North Study.

4.2.21.1 Resource Study Area

The RSA for invasive species is consistent with the BSA established for the SR 710 North Study. The BSA is an approximately 3,410 ac area that includes portions of the Cities of Los Angeles, Pasadena, South Pasadena, Alhambra, San Gabriel, Rosemead, San Marino, and Monterey Park, as well as unincorporated portions of Los Angeles County. Existing land uses within and adjacent to the BSA primarily include: transportation, residential, commercial, industrial, infrastructure, and recreational land uses.

4.2.21.2 Health and Historical Context

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

Exotic plant species are present throughout the BSA and are primarily found within the Freeway Tunnel Alternative and within the non-native grassland, non-native woodland, and disturbed/ developed plant communities. A total of 81 exotic plant species, subspecies, and/or varieties occurring on the California Invasive Plant Council (Cal-IPC) California Invasive Plant Inventory and/or watch list were identified within the BSA. Of these species, there are 13 with an overall high rating, 30 with a moderate rating, 26 with a limited rating, and 12 that have been evaluated but not listed. Invasive species that have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure, and have reproductive biology and other attributes that are conducive to moderate to high rates of dispersal and establishment are given a “high” rating. Species with a high rating identified within the BSA were: (1) giant reed, (2) red brome (*Bromus madritensis* ssp. *rubens*), (3) hottentot fig, (4) spotted knapweed (*Centaurea maculosa*), (5) purple pampas grass (*Cortaderia jubata*), (6) Uruguayan pampas grass (*C. selloana*), (7) cape ivy, (8) sweet fennel (*Foeniculum vulgare*), (9) Himalayan blackberry (*Rubus armeniacus*), (10) saltcedar (*Tamarix*

ramosissima), (11) scotch broom (*Cytisus scoparius*), (12) Algerian ivy (*Hedera helix*), and (13) Uruguay water primrose (*Ludwigia hexapetala*).

4.2.21.3 Project Impacts

With implementation of the avoidance and minimization measures listed below in Section 4.2.21.6, the SR 710 North Study is not anticipated to have an adverse effect related to invasive species.

4.2.21.4 Reasonably Foreseeable Actions and Their Impacts

The reasonably foreseeable actions would occur in the areas that are planned for development or redevelopment. The reasonably foreseeable actions are listed in Table 3.1 and shown on Figure 3-1. Table 4.26 shows projects with particular relevance to noise as well as their impacts.

4.2.21.5 Cumulative Impact

As shown in Table 4.26 and upon implementation of avoidance and/or minimization measures, the cumulative projects would not have a substantial adverse impact related to invasive species.

As stated above in Section 4.2.21.3, with implementation of the avoidance and minimization measures listed below in Section 4.2.21.6, the SR 710 North Study is not anticipated to have an adverse effect related to invasive species.

Based on the above discussion, the SR 710 North Study, in combination with the cumulative projects listed in Table 4.26, would not contribute to a cumulative impact on related to invasive species in the RSA.

4.2.21.6 Avoidance, Minimization, and/or Mitigation Measures

In compliance with Executive Order 13112, all feasible and prudent measures to prevent the introduction and spread of invasive species as a consequence of the SR 710 North Study would be implemented. Because many highly invasive species are already present throughout the BSA, efforts to minimize their spread and to reduce populations of those present may be most appropriate for the SR 710 North Study. Continued introductions of new and existing species are expected due to the high vehicular use (from seeds carried in tires and auto bodies) and residential activities (escape from gardens) within the BSA. Examples of BMPs that may be appropriate include the following:

- Revegetation would occur as soon as practical after disturbances. To prevent the spread of weeds in the SR 710 North Study site, weed-free products would be exclusively used for all activities including, but not limited to, landscaping materials and soil erosion materials (i.e., mulch, soil mats, straw fencing, or wattles).
- Any disturbance areas within the SR 710 North Study site not containing existing infestations of exotic plants would be monitored quarterly for one year postconstruction to ensure that the establishment of invasive plants in the area has not occurred. If evidence of invasive plant establishment is found, weed control measures would be implemented immediately.

Preconstruction surveys would be conducted to identify populations of invasive weeds with the potential to be encouraged by construction activities such as exposure or tilling of bare ground, disturbance of adjacent habitats that are not highly invaded, or enhanced distribution of pollen or seeds. Such populations would be controlled by mechanical or chemical means prior to construction.

TABLE 4.26:
Reasonably Foreseeable Actions – Invasive Species

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
I-10 HOT Lanes	○	8	BRT (intersects) LRT (intersects) Freeway Tunnel (intersects)	This project was completed in 2013. Because this project converted the existing HOV lane to a HOT lane and restriped the existing roadway to accommodate an additional HOT lane, no invasive species are expected in the project area.
San Gabriel Trench Grade Separation Project	○	11	TSM/TDM (intersects)	With implementation of avoidance and minimization measures, this project is not anticipated to have an adverse effect related to invasive species.
Rosemead Boulevard Safety Enhancement & Beautification Project	○	12	TSM/TDM (intersects)	With implementation of avoidance and minimization measures, this project is not anticipated to have an adverse effect related to invasive species.
Regional Connector Transit Corridor	○	17	Freeway Tunnel (2,800 ft)	With implementation of proposed mitigation measures, this project would not have an adverse impact related to invasive species.
Eastside Transit Corridor Phase 2 – Metro Gold Line Eastside Extension	○	18	BRT (intersects) LRT (0.5 mi)	With implementation of proposed mitigation measures, this project would not have an adverse impact related to invasive species.
Alhambra Bicycle Master Plan	○	24	BRT (intersects)	With implementation of proposed mitigation measures, this project would not have a significant impact related to invasive species under CEQA.
Lincoln Avenue Specific Plan	○	25	Freeway Tunnel (100 ft)	With implementation of proposed mitigation measures, this project would not have a significant impact related to invasive species under CEQA.
Crown City Medical Center	○	26	Freeway Tunnel (0.25 mi)	With implementation of proposed mitigation measures, this project would not have a significant impact related to invasive species under CEQA.
16 East California Project	○	27	BRT (1,000 ft) LRT (460 ft) Freeway Tunnel (0.4 mi)	With implementation of proposed mitigation measures, this project would not have a significant impact related to invasive species under CEQA.
Huntington Memorial Hospital Master Development Plan Amendment	○	31	BRT (750 ft) LRT (900 ft) Freeway Tunnel (200 ft)	With implementation of proposed mitigation measures, this project would not have a significant impact related to invasive species under CEQA.
Garfield Reservoir Replacement Project	○	33	TSM/TDM (0.25 mi) BRT (800 ft)	With implementation of avoidance and minimization measures, this project is not anticipated to have an adverse effect related to invasive species.
Arroyo Seco Pedestrian and Bicycle Trail	○	34	Freeway Tunnel (0.5 mi)	With implementation of avoidance and minimization measures, this project is not anticipated to have an adverse effect related to invasive species.
Olson San Gabriel Residential Community Project	○	35	TSM/TDM (0.5 mi)	With implementation of avoidance and minimization measures, this project is not anticipated to have an adverse effect related to invasive species.
100 West Walnut Planned Development	○	36	TSM/TDM (0.5 mi) BRT (0.25 mi)	With implementation of avoidance and minimization measures, this project is not anticipated to have an adverse effect related to invasive species.
Hill and Colorado Project	○	37	BRT (intersects)	With implementation of avoidance and minimization measures, this project is not anticipated to have an adverse effect related to invasive species.

TABLE 4.26:
Reasonably Foreseeable Actions – Invasive Species

Project[1]	No Impact (○)[2]/ Potential Impact (●)[3]	ID No. (see Table 3.1 and Figure 3-1)	Alternative(s) Affected/(Distance from Alternative)	Impact
Green Hotel Apartments Project	○	38	TSM/TDM (0.25 mi) BRT (intersects) LRT (0.5 mi) Freeway Tunnel (0.25 mi)	With implementation of avoidance and minimization measures, this project is not anticipated to have an adverse effect related to invasive species.
Reuse of the Desiderio Army Reserve Center	○	39	BRT (0.5 mi) Freeway Tunnel (0.25 mi)	With implementation of avoidance and minimization measures, this project is not anticipated to have an adverse effect related to invasive species.

[1] See Table 3.1 for the list of references for each project.
[2] The hollow bullet (○) indicates projects that would either have no impact to land use, or would not have an impact after typical avoidance, minimization and/or mitigation measures are incorporated.
[3] The solid bullet (●) indicates projects that either still have an adverse impact after mitigation or require extraordinary mitigation measures and therefore are included in the analysis for this subject area.

BRT = Bus Rapid Transit
CEQA = California Environmental Quality Act
ft = foot/feet
HOT = High-Occupancy Toll
HOV = High-Occupancy Vehicle
I-10 = Interstate 10
LRT = Light Rail Transit
Metro = Los Angeles County Metropolitan Transportation Authority
mi = mile/miles
TDM = Transportation Demand Management
TSM = Transportation System Management

5. List of Preparers

Rob McCann, SR 710 North Study Environmental Principal in Charge

Deborah Pracilio, SR 710 North Study Environmental Manager

Jayna Harris, Environmental Planner, Cumulative Impacts Assessment Task Lead

Christine Huard-Spencer, Senior Environmental Planner

Jane Dillon, Environmental Planner

Beverly Inloes, Technical Editor/Word Processor

This page intentionally left blank

6. References

6.1 Technical Studies Prepared for the State Route 710 North Study

CH2M HILL. *Summary Floodplain Encroachment Report*, State Route 710 North Study. Prepared for Los Angeles County Metropolitan Transportation Authority by CH2MHill. February 2014.

CH2M HILL. *Transportation Technical Report*, SR 710 North Study. Prepared for Los Angeles County Metropolitan Transportation Authority by CH2MHill. June 2014.

CH2M HILL. *Phase I Initial Site Assessment SR 710 North Study*. Prepared for California Department of Transportation and Los Angeles County Metropolitan Transportation Authority by CH2MHill. May 2014.

CH2M HILL. *Preliminary Geotechnical Report*, SR 710 North Study. Prepared for Los Angeles County Metropolitan Transportation Authority by CH2MHill. March 2014.

LSA Associates, Inc. *Air Quality Assessment Report, State Route 710 North Study*. Prepared for Los Angeles County Metropolitan Transportation Authority by LSA Associates, Inc. June 2014.

LSA Associates, Inc. *Archaeological Survey Report, State Route 710 North Study*. Prepared for Los Angeles County Metropolitan Transportation Authority by LSA Associates, Inc. June 2014.

LSA Associates, Inc. *Community Impact Assessment, State Route 710 North Study*. Prepared for Los Angeles County Metropolitan Transportation Authority by LSA Associates, Inc. May 2014.

LSA Associates, Inc. *Energy Technical Report, State Route 710 North Study*. Prepared for Los Angeles County Metropolitan Transportation Authority by LSA Associates, Inc. May 2014.

LSA Associates, Inc. *Historic Property Survey Report, State Route710 North Study*. Prepared for California Department of Transportation by LSA Associates, Inc. June 2014.

LSA Associates, Inc. *Historical Resources Evaluation Report for the State Route 710 North Study*. Prepared for California Department of Transportation by LSA Associates, Inc. June 2014.

LSA Associates, Inc. *Natural Environment Study, State Route 710 North Study*. Prepared for California Department of Transportation by LSA Associates, Inc. June 2014.

LSA Associates, Inc. *Noise Study Report, State Route 710 North Study*. Prepared for California Department of Transportation by LSA Associates, Inc. May 2014.

LSA Associates, Inc. *Paleontological Identification and Evaluation Report, State Route 710 North Study*. Prepared for Los Angeles County Metropolitan Transportation Authority by LSA Associates, Inc. March 2014.

LSA Associates, Inc. *Water Quality Assessment Report, State Route 710 North Study*. Prepared for California Department of Transportation by LSA Associates, Inc. May 2014.

Tatsumi and Partners, Inc. *Visual Impact Assessment, State Route 710 North Study*. Prepared for California Department of Transportation and Los Angeles County Metropolitan Transportation Authority by Tatsumi and Partners, Inc. June 2014.

6.2 Other References

Alameda Corridor East Construction Authority. http://www.theaceproject.org/sangabrieltrench.htm, accessed various times between September 2013 and April 2014.

California Department of Transportation (Caltrans). Guidance for Preparers of Cumulative Impact Assessments CEQA Guidelines for Cumulative and Indirect Impacts. January 19, 2005.

California Department of Transportation. Guidance for Preparers of Cumulative Impact Assessments, Approach and Guidance. June 30, 2005.

California Department of Transportation. Guidance for Preparers of Cumulative Impact Assessments, Defining Resource Study Areas. June 30, 2005.

California Department of Transportation. Guidance for Preparers of Indirect and Cumulative Impact Assessments, Data Gathering Paper. June 30, 2005.

California Department of Transportation. http://i-5info.com/wp/wp-content/uploads/2011/05/SR134-SR170-MapPoster10-18-12FINAL.jpg, accessed September 19, 2013.

California Department of Transportation. http://www.dot.ca.gov/dist07/travel/projects/details.php?id=16, accessed September 17, 2013.

California Department of Transportation. http://www.dot.ca.gov/dist07/Publications/Inside7/story.php?id=703, accessed September 20, 2013.

California Department of Transportation. http://www.dot.ca.gov/dist07/travel/projects/I-5/, accessed April 23, 2014.

California Department of Transportation. *I-10 HOV Lane Project EIR*. November 2011.

California Department of Transportation. *I-710 Corridor Project Draft EIR/EIS*. June 2012.

California Department of Transportation. *Initial Study Environmental Assessment Negative Declaration/Finding of No Significant Impact I-5 HOV 134 to 118 Lane Improvement Project*. December 2000.

California Department of Transportation. *The Interstate 10 (San Bernardino Freeway / El Monte Busway) High Occupancy Toll Lanes Project*. February 2010.

California Department of Transportation. www.dot.ca.gov/hq/LocalPrograms/CWA/documents/cycle.../hrcsa.xlsx, accessed September 20, 2013.

California High Speed Rail Authority. http://www.hsr.ca.gov/, accessed July 2013.

California High Speed Rail Authority. http://www.hsr.ca.gov/docs/brdmeetings/2013/brdmtg_item3_status_rpt_southern_cal_project_sections.pdf, accessed November 7, 2013.

California High Speed Rail Authority. http://www.hsr.ca.gov/docs/programs/statewide_rail/proj_sections/Palmdale_LA/Palmdale_to_LA_Central_Hollywood_Neighborhood_Council_presentation_4_23_12.pdf, accessed April 23, 2012.

California High Speed Rail Authority/Federal Railroad Administration. *California High-Speed Train Final Program EIR/EIS.* August 2005.

CEQAnet. Various visits throughout February 2013.

City of Alhambra. *Administrative Draft Plan*. November 14, 2012

City of Alhambra. *Alhambra Bicycle Master Plan.* February 2013.

City of Arcadia. http://www.ci.arcadia.ca.us/docs/final_adopted_cip_equipment_budget_fy13-18.pdf and http://arcadiasbest.com/2012/07/gold-line-station-design/, accessed July 2013.

City of Commerce. E-mail correspondence with Alex Hamilton. November 7, 2013.

City of El Monte. http://www.ci.el-monte.ca.us/LinkClick.aspx?fileticket=Bm8yUIHvIUU%3D&tabid=303, accessed September 2013.

City of El Monte. http://www.ci.el-monte.ca.us/LinkClick.aspx?fileticket=m93Dqmas954%3D&tabid=303, accessed September 2013.

City of El Monte. *Temple Palms Business Park Environmental Impact Report.* May 2011

City of Los Angeles. http://eng.lacity.org/docs/dpw/agendas/2006/200604/20060426/ce/20060426_ag_br_ce_1_tr.pdf, accessed September 20, 2013.

City of Los Angeles. *Riverside Drive Bridge/Grade Separation Replacement IS/ND*. January 2006.

City of Los Angeles. *San Fernando Road Widening Between Elm Street and Eagle Rock Boulevard IS/ND*. November 2009.

City of Pasadena. *100 West Walnut Initial Study*. 2013.

City of Pasadena. *Crown City Medical Center Subsequent Draft EIR*. October 2012.

City of Pasadena. *Huntington Memorial Hospital Master Development Plan Amendment and Zone Change Initial Study*. July 2011.

City of Pasadena. *Lincoln Avenue Specific Plan Environmental Impact Report*. March, 2013

Foothill Extension Authority. http://www.foothillextension.org/cities-stations/monrovia/, accessed September 20, 2013.

Foothill Extension Authority. http://www.foothillextension.org/construction_phases/construction-updates/, accessed September 20, 2013.

ICF International. *Findings of Fact Regarding the Final Program Environmental Impact Report for County of Los Angeles Bicycle Master Plan*. January 2012.

Los Angeles County Metropolitan Transportation Authority. http://www.metro.net/projects/i-710-corridor-project/, accessed September 16, 2013.

Los Angeles County Metropolitan Transportation Authority. *Eastside Transit Corridor Phase 2 Alternatives Analysis Report*. October 2009.

Los Angeles County Metropolitan Transportation Authority. http://www.metro.net/projects/expresslanes/, accessed September 17, 2013.

Los Angeles County Metropolitan Transportation Authority. http://thesource.metro.net/2013/09/15/updates-on-i-5-hov-improvement-project-between-sr-118-and-sr-170/, accessed September 19, 2013.

Los Angeles County Metropolitan Transportation Authority. http://www.metro.net/projects/wilshire/, accessed September 20, 2013.

Los Angeles County Metropolitan Transportation Authority. http://www.metro.net/projects/eastside_phase2/#question04, accessed November 7, 2013.

Los Angeles County Metropolitan Transportation Authority. http://www.metro.net/projects_studies/expresslanes/images/notice_2012_1112.pdf, accessed various times between September 2013 and April, 2014.

Los Angeles County Metropolitan Transportation Authority. *Regional Connector Transit Corridor Draft EIS/EIR*. September 2010.

Los Angeles County Metropolitan Transportation Authority. *Wilshire Bus Rapid Transit Project Draft EIR/EA*. June 2010.

Los Angeles County Metropolitan Transportation Authority/Foothill Extension Authority. *Metro Gold Line Foothill Extension – Pasadena to Azusa Final Environmental Impact Report*. February 2007.

Los Angeles County Metropolitan Transportation Authority/Foothill Extension Authority. *Metro Gold Line Foothill Extension - Azusa to Montclair Final Environmental Impact Report.* February 2013.

LSA Associates, Inc. *Olson San Gabriel Residential Community Draft Environmental Impact Report*. 2014.

Southern California Association of Governments. http://www.scag.ca.gov/FTIP/pdf/draft/2013/D2013-FTIP-StateLA.pdf, accessed September 20, 2013.

Temple City. http://rosemeadblvd.com/blog/, accessed September 17, 2013.

Temple City. *Rosemead Boulevard Safety Enhancement and Beautification Project IS/MND*. January 2012.