# 3.19 Cumulative Impacts

## 3.19.1 Introduction

Section 3.19, Cumulative Impacts, of the Burbank to Los Angeles Project Section Environmental Impact Report/ Environmental Impact Statement (EIR/EIS) analyzes the potential impacts of the No Project Alternative and the High-Speed Rail (HSR) Build Alternative, and it describes impact avoidance and minimization features (IAMF) that would avoid, minimize, or reduce these impacts. Where applicable, mitigation measures are proposed to further reduce, compensate for, or offset impacts of the HSR Build Alternative. This section also defines the regional context appropriate for each resource area.

*Cumulative Impacts*

Cumulative impacts, from varying sources, accumulate over time and can result in degradation of important resources. By looking at cumulative impacts, decision-makers understand how outside sources, in addition to the proposed project, may affect the natural and built environment over time.

### *3.19.1.1 Definition of Resources*

This cumulative impact analysis complies with the National Environmental Policy Act (NEPA) (40 United States Code [U.S.C.] Section 4321 et seq.) and its implementing procedures (Code of Federal Regulations [C.F.R.] Title 40, Part 1508.25), the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.), and the CEQA Guidelines (California Code of Regulations Title 14, § 15355 and § 15130), as further described in Section 3.1, Introduction, of this EIR/EIS. The analysis was prepared following guidelines from the California Department of Transportation's (Caltrans) *Guidance for Preparers of Cumulative Impact Analysis* (Caltrans 2016), the Council on Environmental Quality's (CEQ) *Considering Cumulative Effects Under the National Environmental Policy Act* (CEQ 1997), and the State CEQA Guidelines.

This section presents an analysis of the cumulative effects of implementing the HSR Build Alternative, which, in combination with other past, present, and reasonably foreseeable future projects, may result in cumulative environmental impacts. For the purposes of this analysis, "reasonably foreseeable future projects" are those likely to occur within the 2040 planning horizon for the HSR project, including adjacent HSR project sections. The focus of this cumulative impacts analysis is the Burbank to Los Angeles Project Section of the California HSR System and the regional context appropriate for each resource area.

## 3.19.2 Laws, Regulations, and Orders

Federal and state laws, regulations, and orders germane to the assessment of cumulative impacts in the Burbank to Los Angeles Project Section are summarized below. General NEPA and CEQA requirements for assessment and disclosure of environmental impacts are described in Section 3.1, Introduction, and are therefore not restated in this section. However, this section does describe NEPA and CEQA requirements specific to the evaluation of cumulative impacts. There are no current regional or local laws, regulations, or plans pertaining to cumulative impacts.

### *3.19.2.1 Federal*

**NEPA (42 U.S. Code § 4321 et seq.; 40 C.F.R. Part 1500–1508)**

Pursuant to NEPA and the CEQ regulations, a lead agency must consider cumulative impacts in addition to direct and indirect impacts. The CEQ regulations define a cumulative impact as an impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 C.F.R. 1508.7).

The CEQ guidance document *Considering Cumulative Effects under the National Environmental Policy Act* (CEQ 1997) recommends that the cumulative impact analysis include the following steps in scoping those impacts that are worthy of analysis in an EIS:

- Step 1: Identify the significant cumulative effects issues associated with the proposed action and define the assessment goals.

- Step 2: Establish the geographic scope for the analysis.
- Step 3: Establish the timeframe for the analysis.
- Step 4: Identify other actions affecting the resources, ecosystems, and human communities of concern.

**Federal Railroad Administration, Procedures for Considering Environmental Impacts (64 Federal Regulations 28545)**

On May 26, 1999, the Federal Railroad Administration (FRA) released *Procedures for Considering Environmental Impacts* (FRA 1999). These FRA procedures supplement the CEQ Regulations (40 C.F.R. Part 1500 et seq.) and describe the FRA's process for assessing the environmental impacts of actions and legislation proposed by the agency and for the preparation of associated documents (42 U.S. Code 4321 et seq.). The FRA *Procedures for Considering Environmental Impacts* states that "the EIS should identify any significant changes likely to occur in the natural environment and in the developed environment. The EIS should also discuss the consideration given to design quality, art, and architecture in project planning and development as required by U.S. Department of Transportation Order 5610.4." These FRA procedures state that an EIS should consider possible cumulative impacts.

**National Historic Preservation Act (54 U.S.C. Section 300101, et seq.) including Section 106 of the NHPA, 54 U.S.C Section 306108**

The regulations implementing Section 106 of the National Historic Preservation Act acknowledge that a project's adverse effects include any that are reasonably foreseeable, even if they may occur later in time, are farther removed in distance, or are cumulative. The consideration of indirect and cumulative impacts is required when applying the criteria of adverse effects on historic properties (36 C.F.R. 800.5(a)(1)) and delineating the area of potential effects (36 C.F.R. 800.16(d)) as part of the Section 106 process.

**Clean Water Act (33 U.S. Code § 1251 et seq.)**

Section 404 of the Clean Water Act requires the assessment of potential cumulative impacts on jurisdictional waters of the U.S., including special aquatic sites, protected by Section 404 of the Clean Water Act, which are under the jurisdiction of the U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency.

**Federal Endangered Species Act (15 U.S. Code § 1531)**

The federal Endangered Species Act, Section 7, defines cumulative effects in a manner that is narrower than NEPA or CEQA by providing that cumulative effects are those effects of future state or private activities not involving federal activities that are reasonably certain to occur within the action area that is subject to consultation with the U.S. Fish and Wildlife Service or National Marine Fisheries Service, or both.

### *3.19.2.2 State*

**CEQA Guidelines (California Code of Regulations, Title 14, § 15000 et seq.)**

The State CEQA Guidelines define cumulative impacts as two or more individual impacts that, when evaluated together, are considerable or compound or increase other environmental impacts (State CEQA Guidelines § 15355). Under CEQA, when a project would contribute to a cumulatively significant impact, an EIR must discuss whether the project's incremental effect is cumulatively considerable. *Cumulatively considerable* means that the project's incremental effect is significant when viewed in the context of past, present, and reasonably probable future projects. The discussion of impacts need not provide as much detail as is provided for the effects attributable to the project alone (State CEQA Guidelines §15130(b)).

Similar to the approach under NEPA, the State CEQA Guidelines provide that cumulative impact analyses should focus on *significant* cumulative impacts to which a project will contribute and the magnitude of the project's contribution.

When the combined cumulative impact associated with the project's incremental effect and the effects of other projects are not significant, the EIR shall briefly indicate why the cumulative impact is not significant and is not discussed in further detail in the EIR. A lead agency shall identify facts and analysis supporting the lead agency's conclusion that the cumulative impact is less than significant (State CEQA Guidelines § 15130(a)(2)). CEQA does not require an analysis of cumulative impacts to which the project would not contribute.

The CEQA analysis involves a two-step process. The first step is a determination of whether the project section, in combination with other projects, creates a significant cumulative effect. If it does not, an explanation is provided and the analysis ends. The second step applies when a project would contribute to a significant cumulative impact, and, if so, considers whether the incremental contribution is cumulatively considerable. This evaluation considers the project's effects after mitigation measures have been applied.

### 3.19.3 Methods for Evaluating Impacts

The California HSR Authority (Authority) used the following steps to determine the contribution of the HSR Build Alternative, if any, to cumulative impacts for each resource:

- Compile a list and description of, as well as environmental impact information for, planned projects and relevant plans. Check for such projects in adopted plans, such as regional transportation plans, regional transportation improvement plans, local long-range transportation plans, local land use general and specific plans, interviews with local and regional planning agencies, and recent environmental documents for other large-scale projects near the HSR Build Alternative.[1]

  Planned projects in this analysis are those that are reasonably foreseeable and that would add to the cumulative impacts to a particular resource. Generally, projects are considered in the analysis if they are part of an adopted plan as described in this section or if they fall under any of the following conditions:

  - Applications for project entitlements or construction are pending with a government agency.
  - The project is included in an agency's budget or capital improvement program.
  - The project is a foreseeable future phase of an existing project.
  - The project would likely occur within the 2040 planning horizon for the HSR system.
- Define the resource study area (RSA) for the cumulative impacts for each resource topic.
- Identify and evaluate the cumulative impacts of the past, present, and reasonably foreseeable projects, including the adjacent Los Angeles to Anaheim and Palmdale to Burbank Project Sections, that make up the cumulative condition for each resource area to determine whether there would be a cumulatively significant impact as a result of the HSR Build Alternative and past, present, and reasonably foreseeable projects.
- Where it is determined that there is a significant cumulative impact, determine whether the incremental contribution of the HSR Build Alternative to the cumulative impacts for that resource area would be cumulatively considerable under CEQA. "Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of

[1] As discussed in Section 3.1 of this EIR/EIS, the existing conditions baseline year for this Draft EIR/EIS is generally 2015, the time when the environmental analysis for the Burbank to Los Angeles Project Section began following issuance of the federal Notice of Intent and state Notice of Preparation for the project section. The affected environment discussions, including the descriptions of infrastructure projects and land development projects considered in the cumulative impacts analysis, describe the existing and planned conditions provided in the most recent, publicly available data as of December 31, 2017, or collected during field work conducted in 2015, 2016, and 2017.

time" (State CEQA Guidelines § 15355). The cumulative impact evaluation is relevant only when there are direct or indirect impacts found to result from the HSR Build Alternative; if there would be no impact from the HSR Build Alternative, there is no need to evaluate impacts from other projects.

- Where it is determined that the HSR Build Alternative would have a cumulatively considerable contribution to cumulative effects, identify reasonable, feasible options for avoiding or mitigating the HSR Build Alternative's considerable contribution to significant cumulative impacts.

The specific resource evaluations in Chapter 3, Affected Environment, Environmental Consequences, and Mitigation Measures, form the basis for analyzing the role of the HSR Build Alternative in cumulative impacts of each resource. The cumulative impacts analysis includes all resources considered in Chapter 3, (i.e., Sections 3.2 through 3.17).[2] Where applicable, the cumulative impacts analysis notes impacts to which the HSR Build Alternative would not contribute and explains the rationale.

## 3.19.4 Cumulative Projects and Growth Forecasts

This section discusses the historical context of the cities of Burbank, Glendale, and Los Angeles and how development trends in the past have influenced the environmental character of the area. This section also discusses development trends and describes how future urbanization is projected to change the character of Los Angeles County. The cumulative impact analysis includes consideration of adjacent HSR project sections (Palmdale to Burbank and Los Angeles to Anaheim) where appropriate for the environmental resource under consideration.

## 3.19.5 Historical Context

Section 3.17, Cultural Resources, provides an overview of the history of development within the cities of Burbank, Glendale, and Los Angeles. The first Europeans arrived in 1769 to establish settlements in the region. By the early 1840s, the number of Anglo-American settlers in the area had increased considerably and created pressure for California to be admitted to the United States as a state in 1850 (Prosser 2016).

Historic development trends within the region led to major building booms in the late 1800s, the 1920s, and the late 1940s after World War II, and many commercial properties were built during each of these periods. In the 1870s, the first railroad (the Southern Pacific Railroad) in Los Angeles was completed. Completion of the rail line resulted in waves of new settlers arriving in Southern California and ushered in an era of development related to passenger and freight railroad that lasted from about 1876 to 1939. Eventually, four major railroads operated in Southern California during the late 19th and early 20th centuries: the Southern Pacific Railroad, the Union Pacific Railroad, the Santa Fe Railroad, and the Los Angeles and Salt Lake Railroad. Each rail line converged in downtown Los Angeles and had its own passenger stations and tracks. With the necessary transportation and industry in place, Southern California's population exploded in the beginning of the 20th century (Galvin Preservation Associates, Inc. 2009).

Despite regional population growth during the early 20th century, the areas surrounding Burbank, Glendale, and northeastern Los Angeles remained rural for years. Former rancho land continued to be used for ranching or was subdivided into smaller farms and orchards. Urban development would not begin in earnest until the introduction of electric street car service. The presence of the rail lines and the San Fernando Road facilitated development of industrial tracts in the early 1900s. In addition, the completion of the Los Angeles Aqueduct in 1913 spurred continued growth of the Los Angeles region. As a result, industrial development in the project vicinity flourished during the 1920s. Commercial and residential development was quick to follow, especially in downtown regions of the city of Los Angeles (Historic Resources Group 2016). During the 1920s,

[2] Section 3.18, Regional Growth, describes induced growth and indirect impacts from growth, and it also identifies cumulative impacts associated with regional growth and future projects. The regional growth analysis is not repeated in this section.

there was a major population increase in Southern California overall. New residents arrived in Los Angeles and its surroundings, drawn to the area by the emerging film, oil, and aviation industries, as well as the vast quantities of affordable land. The populations of some areas more than tripled between 1920 and 1930. The city of Burbank experienced major growth and development after the establishment of the aircraft industry and a major airport in the city during the 1930s (Authority and FRA 2017).

Rapid growth in Los Angeles County and the cities of Los Angeles, Burbank, and Glendale continued during World War II and into the post-war era. In fact, most of the county's growth occurred in the post-war years. After World War II, the city of Los Angeles grew rapidly, sprawling into the San Fernando Valley. The creation of the Interstate Highway System during the 1950s and 1960s helped spur suburban growth. The city of Glendale experienced substantial development in the 1970s, with the completion of the Glendale Freeway (State Route 2) and the Ventura Freeway (State Route 134). Growth from the establishment of the aircraft industry and Burbank's airport also continued during the post-war years. Post-war building booms and the later revitalization efforts of the 1960s resulted in demolition and replacement of the earliest commercial buildings (Authority 2019b).

Growth in the region has slowed since the 2000s. Table 3.19-1 shows the population in 2000 and 2010 for the state, Los Angeles County, and the cities of Burbank, Glendale, and Los Angeles. Generally, except for the City of Glendale, each of the jurisdictions grew at a slower pace than the state (generally 0.3 percent increases per year for each city and the county, as compared to a 1 percent annual growth rate experienced by the state). Glendale experienced an overall 1.7 percent population loss over the 10-year period (a 0.2 percent annual population loss).

**Table 3.19-1 Population Increase in the Resource Study Area (2000–2010)**

| Location | 2000 Population | 2010 Population | Change from 2000 to 2010 | Annual Average Increase[1] |
|---|---|---|---|---|
| State of California | 33,871,648 | 37,253,956 | 10.0% | 1.0% |
| Los Angeles County | 9,519,338 | 9,818,605 | 3.1% | 0.3% |
| City of Burbank | 100,316 | 103,340 | 3.0% | 0.3% |
| City of Glendale | 194,973 | 191,719 | -1.7% | -0.2% |
| City of Los Angeles | 3,694,820 | 3,792,621 | 2.7% | 0.3% |

*Source: California High-Speed Rail Authority 2019a*
[1] Annual average increase values are rounded.

The historic conversion of the region to an urban, built-out environment has resulted in widespread impacts such as disturbance of cultural and paleontological resources from previous infrastructure and land development projects, increased traffic congestion from increased population growth, worsening of air quality to below state and federal standards, increased noise levels from denser development, polluted surface and groundwater, increased stormwater runoff, declining groundwater levels, loss of biological diversity and habitat, and increased social and economic growth and diversity.

### 3.19.6 Projected Growth Trends

Under the No Project Alternative, Los Angeles County would grow at an average rate of 0.6 percent per year through 2040. By 2040, projections show more than 1.69 million new inhabitants in this area (U.S. Census Bureau 2010). Los Angeles County and each of the incorporated cities in the region have updated their general plans in preparation for this projected growth. Refer to Section 2.5.1, No Project Alternative—Planned Improvements, for a discussion of projected growth trends and planned development anticipated for the No Project Alternative.

### 3.19.6.1 Cumulative Projects

This analysis defines cumulative projects as those likely to occur within the HSR project 2040 planning horizon. These projects could have impacts on resources that would also be affected by the HSR Build Alternative. The cumulative projects, along with the sources of information used in this cumulative analysis, are provided in Appendix 3.19-A. The Authority developed these lists after consultation with affected jurisdictions via mailed correspondences containing a description and map of the HSR Build Alternative. Analysts also researched projects proposed in the cumulative RSA by affected jurisdiction via a search of publicly available documents and resources, including conducting an internet search of projects, plans, and proposals. The early action projects described in Section 2.5.2.9, Early Action Projects, are evaluated as part of the HSR Build Alternative and in combination with all listed cumulative projects.

The cumulative impacts analysis considers planned development in the cities of Burbank, Glendale, and Los Angeles. Specifically, this analysis considers the list of reasonably foreseeable development plans and projects, transportation and transit projects, utility projects, bridge rehabilitation projects, and sewer projects listed in Volume 2, Appendix 3.19-A. The list of reasonably foreseeable future projects in this appendix includes projects intended to help accommodate the projected 2040 population in the cities of Burbank, Glendale, and Los Angeles. The development projects represent only a portion of the projects likely to be built through 2040 because the list is predominantly based on data that represent planned development activity over the upcoming 10 to 12 years. These projects are within 0.5 mile of the HSR Build Alternative centerline. The general plans of the cities include provisions for future growth beyond existing development levels under their land use elements. Additional development projects not included on the cumulative project list are expected to proceed in the future based on general plan land use designations.

Figure 3.19-1 (Sheets 1 through 3) shows the cumulative land development, transportation, bridge maintenance, and utility projects in Tables 3.19.A-1, 3.19.A-2, 3.19.A-3, and 3.19.A-4 in Appendix 3.19-A. Figure 3.19-2 (Sheets 1 through 3) shows the cumulative sewer projects detailed in Table 3.19.A-5 in Appendix 3.19-A, mapped separately to avoid overlap with other cumulative projects. The project names and corresponding map locations are also included in Table 3.19-2, Table 3.19-3, Table 3.19-4, Table 3.19-5, and Table 3.19-6. The cumulative project identification numbers shown on the figures and listed in the tables are referenced in the cumulative impact analysis in Section 3.19.9, where applicable.

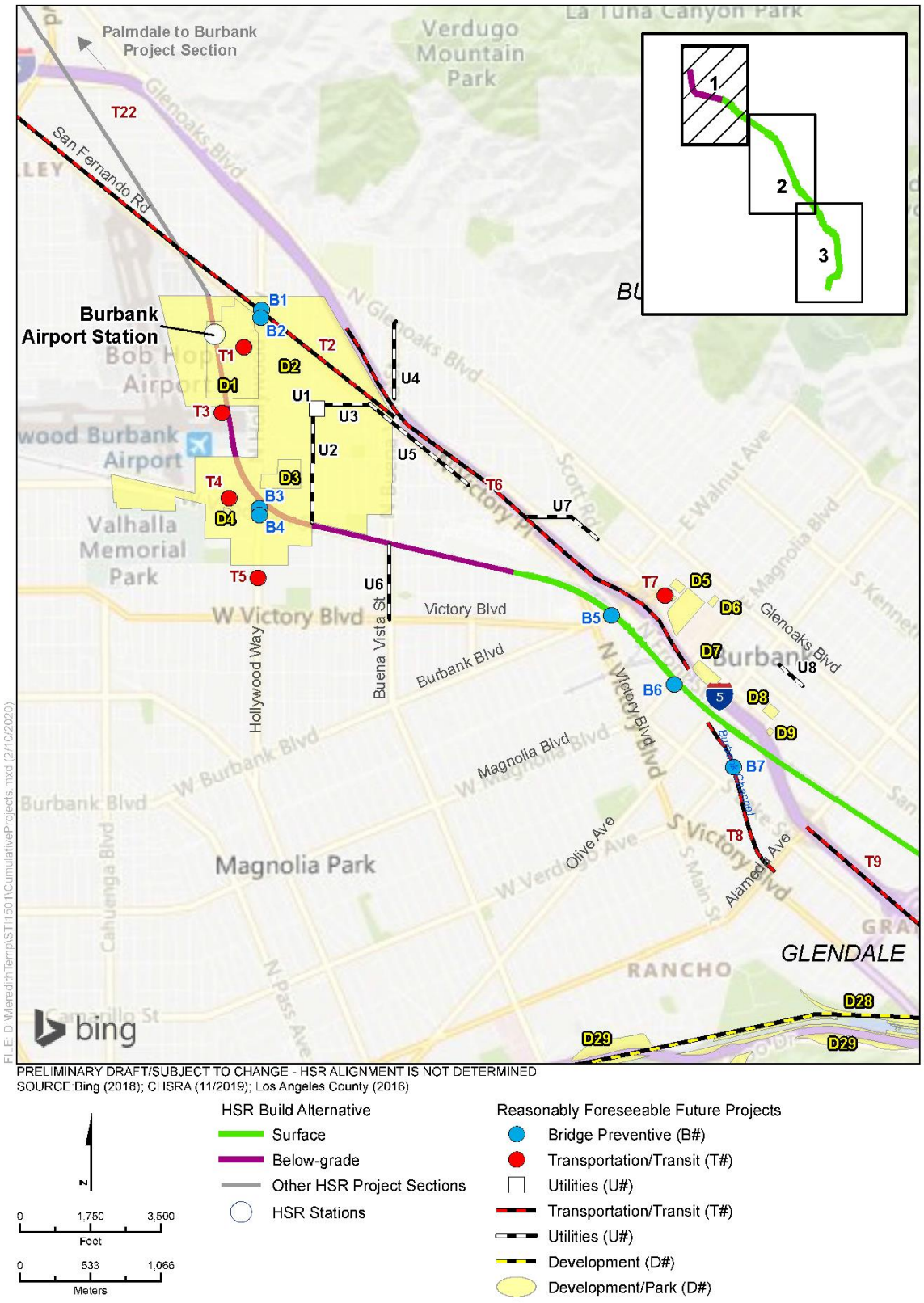


**Figure 3.19-1 Cumulative Land Development, Transportation, Bridge, and Utility Projects**

(Sheet 1 of 3)

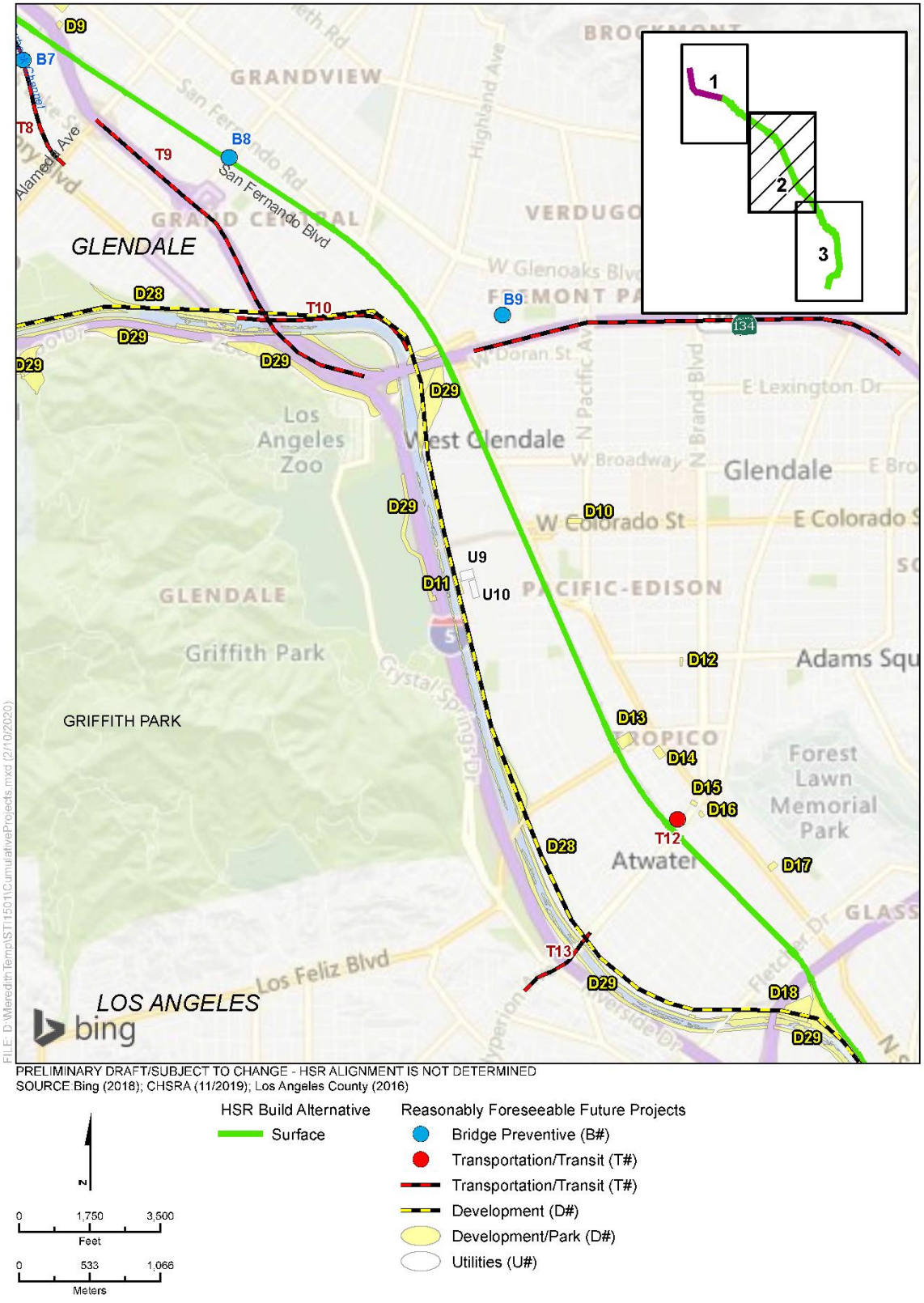


**Figure 3.19-1 Cumulative Land Development, Transportation, Bridge, and Utility Projects**

(Sheet 2 of 3)

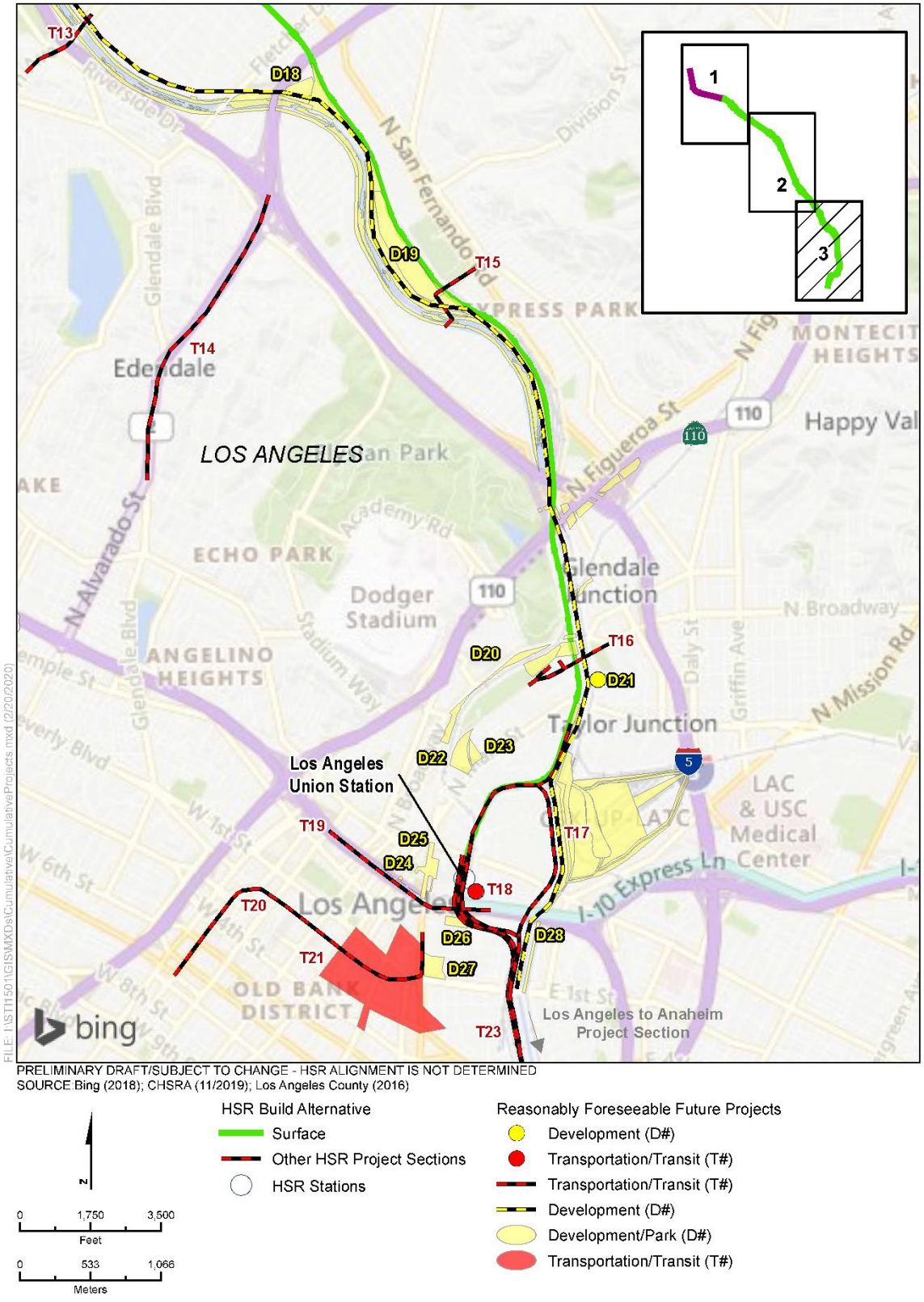


**Figure 3.19-1 Cumulative Land Development, Transportation, Bridge, and Utility Projects**

(Sheet 3 of 3)

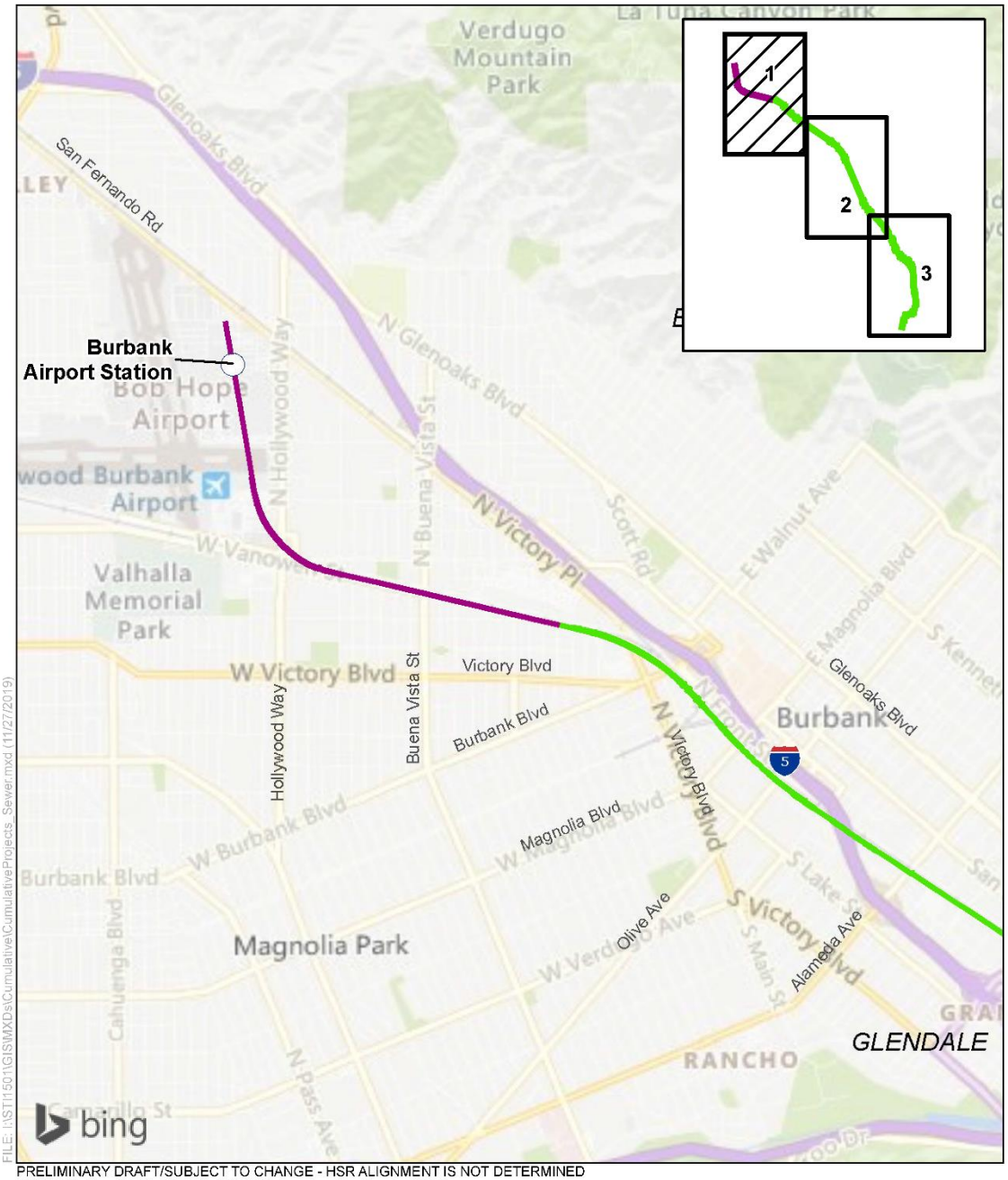


**Figure 3.19-2 Cumulative Sewer Projects**

(Sheet 1 of 3) (No projects on Sheet 1)

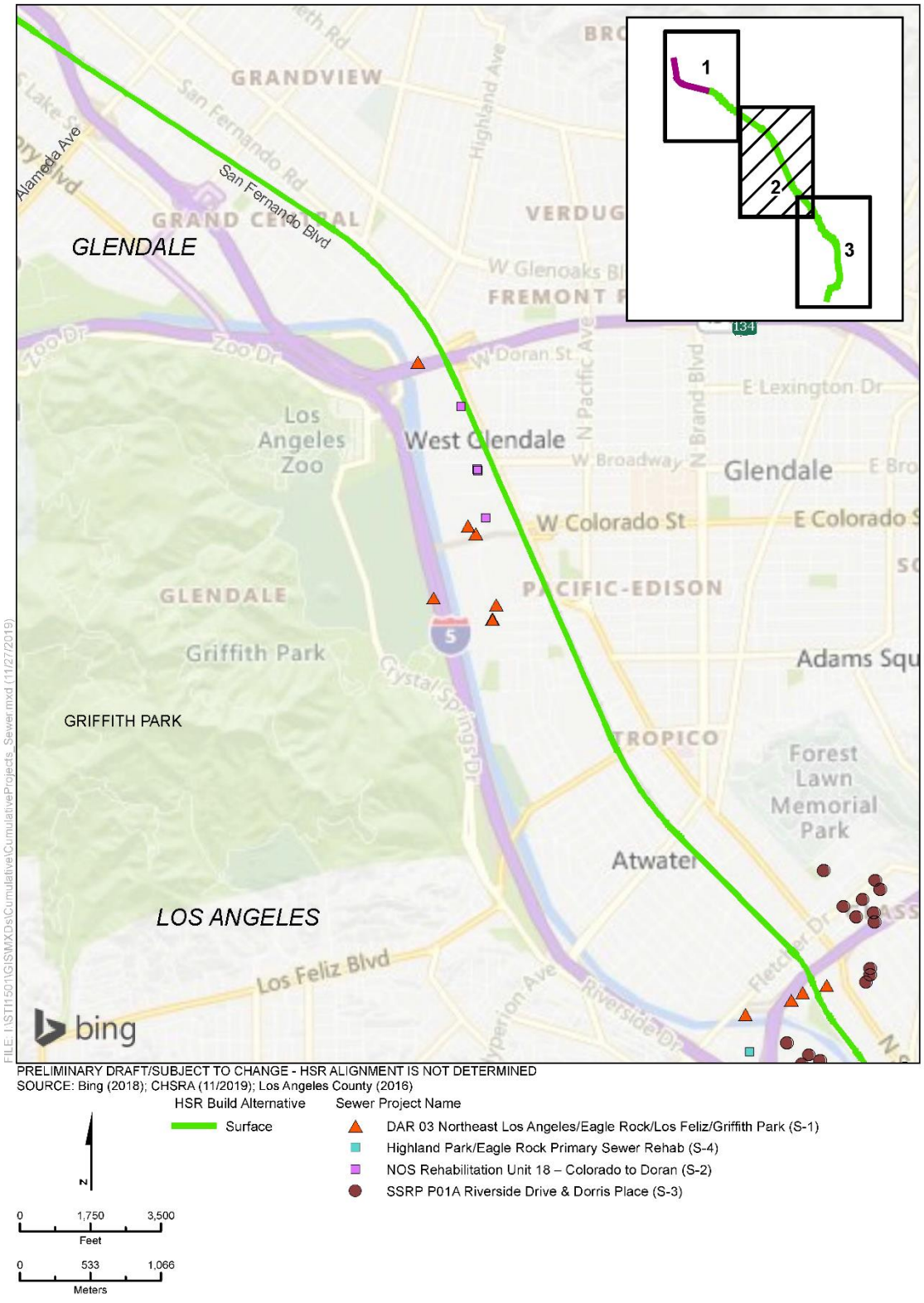


**Figure 3.19-2 Cumulative Sewer Projects**

(Sheet 2 of 3)

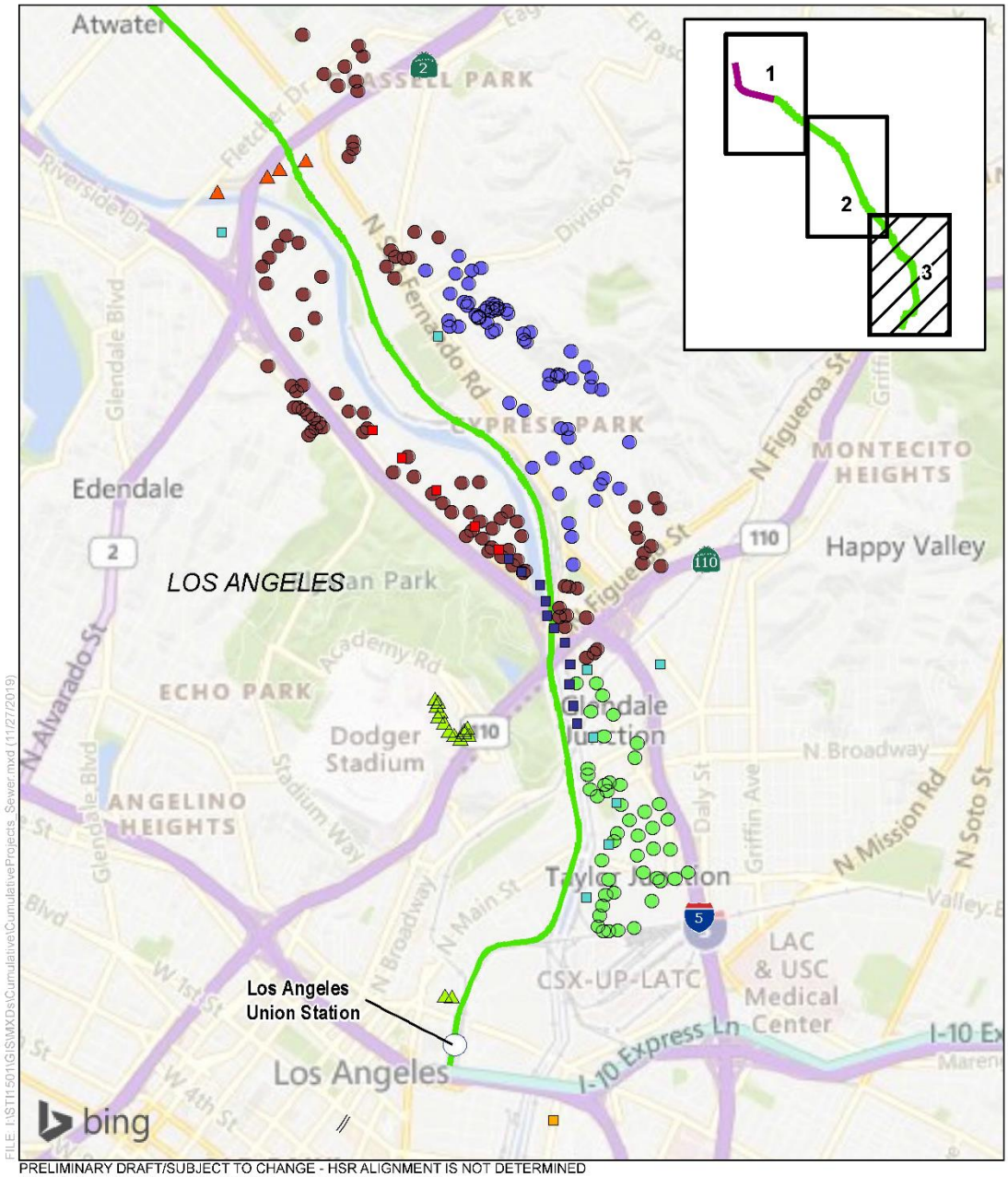


**Figure 3.19-2 Cumulative Sewer Projects**

(Sheet 3 of 3)

**Table 3.19-2 Cumulative Transportation and Transit Project List**

| Cumulative Project Number | Project Name |
|---|---|
| T1 | Burbank-Glendale-Pasadena Airport Intermodal Ground Access Link |
| T2 | Brighton to Roxford Double Track |
| T3 | Burbank Bob Hope Airport Replacement Terminal |
| T4 | Burbank Bob Hope Airport Station Pedestrian Grade Separation and RITC Connection |
| T5 | Metro Red Line Extension |
| T6 | I-5 Corridor Improvements—Magnolia Boulevard to Buena Vista Street |
| T7 | San Fernando Boulevard at Burbank Boulevard Intersection Improvements |
| T8 | Burbank Channel Bikeway Regional Gap Closure |
| T9 | I-5 Corridor Improvements—Ventura Freeway (SR 134) to Magnolia Boulevard |
| T10 | Glendale Narrows Bikeway Culvert Bridge |
| T11 | Space 134 Cap Park |
| T12 | Beeline CNG Fueling and Maintenance Facility |
| T13 | Glendale Boulevard-Hyperion Avenue Complex of Bridges |
| T14 | SR 2 Terminus Improvement Project |
| T15 | Taylor Yard Bikeway/Pedestrian Bridge over the Los Angeles River |
| T16 | North Spring Street Viaduct Widening and Rehabilitation |
| T17 | Link Union Station (formerly known as the Southern California Regional Interconnector Project) |
| T18 | Patsaouras Plaza |
| T19 | Park 101 |
| T20 | Regional Connector Transit Project |
| T21 | Active Transportation Program—Little Tokyo Pedestrian Safety |
| T22 | Palmdale to Burbank HSR Project Section |
| T23 | Los Angeles to Anaheim HSR Project Section |

CNG = compressed natural gas
I = Interstate
Metro = Los Angeles County Metropolitan Transportation Authority
RITC = Regional Intermodal Transportation Center
SR = State Route

**Table 3.19-3 Cumulative Development Project List**

| Cumulative Project Number | Project Name |
|---|---|
| D1 | Avion |
| D2 | Golden State Specific Plan |
| D3 | Proposed Airport Hotels |
| D4 | 3700 Vanowen Street |
| D5 | Burbank Town Center |
| D6 | 550 North Third Street Hotel Project |
| D7 | First Street Village Mixed-Use Project |
| D8 | The Premier on First |
| D9 | 40 East Verdugo |
| D10 | CCTAN/Colorado Street Mixed-Use Development |
| D11 | Los Angeles-Glendale Water Reclamation Plant Personnel Building |
| D12 | 206 West Chevy Chase Drive |
| D13 | The Griffith |
| D14 | Glendale Link Project |
| D15 | 1821 South Brand Boulevard |
| D16 | 1820 South Brand Boulevard |
| D17 | Northeast Area Police Station Parking Garage |
| D18 | Bow Tie Yard Lofts |
| D19 | Taylor Yard G2 River Park Project |
| D20 | Elysian Park Lofts |
| D21 | Albion Riverside Park—Park Development |
| D22 | College Station |
| D23 | LA Lofts Chinatown Project |
| D24 | Channel 35 Studio Relocation Project |
| D25 | Los Angeles Union Station Forecourt and Esplanade Improvements Project |
| D26 | Los Angeles Department of Transportation Bus Maintenance and CNG Fueling Facility |
| D27 | Mangrove Estates Mixed-Use Project |
| D28 | Los Angeles River Revitalization Master Plan |
| D29 | Los Angeles River Ecosystem Restoration Project |

CNG = compressed natural gas

**Table 3.19-4 Cumulative Utility Project List**

| Cumulative Project Number | Project Name |
|---|---|
| U1 | Ontario Substation |
| U2 | Underground Transmission Line Construction |
| U3 | Overhead Transmission Line Construction |
| U4 | Streetlight Series Conversion |
| U5 | Overhead Transmission Line Construction |
| U6 | Streetlight Series Conversion |
| U7 | Underground Utility District II |
| U8 | Streetlight Series Conversion |
| U9 | Los Angeles-Glendale Water Reclamation Plant Primary Effluent Equalization Storage |
| U10 | Los Angeles-Glendale Water Reclamation Plant Blower Air Cleanup System |

**Table 3.19-5 Cumulative Bridge Preventive Maintenance Project List**

| Cumulative Project Number | Project Name |
|---|---|
| B1 | N San Fernando Boulevard/Hollywood Way (County Bridge No. 2328, State Bridge No. 53C1833) |
| B2 | S San Fernando Boulevard/Hollywood Way |
| B3 | Empire Avenue/Hollywood Way (County Bridge No. 2329, State Bridge No. 53C1834) |
| B4 | Vanowen Street/Hollywood Way (County Bridge No. 2815, State Bridge No. 53C0941) |
| B5 | Burbank Boulevard/Lake Street (County Bridge No. 2620, State Bridge No. 53C0198) |
| B6 | Magnolia Boulevard/Burbank Western Channel (County Bridge No. 2822, State Bridge No. 53C0200) |
| B7 | Verdugo Avenue/Burbank Western Channel (County Bridge No. 2812, State Bridge No. 53C0940) |
| B8 | Western Avenue/Metro (County Bridge No. 2740, State Bridge No. 53C0748) |
| B9 | Concord Street/Verdugo Avenue (County Bridge No. 2744, State Bridge No. 53C0742) |

**Table 3.19-6 Cumulative Sewer Project List**

| Cumulative Project Number | Project Name |
|---|---|
| S1 | DAR 03 Northeast Los Angeles/Eagle Rock/Los Feliz/Griffith Park |
| S2 | NOS Rehabilitation Unit 18—Colorado to Doran |
| S3 | SSRP P01A Riverside Drive & Dorris Place |
| S4 | Highland Park/Eagle Rock Primary Sewer Rehab |
| S5 | SSRP P17 Cypress Avenue and Division Street |
| S6 | NOS Rehabilitation Unit 13—Forney to Duvall |
| S7 | NOS Rehabilitation Unit 12—Duvall to Humboldt |
| S8 | SSRP P01B Daly Street and North Main Street |
| S9 | NOS Rehabilitation Unit 9—Aliso to 6th |
| S10 | DAR 06 Northeast Los Angeles/Silver Lake/Boyle Heights |
| S11 | Downtown and Echo Park Primary Sewer Rehab |

DAR = Difficult to Access Reach
NOS = North Outfall Sewer
SSRP = Secondary Sewer Renewal Program

### *3.19.6.2 Regional Growth Projections*

Population growth also contributes to cumulative development because additional land development is needed to support growing populations. The Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) for the Southern California Association of Governments (SCAG) region covers Los Angeles County. As shown in Table 3.19-7, Los Angeles County is expected to grow at an average rate of 0.6 percent per year through 2040. By 2040, projections show approximately 1.69 million new inhabitants in this area, compared to 2010. General plans and other planning documents for cities in the project area estimate the locations and types of growth likely to occur under build-out of these plans. These projections represent the future condition under the No Project Alternative, as discussed in Section 2.5.1. These projections are considered under individual cumulative impact topics, as applicable, throughout the cumulative impacts analysis in Section 3.19.9.

**Table 3.19-7 Population Projections for Counties and Cities Traversed by the Burbank to Los Angeles Section of the California High-Speed Rail Project, 2010–2040**

| Location | 2010 Population | 2040 Projected Population | Change from 2010 to 2040 | Annual Average Increase |
|---|---|---|---|---|
| Los Angeles County | 9,818,605 | 11,514,000 | 17.3% | 0.6% |
| City of Burbank | 103,340 | 118,700 | 14.9% | 0.5% |
| City of Glendale | 191,719 | 214,000 | 11.6% | 0.4% |
| City of Los Angeles | 3,792,621 | 4,609,400 | 21.5% | 0.7% |
| State of California | 37,253,956 | 45,747,645[1] | 22.8 % | 1.0% |

*Sources: U.S. Census Bureau 2010; Southern California Association of Governments 2016a,*
[1] California Department of Transportation and the Economic Forecast 2013

Future land development projects in Los Angeles County include the implementation of general and specific plans throughout the county. Growth in the region will add residential and business developments and associated infrastructure to the landscape. Planned and other reasonably foreseeable future projects under the No Project Alternative would also include transportation

projects, such as reconstruction of interchanges, overcrossing construction, road widening and lane additions, road realignment and extensions, and recreational bike/pedestrian trail construction; residential, commercial, and industrial developments; utility construction projects; and residential development projects. A full list of anticipated future development projects is provided in Appendix 3.19-A.

The residential and commercial growth expected in and around Los Angeles County is anticipated to alter land use patterns, convert existing land uses to transportation land uses, and result in incompatibility between adjacent land uses. Residential land uses are the most common sensitive receptors. Other sensitive receptors along the corridor include schools, daycare facilities, medical facilities, and elder care establishments.

## 3.19.7 Organization of Cumulative Impact Analysis

The cumulative impact analysis of the HSR Build Alternative considers whether the cumulative condition (i.e., past, present, and reasonably foreseeable future actions in the RSA) could result in a cumulative impact within a specific resource area (e.g., transportation, noise and vibration, biological resources and wetlands). If it is determined that there could be cumulatively significant impacts, the analysis then proceeds to determine whether the incremental contributions of the HSR Build Alternative to the identified cumulative impacts would be cumulatively considerable. If the incremental impacts of the HSR Build Alternative would be cumulatively considerable, the analysis then describes additional feasible mitigation measures beyond those already identified, if available, to address the contribution of the HSR Build Alternative to a cumulative impact.

The analysis includes potential short-term, long-term, and direct impacts from adopted plans, past actions, concurrent construction activities, and planned and projected development and transportation projects listed in Appendices 3.19-A.

### *3.19.7.1 Resource Study Area*

Each cumulative resource analysis below includes a discussion of the cumulative RSA relevant to that resource. The RSA is the area in which the Authority conducted all environmental investigations specific to each affected resource area to determine the resource characteristics and potential impacts of the HSR Build Alternative. For cumulative impacts, the RSA also includes the geographic extent of each affected resource within which project impacts would accumulate or interact with the impacts of other planned projects, including adjacent HSR project sections.

Table 3.19-8 provides a general definition and boundary description for the cumulative RSA for each resource topic within the Burbank to Los Angeles Project Section.

**Table 3.19-8 Definition of Cumulative Resource Study Areas**

| Resource | RSA Boundary | Rationale for Choosing Boundary |
|---|---|---|
| **Transportation** | | |
| Transportation | The general geographic limits of the RSA include the Burbank Airport Station at the north and LAUS at the south, generally following the existing railroad corridor. The RSA includes:<br>▪ Roadway segments that will be closed or grade-separated<br>▪ Alternate routes for any roadway closures<br>▪ Major intersections to be expanded, signalized, reconfigured, or created<br>▪ Critical intersections of collector (or higher roadway classification) facilities<br>▪ Burbank Airport Station and LAUS parking and pick-up/drop-off areas | The RSA includes consideration of transportation network changes that could have a cumulative impact on roadway segments and intersections affected by the HSR Build Alternative. The portion of the RSA selected for detailed transportation analysis includes roadways and intersections that would be crossed, built, or modified as part of the HSR Build Alternative, or that would be affected by the project due to additional traffic volumes. |
| **Air Quality and Global Climate Change** | | |
| Air Quality | The South Coast Air Basin for criteria pollutants and toxic air contaminant emissions | Air quality impacts are local and regional in nature, and they are regulated by California's 15 regional air districts. The Burbank to Los Angeles Project Section is within the South Coast Air Basin. Meteorological and topographical factors generally limit criteria pollutant mixing across air basin boundaries. |
| Global Climate Change | The State of California for GHG emissions | Impacts from GHG emissions are not specific to the area in which they are produced. The RSA for GHG emissions encompasses the State of California because existing plans, emissions targets, and CEQA thresholds are established based on statewide goals. The HSR system's GHG effects (benefits) would also occur at the state level because many of the reductions in mobile-source emissions would be achieved by long-distance travel on the HSR system. |
| **Noise and Vibration** | | |
| Noise | 700 feet on either side of the proposed track centerline for the HSR Build Alternative | The maximum FRA screening distance of 700 feet from the FRA 2012 Guidance Manual was used because: (1) the corridor is in an urban, existing rail corridor and is not obstructed everywhere, which is consistent with the "existing rail corridor, urban/noisy suburban – unobstructed category"; and (2) while planned speed within the segment is 140 mph, the more conservative screening distance of 700 feet that is associated with higher-speed trains (>170 mph) was used. |

| Resource | RSA Boundary | Rationale for Choosing Boundary |
|---|---|---|
| Vibration | ▪ 275 feet from the edge of the right-of-way for the HSR Build Alternative<br>▪ 150 feet from the station boundary for stations | The vibration RSA was based on the FRA screening distances from the FRA 2012 Guidance Manual. |
| **Electromagnetic Interference and Electromagnetic Fields** | | |
| EMI/EMF | 500 feet on either side of the HSR Build Alternative centerline and traction power facilities | This RSA was determined based on typical screening distances defined in the Electromagnetic Field Footprint Report (Authority 2012: Table 3.5-4) and project-specific factors of the HSR Build Alternative. Screening distances indicate whether any EMF/EMI-sensitive receivers are near enough to the proposed alignment for EMF/EMI effects to be possible under typical conditions. If receivers are farther than these screening distances, the Electromagnetic Field Footprint Report (Authority 2012) has determined that EMF/EMI impacts would be unlikely. |
| **Public Utilities and Energy** | | |
| Public Utilities | The service areas of utility providers in Los Angeles County where utility infrastructure would be used by HSR stations | Utility infrastructure throughout Los Angeles County would be affected as a result of the HSR system, along with other planned development. |
| Energy | The State of California and western states that produce energy exported to California | The RSA for energy was designed to be sufficiently broad in order to capture the impacts associated with the demand for and production of energy for the HSR Build Alternative under the cumulative condition. |
| **Biological and Aquatic Resources** | | |
| Plants and Wildlife | The cities of Los Angeles, Burbank, and Glendale | This area encompasses all habitats used by special-status plant and wildlife species that are vulnerable to impacts from the HSR Build Alternative under the cumulative condition. |
| Aquatic Resources | The Los Angeles River Watershed | This area encompasses the watershed for aquatic resources in the project-level RSA. It also considers the downstream receiving waters. This area encompasses all aquatic resources vulnerable to impacts from the HSR Build Alternative under the cumulative condition. |
| **Hydrology and Water Resources** | | |
| Floodplains | Federal Emergency Management Agency-designated 100-year floodplains crossed by the direct RSA (project footprint with a 250-foot buffer) | Floodplain impacts (increases in water surface elevation) are localized in the area of structures proposed in a specific floodplain. |
| Surface Waters | The Los Angeles River Watershed | Hydrologic and water quality impacts on surface waters are regional in nature and can affect downstream receiving waters in the watershed. |

| Resource | RSA Boundary | Rationale for Choosing Boundary |
|---|---|---|
| Groundwater | The Central Subbasin of the Coastal Plain of Los Angeles and the San Fernando Valley Groundwater Basin | Hydrologic and water quality impacts on groundwater are regional and can affect the groundwater basin. |
| **Geology, Soils, Seismicity, and Paleontological Resources** | | |
| Geology, Soils, and Seismicity | All geologic units that are partially overlain by the HSR Build Alternative project footprint in the San Fernando Valley, Elysian Park Hills, and the Los Angeles Basin | Some geologic and seismic hazards, such as soil failures, settlement, corrosivity, shrink-swell, erosion, and earthquake-induced liquefaction risks are limited to the project site level and do not accumulate across projects. Therefore, these issues are not analyzed in the cumulative impacts analysis. However, other issues, such as seismicity and faulting, would be cumulatively additive across projects should the associated damage affect multiple projects within the same geographic area and timespan. Impacts on these resources are assessed at a broader regional level that defines the RSA. |
| Paleontological Resources | All geologic units that are overlain by the HSR Build Alternative project footprint in the San Fernando Valley, Elysian Park Hills, and the Los Angeles Basin | Paleontological resources occur as part of the broader geologic record and are irregularly distributed both across a geographic region and throughout the vertical extent of the geologic units present in any given region. The fossil record comprises all fossils occurring in the geologic record, and impacts on any one paleontological resource occur in the context of the entire fossil record of a region. Therefore, cumulative impacts are evaluated at a broader regional level. |
| **Hazardous Materials and Wastes** | | |
| Hazardous Materials and Waste | The HSR Build Alternative project footprint plus a 0.25-mile radius around the alignment and stations | This RSA is used to account for potential releases of hazardous materials within 0.25 mile of schools. Other impacts on hazardous materials are localized and would not contribute to cumulative impacts. |
| **Safety and Security** | | |
| Safety and Security | The cities of Los Angeles, Burbank, and Glendale | This RSA allows a review of other projects under the cumulative condition that would affect emergency response and evacuation routes because of impacts on roadway connectivity to emergency service providers. |

| Resource | RSA Boundary | Rationale for Choosing Boundary |
|---|---|---|
| **Socioeconomics and Communities** | | |
| Communities, Neighborhoods, Displacements, and Relocations | The southern portion of Los Angeles County, including the cities of Burbank and Glendale and, within the city Los Angeles, the neighborhood council areas of Sun Valley, Los Feliz, Atwater Village, Glassell Park, Arroyo Seco, Silver Lake, Elysian Valley Riverside, Greater Echo Park Elysian, Greater Cypress Park, Historic Cultural, Lincoln Heights, Downtown Los Angeles, and Boyle Heights | This RSA includes all of the cities and communities that would be directly affected by the HSR Build Alternative. This area captures potential cumulative impacts on communities along the alignment. |
| Economic | Los Angeles County | Economic effects generally occur countywide. Given the substantial costs associated with construction and operation of the HSR Build Alternative and the regional nature of employment in Southern California, the HSR Build Alternative is anticipated to generate direct and indirect economic impacts on a scale that would be felt throughout the regional economy. |
| **Station Planning, Land Use, and Development** | | |
| Station Planning, Land Use, and Development | The cities of Los Angeles, Burbank, and Glendale | Land use is regulated by incorporated cities or other planning agencies and bodies. The RSA for station areas includes the planning area for the municipalities in which the stations would be located. |
| **Parks, Recreation, and Open Space** | | |
| Parks, Recreation, and Open Space | The cities of Los Angeles, Burbank, and Glendale. | These resources are regulated by the local jurisdiction in which the facility is located. |
| **Aesthetics and Visual Quality** | | |
| Aesthetics and Visual Quality | The HSR Build Alternative's viewshed: within 0.25 mile of the track | The HSR Build Alternative's viewshed (i.e., the area that could have views of project features) is the distance from the HSR alignment where cumulative projects could have visual impacts that would overlap with those of the HSR Build Alternative. |
| **Cultural Resources** | | |
| Archaeological Properties | Los Angeles County | The RSA represents the geographic range of known archaeological properties on which the HSR Build alternative could potentially have an impact |

| Resource | RSA Boundary | Rationale for Choosing Boundary |
|---|---|---|
| Built Resources | The cities of Los Angeles, Burbank, and Glendale | The RSA encompasses areas that contain built resources that may be directly or indirectly affected by the cumulative projects, and it encompasses the geographic area needed to provide historic context for the built environment. Therefore, the RSA is assumed to include built resources that are eligible or could become eligible for listing on national, state, and local registers of historic resources in the reasonably foreseeable future. |
| **Environmental Justice** | | |
| Environmental Justice | The cumulative RSA for environmental justice is defined as Census tracts partially or fully within 0.5 mile of the HSR Build Alternative project footprint. | The cumulative RSA for environmental justice is larger than the RSAs for direct and indirect impacts on low-income and minority populations in order to capture environmental justice impacts associated with the construction and operations of the HSR Build Alternative, as well as regional environmental justice impacts associated with anticipated planned development. |

Authority = California High-Speed Rail Authority
CEQA = California Environmental Quality Act
EMF = electromagnetic fields
EMI = electromagnetic interference
FRA = Federal Railroad Administration
GHG = greenhouse gas
HSR = high-speed rail
LAUS = Los Angeles Union Station
mph = miles per hour
RSA = resource study area
Footprint Report = *Technical Memorandum 300.07, EIR/EIS Assessment of HSR Alignment EMF Footprint*
FRA 2012 Guidance Manual = *High-Speed Ground Transportation Noise and Vibration Impact Assessment*

### *3.19.7.2 Cumulative Condition*

The combined environmental influence of the past, present, and future changes described in Section 3.19.6.1, Cumulative Project List and Regional Projections, and Appendix 3.19-A in conjunction with the HSR Build Alternative is referred to as the "cumulative condition" through the year 2040. Projected growth and conversion of land to urban and transportation uses associated with the cumulative condition, as reflective of adopted city and county general plans, regional transportation plans, and the cumulative projects list, is anticipated to have an environmental effect in the area crossed by the HSR Build Alternative through 2040. Population growth in Los Angeles County is projected to occur at an average rate of 0.6 percent annually, with an estimated population totaling 11,514,000 people by 2040 (U.S. Census Bureau 2010b). This growth in population will translate into continued conversion of land not currently used for transportation to transportation-focused uses. The urban environment will continue to intensify as a result of population growth and redevelopment of land into residential, business, and commercial uses. The relevant adopted general plans for the counties, cities, and unincorporated areas promote dense urban development. Under the cumulative condition, traffic would increase; ambient noise levels would increase; the demand for energy and water would increase; the amount of impervious surfaces would increase and affect the quality and amount of stormwater runoff; and the demand for public facilities and parks would increase.

### *3.19.7.3 Contribution of the High-Speed Rail Build Alternative*

This analysis first considers the impacts of the HSR Build Alternative in combination with those of other cumulative projects (listed in Appendix 3.19-A) to determine if there would be a cumulative impact on the resource. If a cumulative impact is identified for a resource, then analysis determines whether the HSR Build Alternative's incremental contribution to cumulative impacts

would be cumulatively considerable. The analysis then describes additional feasible mitigation measures beyond those already identified, if available, to address the contribution.[3]

The HSR Build Alternative's contribution to cumulative impacts includes the Authority's relevant IAMFs (Appendix 2-B, Impact Avoidance and Minimization Features) and application of the mitigation measures identified for the HSR Build Alternative in the individual resource analyses in Chapter 3 (i.e., Sections 3.2 through 3.17). In addition to including IAMFs and mitigation, the HSR Build Alternative design and project footprint have been refined during the environmental planning process to avoid or reduce impacts while meeting the project purpose and objectives. Where appropriate, additional feasible mitigation measures for cumulative impacts are proposed in Section 3.19.9 to reduce the HSR Build Alternative's cumulatively considerable contribution.

Through the planning horizon of 2040, the HSR Build Alternative could have environmental impacts that are cumulatively considerable in some areas and would reduce potential cumulative impacts in other areas, as described in the resource-specific sections.

#### *3.19.7.4 CEQA Conclusion*

The analysis concludes with a determination of CEQA significance for each resource topic where applicable. This conclusion specifically identifies whether there would be significant cumulative impacts under CEQA and whether the contribution of the HSR Build Alternative, after any applicable mitigation, would be cumulatively considerable.

### 3.19.8 Cumulative Impact Analysis

#### *3.19.8.1 Overview of Cumulative Impact Analysis*

The cumulative impact analysis of the HSR Build Alternative considers whether the cumulative condition (including past, present, and reasonably foreseeable projects) could result in a cumulative impact within a specific resource area (e.g., transportation, noise and vibration, biological and aquatic resources). The resource areas are organized consistent with the order they appear in the previous subsections of Chapter 3.

#### *3.19.8.2 Transportation*

**Resource Study Area**

The RSA for evaluating cumulative impacts on transportation follows the existing rail corridor from Burbank Airport Station in the north to Los Angeles Union Station (LAUS) in the south and includes the following:

1. Roadway segments that will be closed or grade-separated
2. Alternative routes for any road closures
3. Major intersections to be expanded, signalized, reconfigured, or created
4. Critical intersections of collector (or higher) facilities
5. Burbank Airport Station and LAUS parking areas

This RSA was selected because it captures (1) impacts on roadways and intersections that would be crossed, built, or modified as part of the construction and operation of the HSR Build Alternative and (2) the geographic area in which changes to the area transportation network in the cumulative condition could have cumulative impacts on roadway segments and intersections affected by the HSR Build Alternative.

**Cumulative Condition**

Transportation projects for which funding is reasonably foreseeable, anticipated population growth, the HSR Build Alternative, and adjacent HSR sections together constitute the cumulative condition for transportation. Under the cumulative condition, ongoing urban development and infill would continue within the cumulative RSA. As shown in Figure 3.19-1 and Figure 3.19-2,

[3] This analysis is included to comply with CEQA, which requires a determination as to whether the project's contribution to cumulative impacts are "cumulatively considerable." See Section 3.19.2.2, State, for further information.

cumulative projects that are anticipated to be constructed at the same time as the HSR Build Alternative include, but are not limited to, the following (identification numbers in parentheses correspond to Figure 3.19-1 and Figure 3.19-2):

- Burbank Bob Hope Airport Replacement Terminal (T3)
- Space 134 Cap Park (T11)
- Link Union Station (Link US) (T17)
- Regional Connector Transit Project (T20)
- Palmdale to Burbank HSR Project Section (T22)
- Los Angeles to Anaheim HSR Project Section (T23)
- The Premiere on First (D8)
- Taylor Yard G2 River Park Project (D19)
- LAUS Forecourt and Esplanade Improvements Project (D25)
- Los Angeles River Revitalization Master Plan(D28)
- Los Angeles River Ecosystem Restoration Project (D29)
- Los Angeles-Glendale Water Reclamation Plant Primary Effluent Equalization Storage (U9)
- North Outfall Sewer (NOS) Rehab Unit 12—Duvall to Humboldt (S7)

Planned roadway projects, or other developments directly adjacent to roadways, could require temporary reductions in lane widths and reductions in speed limits, which could contribute to cumulative impacts on traffic circulation and congestion in construction zones. Construction activities associated with planned and future transportation projects would also potentially result in temporary detours and road closures and contribute to cumulative impacts on traffic circulation and roadway levels-of-service (LOS), pedestrian and bicycle access, and limited or delayed access for emergency responders. However, the cumulative projects would be required to undergo environmental review and implement construction management plans to reduce traffic impacts during construction.

Traffic volumes on roadways in the cumulative RSA are expected to increase because of planned and future development activity and population growth, thereby affecting existing roadways, highways, utilities, airports, and railways. Cumulative impacts relevant to transportation would occur if the effects of these projects and planned development were to combine to cause roadway LOS or safety to deteriorate greatly. Cumulative impacts also could occur if any individual transportation impacts combined to diminish emergency access, reduce bicycle or pedestrian access, or reduce the level of transit service provided within the cumulative RSA. The other cumulative projects would undergo environmental review and would likely include measures to mitigate transportation impacts. Additionally, local and regionally planned transportation projects, such as those listed in Table 3.19.A-1 in Appendix 3.19-A, are intended to accommodate the expected increase in traffic related to development in the region.

**Contribution of the High-Speed Rail Build Alternative**

The project-level operational transportation analysis presented in Section 3.2, Transportation, evaluated the impacts of the HSR Build Alternative and other cumulative projects in the RSA and therefore represents the cumulative condition. These impacts are also summarized in this section.

The cumulative condition for transportation is taken into account through the use of the SCAG regional travel forecasting model (2016 RTP/SCS model). The regional model uses population and employment growth forecasts and includes planned and funded transportation projects throughout the region. The model accounts for the cumulative impact that the planned projects would have within the RSA.

The following state and local roadway improvement funding programs were reviewed and confirmed to be incorporated into the highway network of the SCAG regional model as relevant to the project alignment:

- City of Burbank Capital Improvement Program
- City of Glendale Capital Improvement Program

- City of Los Angeles Capital Improvement Program
- California State Transportation Improvement Program

In each case, SCAG included only the portion of the program that is in the financially constrained part of the RTP/SCS in the model data for the assumed opening year (2029) and future year (2040) scenarios. These are the projects for which funding is reasonably foreseeable. Because the reasonably foreseeable future projects are included in the traffic modeling, the analysis in Section 3.2, Transportation, represents a cumulative analysis.

***Construction***

Construction of the HSR Build Alternative would require roadway detours and possible closures, which would result in temporary delays on roadways. Construction of the HSR Build Alternative would temporarily contribute to interference with pedestrians, bicyclists, and transit and automobile users where existing sidewalks, paths, parking areas, roadway travel lanes, and transit stops need to be temporarily closed or relocated to allow for construction of new facilities. Temporary road closures for the construction of stations and grade separations would include Buena Vista Street, N Victory Place, Magnolia Boulevard, Olive Avenue, Alameda Avenue, Western Avenue, and Arvilla Avenue. These road closures would necessitate detours to local streets, which would create delays for emergency responders and others using these routes.

As detailed in Section 3.2, Transportation, during construction of the HSR Build Alternative (including stations), the 20 signalized intersections, 2 unsignalized intersections, and 6 roadway segments would operate at LOS E or F during construction and would also exceed LOS impact thresholds for NEPA due to roadway closures and traffic detours within the RSA.

The Authority would prepare a detailed Construction Transportation Plan as a standard IAMF (TR-IAMF#2) to reduce the impacts of construction and construction traffic on roadways. The Construction Transportation Plan prepared for the HSR Build Alternative would include requirements for the contractor to implement activities to be carried out in each construction phase, including maintaining traffic flow during peak travel periods. Such activities include, but are not limited to, the routing and scheduling of materials deliveries, materials staging and storage areas, construction employee arrival and departure schedules, employee parking locations, and temporary road closures, if any. This plan would be prepared in close consultation with the pertinent cities and county, would include projects being constructed concurrently, and would be reviewed and approved by the Authority before commencing ground-disturbing activities. However, traffic impacts on the 22 intersections and 6 roadways mentioned above would remain after the implementation of IAMFs. Mitigation measure TRAN-MM#1 identifies improvements that may be considered to improve LOS, reduce delay, and reduce construction-related LOS impacts under NEPA. However, even if TRAN-MM#1 is implemented, LOS impacts would remain at the following intersections:

- Strathern Street/Clybourn Avenue at San Fernando Road
- Hollywood Way at Victory Boulevard
- Buena Vista Street at San Fernando Boulevard
- Buena Vista Street at Victory Boulevard
- Magnolia Boulevard at 1st Street
- Magnolia Boulevard at Victory Boulevard
- Olive Avenue at 1st Street
- San Fernando Road at Chevy Chase Drive
- Sunland Boulevard at I-5 northbound ramps
- Buena Vista Street at Empire Avenue
- Empire Avenue at San Fernando Road

In addition, LOS impacts would remain at the following roadway segments:

- Hollywood Way south of Thornton Avenue
- Hollywood Way north of Avon Street
- Hollywood Way north of Victory Boulevard

- Victory Place west of Empire Street
- Victory Boulevard east of Hollywood Way
- San Fernando Road west of Arvilla Avenue

Due to right-of-way and physical constraints, mitigation is not considered feasible to reduce the impacts at the roadway segments listed above, and a cumulative impact would remain under NEPA at these locations.

Some level of disruption in traffic would be expected if the construction schedules of the HSR Build Alternative and other cumulative projects were to occur simultaneously. Many of the other foreseeable cumulative projects would undergo environmental review and implement a Construction Transportation Plan, or the equivalent, to reduce traffic impacts during construction. Coordination of construction activities among cumulative projects with concurrent construction schedules, as specified in mitigation measure CUM-TRAN-MM#1, would reduce traffic delays. However, even with implementation of CUM-TRAN-MM#1, there is still a potential for cumulative traffic impacts to occur. Due to the length of construction activity and the number of detours and closures required to build the HSR Build Alternative, the HSR Build Alternative would result in a cumulatively considerable contribution to transportation impacts during construction under NEPA.

***Operation***

As stated above, because the reasonably foreseeable future projects are included in the traffic modeling conducted for the HSR Build Alternative, the analysis in Section 3.2, Transportation, represents a cumulative analysis and is summarized in this section.

The HSR Build Alternative would provide a beneficial effect on the regional transportation system by reducing vehicle trips and vehicle miles traveled (VMT) on the freeways through the diversion of intercity trips from road trips to the HSR system. This would be a net benefit to transportation and traffic operations because a reduction in vehicle miles traveled helps maintain or potentially improve the operating conditions of regional roadways. This reduction in future vehicle trips would improve the LOS of the regional roadway system and reduce the overall vehicle miles traveled compared with existing conditions and compared with the No Project Alternative. Planned development and transportation projects would undergo environmental review and implement roadway or intersection improvements, or pay an in-lieu fee to mitigate for their traffic impacts. Planned transportation and transit projects are anticipated to improve the existing roadway network to accommodate future development and reduce congestion. Taken together, these transportation projects would provide cumulative regional improvements to transportation circulation and access in the region.

The HSR Build Alternative would result in a redistribution of traffic from changes in the roadway network and from additional trips to and from the station areas. During operation, the HSR Build Alternative, combined with the other cumulative projects, would result in LOS impacts under NEPA on 24 intersections and 7 roadway segments along the Burbank to Los Angeles Project Section alignment. TRAN-MM#2 includes improvements to intersections along the alignment to reduce the delays and improve LOS at affected intersections. However, due to right-of-way and physical constraints, mitigation is not being considered to reduce the impacts at the 7 intersections and 1 roadway listed below, and a cumulative impact would remain under NEPA at these locations. Therefore, the HSR Build Alternative would result in a cumulatively considerable traffic impact under NEPA.

- San Fernando Road at Chevy Chase Drive (2029 and 2040 a.m. and p.m. peak hours)
- Pasadena Avenue at Broadway (2040 a.m. and p.m. peak hours)
- Mission Road at Cesar E. Chavez Avenue (2029 and 2040 a.m. and p.m. peak hours)
- Alameda Street at Aliso Street-Commercial Street (2040 p.m. peak hour)
- Vignes Street at Gateway Plaza-Ramirez Street (2029 a.m. peak hour and 2040 p.m. peak hour)

- U.S. Route 101 southbound on-ramp-Pecan Street at Fourth Street (2040 a.m. and p.m. peak hours)
- U.S. Route 101 southbound off-ramp at Fourth Street (2029 and 2040 a.m. peak hours)
- Victory Boulevard - West of Hollywood Way (2040 p.m. peak hour)

***CEQA Conclusion***

As of December 28, 2018, the CEQA Guidelines were amended to include VMT thresholds, effective July 1, 2020. The impact under CEQA would be less than significant because the HSR Build Alternative would not result in a net increase of VMT over the baseline condition. The project would result in an overall decrease in VMT throughout the region and the state, resulting in a beneficial impact on VMT. The project would also be fully consistent with CEQA Guidelines section 15064.3. Therefore, the contribution of the HSR Build Alternative to traffic impacts would not be cumulatively considerable under CEQA.

### *3.19.8.3 Air Quality and Global Climate Change*

**Resource Study Area**

The cumulative RSA for evaluating impacts on air quality is the entire South Coast Air Basin, which covers 6,745 square miles and includes all of Orange County, Los Angeles County except for the Antelope Valley, the nondesert portion of western San Bernardino County, and the western and Coachella Valley portions of Riverside County. This RSA was selected to develop a broad, regional consideration of cumulative impacts. The South Coast Air Basin is in nonattainment for the federal 8-hour ozone, particulate matter smaller than or equal to 2.5 microns in diameter ($PM_{2.5}$), and lead standards; unclassified for the federal nitrogen dioxide and sulfur dioxide standards; attainment/maintenance for the federal particulate matter smaller than or equal to 10 microns in diameter ($PM_{10}$) and carbon monoxide standards; and attainment/unclassified for all other standards.

The cumulative analysis for global climate change includes the entire State of California because existing plans, emissions targets, and CEQA thresholds are established based on statewide goals. Furthermore, the HSR system's greenhouse gas (GHG) effects (benefits) would also occur at the state level because many of the reductions in mobile-source emissions would be achieved by long-distance travel on the HSR system.

**Cumulative Condition**

Together, the HSR Build Alternative and other cumulative projects listed in Appendix 3.19-A (including the adjacent HSR project sections) constitute the cumulative condition relevant to air quality and global climate change. Under the cumulative condition, ongoing urban development and construction activities would continue within the cumulative RSAs, and planned development and regional growth would contribute to emissions of air pollutants.

Population growth and proposed developments are projected to result in thousands of new homes and millions of square feet of new retail, commercial, and industrial uses in the RSAs. Emissions associated with the construction and operation of projected development in the RSAs would have incremental impacts on air quality and GHG emissions.

As noted in Section 3.19.6, several cumulative projects are anticipated to be built at the same time as the HSR Build Alternative. Construction of the HSR Build Alternative and these other planned cumulative projects (including the portions of the adjacent HSR project sections within the South Coast Air Basin) would result in impacts on air quality from construction emissions. Past, present, and reasonably foreseeable future projects would have volatile organic compound, nitrogen oxide, $PM_{10}$, and GHG emissions during construction. Because the South Coast Air Basin is designated as nonattainment for the federal 8-hour ozone, $PM_{2.5}$, and lead standards, and the state 1-hour ozone, 8-hour ozone, $PM_{2.5}$, and $PM_{10}$ standards, cumulative projects that are built during the same timeframe would likely exceed an air quality standard or contribute to an existing or projected air quality exceedance for these criteria pollutants.

Population growth in the region would increase vehicle miles traveled and associated traffic congestion on local and regional roadways that would continue to incrementally affect air quality and GHG emissions. Emissions associated with the operation of projected development in the RSAs would also incrementally affect air quality and GHG emissions. On a regional scale, past, present, and reasonably foreseeable future projects would contribute to traffic congestion associated with long-term growth and worsen air quality. Other cumulative projects would generate additional air pollutant and GHG emissions during operation, primarily transportation and transit projects or development projects that would generate additional traffic trips.

Regulatory agencies have adopted plans and policies aimed at reducing air pollutants and GHG emissions. Agencies continue to adopt increasingly stringent standards for criteria pollutants, toxic air contaminants, and GHGs to reduce the amount of pollutant emissions. Examples of these policies include the California Air Resources Board's advanced clean car regulation and its implementation of California Assembly Bill (AB) 32, the Global Warming Solutions Act of 2006, and Senate Bill (SB) 32, the California Global Warming solutions Act of 2016: Emissions Limit. These regulations set overall GHG emissions reduction goals and mandate that the California Air Resources Board create a plan to include market mechanisms and implement rules to achieve quantifiable, cost-effective reductions of GHG emissions. SB 32 is an extension of AB 32 and requires the state to further reduce GHG emissions to 40 percent below 1990 levels by 2030. While many of these regulations have not yet been implemented, they are anticipated to be in effect prior to the HSR Build Alternative project planning horizon of 2040.

Overall, air quality and GHG emissions have improved since the implementation of plans and policies and are anticipated to continue improving due to current and foreseeable regulations. Additionally, because of improvements in vehicle emissions technology, GHG emissions are anticipated to continue to decrease, which will help achieve the statewide targets to reduce GHG emissions by 2040. Because air quality in the South Coast Air Basin continues to improve and overall GHG emissions will continue to decrease due to statewide plans and policies and improved technology, there would not be a cumulative operations impact on air quality or GHG emissions in the cumulative condition.

### Contribution of the High-Speed Rail Build Alternative

#### *Construction*

**Air Pollutant Emissions**

Construction of the HSR Build Alternative would increase regional emissions and may cause or exacerbate an exceedance of air quality standards. Construction emissions associated with the HSR Build Alternative would be temporary but would contribute to air quality degradation and impede the region's ability to attain air quality standards. Construction of the HSR Build Alternative would generate emissions of volatile organic compounds, NOx, CO, oxides of sulfur, $PM_{10}$, $PM_{2.5}$, carbon dioxide, methane, and nitrous oxide that could result in short-term air quality and GHG effects. The predominant pollutants associated with construction of the HSR alignment and stations would be fugitive dust ($PM_{10}$ and $PM_{2.5}$) from earthmoving and disturbed earth surfaces, and combustion pollutants (particularly ozone precursors [nitrogen oxides and volatile organic compounds]) from heavy equipment and trucks. Construction of the HSR Build Alternative would exceed South Coast Air Quality Management District (SCAQMD) thresholds, as well as general conformity *de minimis* applicability thresholds, for carbon monoxide for the years 2021 through 2025 and for nitrogen oxides for the years 2020 through 2025.[4] Construction emissions of these pollutants may cause significant air quality impacts related to the release of criteria pollutant emissions for which the project region is in nonattainment. Therefore, these emissions would be cumulatively considerable and contribute to a cumulative air quality impact.

[4] Compliance with the General Conformity Rule for the HSR Build Alternative would be achieved through purchase of offsets for volatile organic compounds and nitrogen oxides, and through a National Ambient Air Quality Standards compliance (dispersion modeling) analysis for carbon monoxide. Section 3.3, Air Quality, provides additional information regarding the HSR Build Alternative's compliance with the General Conformity Rule.

AQ-IAMF#1 (Fugitive Dust Emissions), AQ-IAMF#2 (Selection of Coatings), AQ-IAMF#3 (Renewable Diesel), AQ-IAMF#4 (Reduce Criteria Exhaust Emissions from Construction Equipment), AQ-IAMF#5 (Reduce Criteria Exhaust Emissions from On-Road Construction Equipment), and AQ-IAMF#6 (Reduce the Potential Impact of Concrete Batch Plants) would be implemented to avoid or reduce air quality effects during construction of the HSR Build Alternative. These measures include implementation of emissions reduction measures, such as watering exposed surfaces twice daily, watering unpaved roads three times daily, reducing vehicle speeds on unpaved roads to 15 miles per hour, ensuring that haul trucks are covered, using low-volatile-organic-compound paint, using renewable diesel fuel, compliance with construction equipment exhaust emissions and fleet mix requirements, and siting concrete batch plants away from sensitive receptors. However, direct emissions from construction of the HSR Build Alternative would still exceed the SCAQMD thresholds and general conformity applicability thresholds for carbon monoxide and nitrogen oxides after implementation of the IAMFs. The Authority would implement mitigation measure AQ-MM#1, which requires purchase of emissions offsets through an anticipated SCAQMD emission offset program which will be required under a contractual agreement between the Authority and the SCAQMD to further reduce construction air quality impacts. Purchase of offset emissions through the anticipated contractual agreement between the Authority and SCAQMD (AQ-MM#1) would offset nitrogen oxide emissions to below general conformity applicability thresholds. However, although the Authority is committing to the purchase of additional offsets to net all criteria pollutant emissions to levels that are below the SCAQMD daily emissions thresholds for each calendar year that exceedances occur, consultation with SCAQMD has suggested that a sufficient quantity of offsets may not be available to achieve this goal (SCAQMD 2018). Therefore, localized 1-hour NOx concentrations would remain significant, resulting in the exposure of sensitive receptors to substantial pollutant concentrations and net increase of emissions for which the region is in nonattainment. The HSR Build Alternative would contribute to a cumulative air quality impact from criteria pollutants during construction.

Localized emissions of nitrogen dioxide, $PM_{10}$, and $PM_{2.5}$ associated with construction of the below-grade portion of the HSR Build Alternative have the potential to exceed the California Ambient Air Quality Standards. Therefore, this impact would be significant under CEQA and mitigation measures would be required. AQ-MM#1 would reduce this impact by offsetting project emissions at the regional level. However, even with mitigation, the maximum 1-hour nitrogen dioxide concentrations associated with construction would still exceed the California Ambient Air Quality Standards at the local level. Therefore, the contribution of the HSR Build Alternative to the cumulative air quality impact for nitrogen dioxide would be cumulatively considerable.

**Greenhouse Gas Emissions**

Climate change is a global problem and GHGs are global pollutants, unlike other air pollutants, which are primarily pollutants of regional and local concern. Given their long atmospheric lifetimes, GHGs emitted by countless sources worldwide accumulate in the atmosphere. No single emitter of GHGs is large enough to trigger global climate change on its own. Rather, climate change is the result of the individual contributions of countless past, present, and future sources. Therefore, GHG impacts are inherently cumulative.

Construction of the HSR project in combination with other planned developments would result in a one-time increase in GHG emissions totaling approximately 1,110 metric tons of carbon dioxide equivalent and would represent approximately 0.003 percent of the most recently reported total annual statewide GHG emissions. The most recent available GHG emission inventory for California shows that total annual GHG emissions for California in 2016 were 429.4 million metric tons of carbon dioxide equivalent (California Air Resources Board 2016). The GHG construction emissions for the Burbank to Los Angeles Project Section would be approximately 37 metric tons of carbon dioxide equivalent per year, on average.

The emissions associated with construction of the HSR project would be offset in less than 1 day of train operations by the net GHG reductions during project operations because of reduced passenger vehicle travel on roadways and reduced passenger travel on aircraft. Based on this short offset time period, the GHG emissions would not contribute to a cumulative impact due to a

long-term net reduction in GHG emissions resulting from implementation of the HSR Build Alternative. Given the HSR Build Alternative's net reduction in GHG emissions over time, it is consistent with California's statewide goals identified in AB 32 and SB 32.

### *Operation*

**Air Pollutant Emissions**

Although cumulative air emissions would be generated in the region, the HSR Build Alternative would help the region attain its air quality standards and plans by reducing the amount of regional traffic and providing an alternative mode of transportation.

The HSR Build Alternative would benefit regional air quality by reducing vehicle miles traveled and airplane emissions, which would reduce criteria pollutants and mobile-source air toxics. Summaries of the regional criteria pollutant emissions associated with HSR operation are shown in Tables 3.3-28 through 3.3-39 in Section 3.3, Air Quality and Global Climate Change. The reduction in emissions would help the region attain air quality standards and plans.

In addition, the project's incremental contribution to cumulative air quality impacts is determined based on compliance with the SCAQMD's adopted *Final 2016 Air Quality Management Plan* (SCAQMD 2016). The proposed HSR project is one of the statewide measures included in the Air Quality Management Plan and would not conflict with or obstruct implementation of the applicable air quality plan, which in this case is the Air Quality Management Plan itself. For these reasons, operation of the HSR Build Alternative would not result in or contribute to cumulative air quality impacts and would be beneficial.

**Greenhouse Gas Emissions**

There is a possibility that the HSR Build Alternative's demand for electricity would result in indirect GHG emissions impacts from power generation facilities. However, the HSR Build Alternative would decrease GHG emissions by reducing vehicle and aircraft trips. Any additional carbon entering the atmosphere, whether by emissions from the system itself or indirect emissions from electrical power generation, would be more than offset by the beneficial reduction of carbon emissions resulting from operation of the project due to the reduction in vehicle and aircraft trips. Furthermore, the GHG reductions would continue to increase over time for decades past the analytical time horizon of 2040. The HSR system is also identified in the California Air Resources Board's *2017 Climate Change Scoping Plan Update* as part of a sustainable statewide transportation system necessary to achieve the State's climate goals and is fully consistent with that plan.

### *CEQA Conclusion*

Construction of the HSR Build Alternative in combination with the other cumulative projects that would be built at the same time would result in a temporary significant cumulative air quality impact because the construction of other cumulative projects may overlap with construction of the HSR Build Alternative and exceed significance thresholds for air quality at sensitive receptors. Emissions for construction impacts assume implementation of AQ-IAMF#1, AQ-IAMF#2, AQ IAMF#3, AQ IAMF#4, AQ-IAMF#5, and AQ-IAMF#6. Construction of the HSR Build Alternative would contribute to the significant cumulative air quality impact because it would contribute to a violation of air quality standards (i.e., regional carbon monoxide and nitrogen oxides emissions and localized emissions of nitrogen dioxide, $PM_{10}$, and $PM_{2.5}$). Therefore, CEQA requires mitigation. Mitigation measure AQ-MM#1 would reduce the effects of the HSR Build Alternative on regional air quality through the purchase of emission offsets for project-level air quality impacts. However, sufficient offset credits may not be available to fully reduce the regional air quality impact. In addition, AQ-MM#1 would only reduce regional air quality impacts and would not reduce localized air quality impacts. Therefore, even with implementation of the prescribed mitigation measure, the maximum concentrations associated with construction would still exceed the nitrogen dioxide California Ambient Air Quality Standards at the localized level. Therefore, the contribution of the HSR Build Alternative to the significant cumulative air quality impact would be cumulatively considerable for nitrogen dioxide.

Construction of the HSR Build Alternative and other cumulative projects would emit GHGs. However, overall GHG emissions have improved since the implementation of plans and policies

aimed at reducing GHG emissions and are anticipated to continue improving due to current and foreseeable regulations. In addition, the emissions associated with construction of the HSR Build Alternative would be offset in less than 12 months of train operations because of reduced passenger vehicle travel on roadways and reduced passenger travel on aircraft. Therefore, although construction of the HSR Build Alternative and other cumulative projects would emit GHGs, there would not be a significant cumulative construction GHG impact to which the HSR Build Alternative would contribute.

Regulatory agencies have adopted plans and policies to reduce operational air pollutant and GHG emissions. Agencies continue to adopt increasingly stringent standards for criteria pollutants and toxic air contaminants in the atmosphere. Overall, air quality has improved and GHG emissions have decreased since the implementation of plans and policies and are anticipated to continue improving due to current and foreseeable regulations. Additionally, because of improvements in vehicle emissions technology, GHG emissions are anticipated to continue to decrease, which will help achieve the statewide targets to reduce GHG emissions by 2040. In addition, given the HSR Build Alternative's overall reduction in regional emissions of criteria pollutants and GHGs associated with operation, the cumulative air quality and GHG impact would be beneficial. The carbon payback period is the time that it takes for the ongoing carbon savings from displacing fossil fuel use to move the HSR system from being a net emitter of carbon emission to a net sequester of carbon. The shorter the payback period, the quicker the project would realize net carbon reductions. Payback periods were estimated by dividing the GHG emissions during construction years by the annual GHG emissions reduction during HSR Build Alternative operation. The increase in GHG emissions generated during construction would be offset by the net GHG reductions from operation of the HSR Build Alternative (because of automobile and plane trips removed) in less than 14 days. Therefore, the payback period is very short and the HSR Build Alternative would reduce GHG emissions long past the horizon year of 2040 used in the analysis. Because air quality in the South Coast Air Basin continues to improve, overall GHG emissions would continue to decrease due to statewide plans and policies and improved technology, and the HSR Build Alternative would reduce criteria pollutant and GHG emissions, there would not be a significant cumulative operational air quality or GHG impact to which the HSR Build Alternative would contribute. Therefore, CEQA does not require mitigation.

### *3.19.8.4 Noise and Vibration*

#### Resource Study Area

The cumulative RSA for evaluating impacts associated with noise is defined as 700 feet on both sides of the proposed track centerline for the HSR Build Alternative, which is based on the maximum screening distance provided in the 2012 FRA *High-Speed Ground Transportation Noise and Vibration Impact Assessment* (FRA 2012 Guidance Manual). The maximum FRA screening distance of 700 feet was used because: (1) the corridor is in an urban, existing rail corridor and is not obstructed everywhere, which is consistent with the "existing rail corridor, urban/noisy suburban – unobstructed category"; and (2) while planned speed within the segment is 140 miles per hour, the more conservative screening distance of 700 feet that is associated with higher-speed trains (greater than 170 miles per hour) was used.

The cumulative RSA for evaluating the impacts of vibration is 275 feet from the edge of the right-of-way for the HSR Build Alternative and 150 feet from the station boundary for stations. These RSAs are based on the FRA screening distances provided in the FRA 2012 Guidance Manual.

#### Cumulative Condition

As listed in Appendix 3.19-A, many different development and transportation projects are planned throughout the RSAs in the reasonably foreseeable future, which would result in increased population in the RSAs. Under the cumulative condition, construction of the HSR Build Alternative in conjunction with other cumulative projects could result in temporary and intermittent noise and vibration impacts. It is possible that multiple projects that are close to the HSR alignment would be under construction at the same time and would generate construction noise simultaneously

with the HSR Build Alternative. It is also possible that some of the cumulative projects would require activities such as pile driving that would introduce vibration impacts.

Together with the HSR Build Alternative, construction of these projects could exceed thresholds for noise or vibration at sensitive receivers.

Traffic noise is considered one of the primary noise sources at noise-sensitive receivers within the RSA. A large number of sensitive receivers are located along the Burbank to Los Angeles Project Section. In addition, cumulative projects, such as the proposed residential developments, would introduce new sensitive receptors in areas affected by the HSR Build Alternative. The noise generated by the HSR Build Alternative, combined with other cumulative projects, could expose these receptors to noise levels above established thresholds.

Increased population and associated increased vehicle miles traveled on local and regional roadways would lead to increased traffic-related long-term increases in ambient noise and vibration levels in the RSA. In addition, transportation and development projects that would increase traffic trips on local roads and have the potential to alter the ambient noise environment are planned throughout the RSA in the reasonably foreseeable future. Traffic volumes typically increase by 2 percent every year due to the natural increase in population. As a result of the 2 percent annual increase in traffic volume, traffic noise exposure will increase by about 2.2 A-weighted decibels (dBA) community noise equivalent level at noise-sensitive receivers from 2016 to 2040. The increase of 2.2 dBA community noise equivalent level represents the sum of the traffic noise from all planned projects in the reasonably foreseeable future through 2040.

An increase in railroad capacity can also be attributed to the natural growth in population and associated demand for products. The railroad corridor from Burbank to LAUS is owned by the Southern California Regional Rail Authority and used by both Metrolink and Amtrak trains, as well as the Union Pacific Railroad, which operates freight trains, enabled by trackage rights. This corridor is the link between Los Angeles and the Central California coast. Based on the train operation data presented in Table 2-7 of Chapter 2 and the conservative assumption of doubling the number of freight trains, the future increase related to passenger and freight train activities would be rather small: 1.2 dBA community noise equivalent level.

Future reasonably foreseeable traffic and railway projects will have the greatest incremental effects on the cumulative ambient noise environment at noise-sensitive receivers in 2040. Without the HSR Build Alternative, the estimated contribution from traffic and railway projects to the cumulative noise exposure would result in an increase of 3.5 dBA community noise equivalent level in ambient noise levels in areas near the Burbank to Los Angeles Project Section.

### Contribution of the High-Speed Rail Build Alternative

#### *Construction*

##### Noise

A cumulative noise impact would occur if activities related to the HSR Build Alternative combine with the noise generated by other planned development and transportation projects to expose people to harmful noise levels. Cumulative noise impacts could occur from temporary increases in ambient noise levels within the RSA and result from noise-generating activities combining during construction of any of these projects. Construction noise emissions from multiple projects could combine to form a cumulative impact if these combined emissions exceed FRA construction noise assessment criteria.

There are reasonably foreseeable future projects within the vicinity of the project section with construction schedules that may temporarily overlap with construction of the HSR Build Alternative. To a large degree, relatively short construction timeframes would reduce the amount of overlap with construction of the HSR Build Alternative, and the low density of sensitive noise receptors directly surrounding the project section would limit the exposure of highly sensitive individuals to noise levels that exceed noise thresholds.

Construction of the HSR Build Alternative would require demolishing existing structures; handling, storing, hauling, excavating, trenching, and placing fill; building bridges; modifying roadways;

building grade separations; upgrading and relocating utilities; and building HSR electrical systems and railbeds. All of these activities would introduce new temporary sources of noise from construction equipment, and these noise emissions would affect sensitive receptors under the HSR Build Alternative.

In combination with construction of the HSR Build Alternative, construction of the cumulative projects anticipated to be built at the same time as the HSR Build Alternative could exceed significance thresholds for noise at sensitive receivers. However, the HSR Build Alternative would include NV-IAMF#1, which would reduce construction noise impacts by requiring the construction contractor to comply with FRA guidelines for noise and vibration. Specific requirements of NV-IAMF#1 include:

- Construct noise barriers, such as temporary walls or piles on excavated material, between noisy activities and noise-sensitive resources
- Route truck traffic away from residential streets when possible
- Construct walled enclosures around especially noisy activities or around clusters of noisy equipment
- Combine noisy operations so that they occur in the same period
- Phase demolition, earthmoving, and ground-impacting operations so as not to occur in the same time period
- Avoid impact pile driving where possible in vibration-sensitive areas

Implementation of FRA guidelines would partially minimize noise and vibration impacts on sensitive receptors; however, noise and vibration generated by construction activities could still exceed thresholds at nearby sensitive receptors during construction of the HSR Build Alternative. Therefore, the HSR Build Alternative would implement mitigation measure N&V-MM#1, which would require the contractor to implement a noise-monitoring program that includes construction noise monitoring and implementation of noise-reduction measures to comply with the applicable noise limits. Although these project-level measures would reduce noise impacts of the HSR Build Alternative during construction, the HSR Build Alternative, in combination with other planned projects, would still have the potential to exceed significance thresholds for noise at sensitive receptors. Therefore, in addition to project-level measures, cumulative mitigation measure CUM-N&V-MM#1 would further minimize the potential for overlapping construction activities in the RSA by requiring consultation and coordination with agencies regarding the timing of construction activities. However, even with implementation of CUM-N&V-MM#1, the HSR Build Alternative, in combination with other planned projects, would still have the potential to exceed significance thresholds for noise at sensitive receivers during construction.

**Vibration**

During construction of the HSR Build Alternative, some activities may cause ground-borne vibration, most notably excavation for trenching and vibro-compaction for ground improvements. Construction equipment associated with construction of the HSR Build Alternative can produce vibration levels at 25 feet that range from 87 vibration velocity decibels to 94 vibration velocity decibels. While it is unlikely that such equipment would be used close enough to sensitive structures to have any substantial damage impacts, there is potential for vibration annoyance or interference with the use of such equipment. Vibration-sensitive structures are within a distance from the rail corridor where construction activities would exceed the construction damage criteria.

N&V-MM#2, which requires the use of alternative methods to pile driving (such as push piling), would reduce potential vibration impacts. Although N&V-MM#2 would reduce the vibration impacts of the HSR Build Alternative during construction, the HSR Build Alternative, in combination with other planned projects, would still have the potential to exceed significance thresholds for vibration at sensitive receivers if construction activities were to occur during the same time period and nearby. In addition to the project-level mitigation measure, cumulative mitigation measure CUM-N&V-MM#1 would reduce the potential cumulative vibration impacts of overlapping construction activities in the same area by requiring consultation and coordination with agencies regarding the

timing of construction activities. However, even with implementation of CUM-N&V-MM#1, the HSR Build Alternative in combination with other planned projects would still have the potential to exceed significance thresholds for vibration at sensitive receivers during construction.

### *Operation*

#### Noise

The HSR Build Alternative would create long-term noise impacts from the introduction of a new transportation system. Based on FRA guidance, noise effects are based on a comparison of noise level impacts associated with the project compared to ambient noise levels in the existing condition and during the year 2040. According to the *Burbank to Los Angeles Project Section Noise and Vibration Technical Report* (Authority 2019d), based on the FRA 2012 Guidance Manual, in the existing condition, the noise increase from the HSR Build Alternative would result in a moderate cumulative noise impact at 718 receptors and a severe cumulative noise impact at 212 receptors. As stated above, due to the increase in traffic and rail noise, ambient noise levels are expected to increase by 3.5 dBA by 2040. Operation of the HSR Build Alternative would increase noise above the projected 2040 ambient noise level. In 2040, the noise increase from operation of the HSR Build Alternative would result in a moderate cumulative noise impact at 521 receptors and a severe cumulative noise impact at 190 receptors.

The HSR Build Alternative includes project-level mitigation aimed at reducing operational noise impacts. Specifically, N&V-MM#3 through N&V-MM#5 include the construction of sound barriers, noise insulation considerations, and vehicle specifications and special trackwork to reduce noise impacts. Although these measures would reduce the noise impacts of the HSR project, the HSR Build Alternative in combination with cumulative projects would still have the potential to exceed significance thresholds for noise at sensitive receivers. However, a benefit of the HSR Build Alternative is the elimination of freight train horns being sounded throughout the HSR corridor because of the replacement of existing at-grade crossings with grade separations. The removal of freight train horns would reduce the maximum noise-level impacts experienced by receptors in the vicinity of existing at-grade crossings.

#### Vibration

Some planned development and transportation projects have the potential to increase vibration levels in the RSA—such as from train operations or the use of heavy trucks and machinery during operations—should such activities occur at the same time and in the same or nearby locations. Cumulative projects with the potential to generate vibration during operation include the Brighton to Roxford Double Track (T2), the Metro Red Line Extension (T5), Link US (T17), and the Regional Connector Transit Project (T20). However, operational vibrations associated with passing trains under the HSR Build Alternative are not expected to contribute considerably to cumulative vibration impacts due to the occasional nature of such effects. The operational vibrations of the cumulative transit projects would also be occasional in nature and unlikely to occur at the same time as vibration from operation of the HSR trains because of the intermittent nature of passing trains. Therefore, there would not be an operational vibration impact to which the HSR Build Alternative would contribute.

### *CEQA Conclusion*

A temporary cumulative noise and vibration impact is anticipated during construction because the construction of reasonably foreseeable future projects in the project vicinity may temporarily overlap with project construction and would exceed significance thresholds for noise at sensitive receptors such that they would combine to create noise levels exceeding federal (i.e., FRA and Federal Highway Administration) or state standards. Although the HSR Build Alternative would include compliance with FRA and Federal Transit Administration guidelines for minimizing construction noise when work is conducted within 1,000 feet of sensitive receptors, construction of the HSR Build Alternative in combination with other planned projects would exceed CEQA significance thresholds for noise and vibration at sensitive receivers. Impacts to sensitive receivers would be significant even with the inclusion of NV-IAMF#1, which requires the contractor to provide the Authority with a vibration technical memorandum documenting how federal guidelines for minimizing noise and vibration would be employed prior to the start of

construction. Therefore, there would be a significant cumulative construction noise and vibration impact under CEQA caused by the project or to which the project would contribute. Therefore, CEQA requires mitigation.

In addition to the project-level measures, cumulative mitigation measure CUM-N&V-MM#1 would minimize the potential for overlapping construction activities in the RSAs by requiring consultation and coordination with agencies regarding the timing of construction activities. However, even with implementation of CUM-N&V-MM#1, the HSR Build Alternative in combination with cumulative projects would still have the potential to exceed significance thresholds for noise and vibration at sensitive receivers during construction. Therefore, the project's contribution to the construction-related noise and vibration impact would be cumulatively considerable.

During operations, the HSR Build Alternative would result in severe noise impacts at noise-sensitive receptors after implementation of project-level measures. These noise emissions would combine with the noise emissions of other planned transportation projects to result in significant cumulative operational noise impacts under CEQA because the combined noise exposure would exceed FRA criteria for severe noise impacts. Therefore, CEQA requires mitigation. However, there is no additional feasible mitigation beyond the project-level measures to reduce this impact, and a significant cumulative noise impact would remain. The HSR Build Alternative's contribution to the cumulative impact would be considerable because it would cause the largest change in the baseline ambient noise conditions among the many planned transportation projects. Additionally, an operational benefit of the HSR Build Alternative would be the elimination of freight train horns being sounded throughout the HSR corridor. The removal of freight train horns would reduce the maximum noise-level impacts experienced by receptors near existing at-grade crossings.

Although operation of the HSR Build Alternative would result in occasional operational vibrations, these vibrations are unlikely to occur simultaneously with other cumulative projects. Therefore, there would not be a significant cumulative impact under CEQA related to operational vibration impacts to which the HSR Build Alternative would contribute. Therefore, CEQA does not require mitigation.

### *3.19.8.5 Electromagnetic Interference and Electromagnetic Fields*

**Resource Study Area**

The cumulative RSA for evaluating impacts from electromagnetic interference and electromagnetic fields (EMI/EMF) is 500 feet on both sides of the HSR Build Alternative centerline and 500 feet from the traction power facilities. This RSA was determined based on typical screening distances defined in the Authority Technical Memorandum 300.07, *EIR/EIS Assessment of HSR Alignment EMF Footprint* (Footprint Report; Authority 2012) and project-specific factors of the HSR Build Alternative. Screening distances indicate whether any EMI/EMF-sensitive receivers are near enough to the proposed alignment for EMF/EMI effects to be possible under typical conditions. If receivers are farther away than these screening distances, the Footprint Report has determined that EMF/EMI impacts would be unlikely.

**Cumulative Condition**

Under the cumulative condition, ongoing urban development and improvements to the transportation/transit system would continue within the cumulative RSA. Together, the HSR Build Alternative and the other reasonably foreseeable cumulative projects identified in Appendix 3.19-A constitute the cumulative condition relevant to EMF/EMI.

Planned and future projects, in combination with the HSR Build Alternative, could generate EMF by increasing the intentional use of the electromagnetic spectrum and unintentional generation of EMI. In addition, planned residential and commercial uses, as well as increases in population from planned development, would also slightly increase demand for the electromagnetic spectrum. Electrical power equipment that emits EMF and EMI, including high-voltage electric power lines, would continue to be used in the cumulative RSA. Directional and nondirectional (cellular and broadcast) antennas and radio frequency communication equipment would be used and expanded through the development and transportation projects. Cumulative EMI impacts could occur if the impacts of these projects and the anticipated growth combined to expose

people to a documented EMF health risk, including a field intensity over the limit of an applicable standard, or if these EMF interfered with unshielded sensitive equipment such as medical equipment or devices.

**Contribution of the High-Speed Rail Build Alternative**

***Construction***

Construction of the HSR Build Alternative and other planned projects would require use of heavy equipment, trucks, and light vehicles that, like all motor vehicles, generate EMF. Additionally, many types of construction equipment contain electric motors that also generate EMF. EMI/EMF-IAMF#2 would require the Authority to design the HSR Build Alternative to international guidelines and to comply with federal and state laws and regulations related to EMF/EMI. Communications equipment used by construction crews would include mobile telephones and radios that would generate radio frequency fields. Communications equipment used during construction of the HSR Build Alternative would include off-the-shelf products that comply with Federal Communications Commission regulations designed to prevent EMI with other equipment or hazards to persons. Because the magnitude of electromagnetic disturbance decreases with distance, all but the largest construction vehicles pose no reasonable risk to magnetically sensitive equipment at pass-by distances greater than 50 feet. Therefore, EMF generated during construction of the HSR Build Alternative would pose no risk to magnetically sensitive equipment at a pass-by distance of greater than 50 feet, nor would it pose a health risk to workers or the nearby public. There is a potential for EMF impacts from construction of the HSR Build Alternative at receptors in proximity to the HSR Build Alternative. The only receptor within 50 feet is Baxter Healthcare in Los Angeles; therefore, there would be a potential for cumulative EMF impacts at this location if other cumulative projects were close enough to this site. However, none of the other cumulative projects would be within 50 feet of Baxter Healthcare. Because the magnitude of an EMF decreases with distance, the combined effect of EMF from construction of the HSR Build Alternative with other construction projects in the RSA would not cause EMI with nearby land uses or hazards to workers. Therefore, there would not be a cumulative impact associated with EMF/EMI to which the HSR Build Alternative would contribute.

***Operation***

Planned projects, in combination with the HSR Build Alternative could generate EMF by increasing the intentional use of the electromagnetic spectrum and unintentional generation of EMI. During operation of the HSR Build Alternative, the Authority would comply with EMI/EMF-IAMF#2, which would require the design of systems to control EMF effects. Existing standards for human exposure to EMF and EMI would not be exceeded in the right-of-way of the HSR Build Alternative and therefore would not affect people outside the right-of-way or on the HSR trains. Although some of the cumulative projects in the RSA would result in the types of activities that may cause general EMF or EMI during operation, the uses associated with these projects would not result in general EMF or EMI that approach the standards for human exposure to EMF.

Passengers and members of the public with implanted medical devices are especially sensitive to EMF. The standards for human exposure for people with implanted medical devices would only be exceeded inside specific facilities, such as interconnection facilities, which are unmanned and inaccessible to the general public. Workers with implanted medical devices would also be administratively restricted from accessing these facilities. Although some of the cumulative projects in the RSA may also include facilities that generate EMF that could affect people with implanted medical devices, similar to the HSR Build Alternative, these projects would restrict public access to these facilities as well as administrative access to workers with implanted medical devices.

EMF generated during operation of the HSR Build Alternative, when combined with other planned projects, could interfere with sensitive equipment, including medical and high-tech electronic devices, police and fire radio services, and radio systems in use at nearby schools and colleges. Interference with radio services would be avoided because the HSR Build Alternative would include the use of dedicated frequency blocks and would comply with standards established to

prevent interference with other neighboring communications systems. This would include implementation by the Authority of an Electromagnetic Compatibility Program Plan during project planning and implementation and consideration of electromagnetic compatibility with radio systems operated by neighboring uses, including police, fire, schools, and colleges. From the planning stage through system design, the Authority would perform electromagnetic compatibility/EMI safety analyses, including identification of existing nearby radio systems, design of systems to prevent EMI with identified neighboring uses, and incorporation of these design requirements into bid specifications used to procure radio systems. Project operation would include monitoring and evaluation of system performance. Other cumulative projects using electromagnetic communications systems must also comply with these standards.

The potential for HSR alternating-current return to cause corrosion in adjacent underground pipelines or cables would be minimal and would be reduced using additional grounding and other design provisions.

The potential for HSR electrical-current return to cause nuisance shocks in ungrounded metal structures, such as fences, would be reduced through the use of additional grounding to prevent current flow. It is assumed that other transportation projects provided on the list of cumulative projects (Appendix 3.19-A) would take a similar approach for projects that could generate electrical current that could cause nuisance shocks.

Interference between the HSR Build Alternative and a nearby freight railroad signal system could occur, which could result in a nuisance or reduction in operational efficiency by interrupting road and rail traffic. EMI/EMF-IAMF#1 would prescribe standard design and operational practices to prevent the possible effects that HSR Build Alternative operation might have on transportation signal systems. EMI/EMF-IAMF#1 would include assessing the specific track signal and communication equipment in use on nearby sections of existing rail lines, evaluating the potential impacts of HSR Build Alternative EMFs on adjoining railroad equipment, and applying suitable design provisions on the adjoining rail lines to prevent interference. The potential for the HSR Build Alternative to interfere with nearby road and rail traffic signal systems would be avoided by modifying and upgrading road and rail traffic signals as needed. It is assumed that other transportation projects provided on the list of cumulative projects (Appendix 3.19-A) would take a similar approach for projects that would generate electrical currents that could result in minor interference with adjacent exiting rail and traffic signals.

EMI from the HSR Build Alternative, in combination with other planned projects, could affect radios and other electronic systems used by airports. However, with one exception, all communications, instrument landing systems, and navigation services for U.S. aircraft operate in frequency bands exclusively reserved for those purposes. In complying with existing Federal Communications Commission requirements, HSR-related radio services would by definition avoid these frequency bands. This mutually exclusive arrangement would protect HSR communications systems from EMI due to airport and aircraft emissions, as well as protect airport and aircraft communication systems from operation of the HSR Build Alternative. Furthermore, the HSR Build Alternative would include the use of dedicated radio frequency blocks, and all communications equipment would comply with Federal Communications Commission regulations designed to prevent EMI with other equipment. Because the HSR radio system would use dedicated frequency blocks and would meet Federal Communications Commission regulations (47 C.F.R. 15) for EMI, and because HSR equipment would be selected in consultation with Federal Aviation Administration radiofrequency interference specialists, operation of the HSR Build Alternative would not interfere with existing airport systems. The list of cumulative projects (Appendix 3.19-A) does not include any projects that would either alter the existing airport communication system or create a new one.

In summary, future EMF levels in the cumulative RSA are not expected to increase to levels that would expose people to EMF health risks; interfere with the operation of an electrical, magnetic, or electromagnetic device; or increase the corrosion of nearby metal objects. Aside from the electricity required to operate HSR trains, there are no other large or continuous sources of EMF within the cumulative RSA. Therefore, there are no known existing or future locales within the

RSA where the addition of EMF from the HSR Build Alternative, in combination with the other planned projects, would result in excessive levels of EMF or EMI. Therefore, there would not be a cumulative impact associated with EMF/EMI to which the HSR Build Alternative would contribute.

***CEQA Conclusion***

Construction of the HSR Build Alternative and other planned projects would require the use of heavy equipment, trucks, and light vehicles that, like all motor vehicles, generate EMF. However, the cumulative EMF generated during temporary construction activities and the resulting EMI in the cumulative condition would be less than significant because none of the cumulative projects would be close enough to result in cumulative EMF impacts. Further, EMI/EMF-IAMF#1 and EMI/EMF-IAMF#2 would prevent interference with adjacent railroads and control electromagnetic interference/electromagnetic fields. There would not be a significant cumulative impact under CEQA related to EMF/EMI to which the HSR Build Alternative would contribute. Therefore, CEQA does not require mitigation.

Because the HSR Build Alternative and other cumulative projects would comply with applicable standards and implement measures to reduce EMF/EMI during project operation, there would not be a significant cumulative impact under CEQA related to EMF/EMI to which the HSR Build Alternative would contribute. Therefore, CEQA does not require mitigation.

### *3.19.8.6 Public Utilities and Energy*

**Resource Study Area**

The cumulative RSA for evaluating impacts on public utilities is Los Angeles County, which includes the service areas of the public utility providers. Los Angeles County was used as the boundaries of the cumulative RSA in order to capture impacts on public utilities associated with construction and operation of the HSR Build Alternative along with other planned development.

The cumulative RSA for energy includes the entire electricity grid for the State of California and other western states that produce energy and export to California. As with the boundaries of the RSA for assessing cumulative impacts on public utilities, the cumulative RSA for energy was designed to be sufficiently broad in order to capture the impacts associated with the demand for and production of energy for the HSR Build Alternative under the cumulative condition.

**Cumulative Condition**

Under the cumulative condition, ongoing urban development and redevelopment would continue within the cumulative RSAs. Together, the HSR Build Alternative, adjacent HSR sections, and the other reasonably foreseeable cumulative projects identified in Appendix 3.19-A constitute the cumulative condition relevant to public utilities and energy.

This development and continued population growth anticipated in the cumulative Public Utilities RSA would result in corresponding increases in demand for utility services, water use, communications, gas services, wastewater services, and solid waste services. This planned development and growth would also contribute to cumulative increases in demands on the existing utility and electricity infrastructure within the cumulative RSAs, including increased peak- and base-period electricity demand. For the purposes of this analysis, a cumulative impact on public utilities or energy would occur if development and growth from the cumulative projects were to occur faster than the local community utility, landfill and waste handling, and energy providers could accommodate and demand levels were to exceed the capacity of existing infrastructure, or if the construction of new utility or energy services, facilities, and systems to accommodate the increased demand in the cumulative condition were to result in other direct or indirect impacts on the environment.

## Contribution of the High-Speed Rail Build Alternative

### *Construction*

**Utilities**
Construction of the HSR Build Alternative along with the other cumulative projects, including the adjacent HSR project sections, may require the temporary shutdown of utility lines to safely move, extend, or connect to these lines. Relocation, extension, expansion, and connection of utilities as a result of development are an everyday practice throughout California. The Authority has been coordinating with utility providers to plan for the protection or relocation of utility crossings and infrastructure in the RSA. This coordination would take place throughout project construction. Construction of the HSR Build Alternative and all other cumulative development projects in the RSA would adhere to standard practices for the provision and relocation of utilities. These standard practices include:

- Location and marking of utilities prior to construction
- Design and relocation of utilities, where necessary, under the supervision of the utility provider prior to initiation of project construction
- Planning and notification of any short-term utility interruptions prior to connecting project facilities to existing utilities or tying in relocated utility infrastructure to the existing utility system

In addition to complying with standard practices for utility identification and interruption notification procedures, the HSR Build Alternative and other cumulative projects would require coordination with the affected utilities to avoid or reduce any service interruptions. Therefore, there would not be a cumulative impact related to utilities construction to which the HSR Build Alternative would contribute.

**Wastewater**
During construction of the HSR system and other cumulative projects, including the adjacent HSR project sections, construction workers would use portable toilets. Wastewater from the portable toilets would be hauled away and disposed of at bulk disposal locations by a certified disposal company. The certified disposal company would use disposal locations with adequate capacity to accept the wastewater. Therefore, the capacity of wastewater facilities would not be exceeded and there would not be a cumulative impact related to wastewater during construction to which the HSR Build Alternative would contribute.

**Energy**
The construction of the HSR Build Alternative along with the other cumulative projects, including the adjacent HSR project sections, would result in temporary increases in demand for energy. Although construction of the cumulative projects listed in Appendix 3.19-A, in combination with the HSR Build Alternative, would result in incremental increases in electricity demand, the energy used would not require significant additional capacity or substantially increase peak- or base-period demands for electricity and other forms of energy. Most construction activities for the projects evaluated under the cumulative scenario, as well as the HSR Build Alternative, would not use substantial amounts of electricity from the statewide grid, but would primarily rely on fossil fuels to operate construction equipment and vehicles. The SCAQMD requires implementation of emissions control procedures for all large development projects in the South Coast Air Basin, as discussed in Section 3.3, Air Quality and Global Climate Change, of this EIR/EIS. These procedures require the efficient use of fossil fuels. Any incremental increases in electricity demand under the cumulative condition would be supplied by existing facilities and would not require the construction of additional energy-related infrastructure. Therefore, there would not be a cumulative construction impact on electrical infrastructure and energy demand to which the HSR Build Alternative would contribute.

**Water Infrastructure and Water Resources**
Construction activities associated with the HSR Build Alternative and the other cumulative projects, including the adjacent HSR project sections, would use water to prepare concrete, increase the water content of soil to optimize compaction, control dust, and reseed disturbed areas. Construction of the HSR Build Alternative would result in a net decrease in annual water consumption for the

area affected by construction compared to existing conditions due to the elimination of water use for existing land uses (industrial, commercial, residential, and public sources). The projected demand for construction water use represents an approximately 14 percent decrease in water use compared to existing use, because the acquisition of existing land would eliminate some water uses associated with existing land uses. HSR construction within the cities of Glendale and Los Angeles would increase annual water usage from existing conditions. However, annual construction water usage would account for less than 0.04 percent of the surplus water supply in both water districts in the years 2020, 2030, and 2040. In the city of Burbank, the HSR Build Alternative construction water use would make up 118 percent of the existing annual construction water use, though the Burbank Urban Water Management Plan does not include water surplus information. Because of the large amount of water needed for construction of the HSR Build Alternative, construction water use would exceed existing annual construction water use in the city of Burbank. In the worst-case scenario that sufficient water supplies are not available from existing entitlements to serve the HSR Build Alternative and other cumulative projects, additional water could be required for construction of the HSR Build Alternative. As specified in mitigation measure PUE-MM#1, the Authority would prepare a water supply analysis based upon more detailed project design to identify the detailed water supply needs for construction of the Burbank to Los Angeles Project Section, and, based on the findings, proper processes for water conservation and compensatory payment would be followed to provide water for the project. Local sources such as local groundwater, water imported through the State Water Project, and water imported through the Colorado River Aqueduct would provide water for construction of the HSR Build Alternative. Reallocation of water resources from other city jurisdictions or other local groundwater or water project resources would affect water surplus in these areas. Other large cumulative projects with substantial water demand would be required to prepare a water supply assessment to ensure sufficient water supply is available. Water supply assessments are required (per SB 221 Land Use: Water Supplies and SB 610 Water Supply Planning) for large projects that meet specific thresholds. Because each cumulative project, including the adjacent HSR project sections, would be required to ensure sufficient supplies are available, there would not be a cumulative construction impact related to water supplies to which the project would contribute.

**Solid Waste/Recycling Facilities**

Construction of the HSR Build Alternative along with cumulative projects, including the adjacent HSR project sections, would result in contributions of solid waste and debris to regional landfills. Temporary housing, worker activities (e.g., meals, restrooms, office supplies, and trailer cleaning), construction debris, clearing and grubbing, excess construction materials, forms, and demolition of bridges during construction would generate solid waste. As standard practice during construction of the HSR Build Alternative, construction and demolition waste would be diverted from landfills through reuse or recycling. Waste would either be segregated and recycled at a certified recycling facility or disposed of (for mixed or nonsegregated waste) at a certified recycling facility. State law requires at least 50 percent of construction waste to be diverted from landfills (California Department of Resources Recycling and Recovery 2012). The Authority's 2013 sustainability policy requires a higher diversion rate, specifying that 100 percent of steel and concrete will be recycled and a minimum of 75 percent of construction waste will be diverted from landfills (Authority 2016). Construction of the HSR Build Alternative would, therefore, comply with the Local Government Construction and Demolition Guide (SB 1374) by exceeding the state's solid waste diversion goals.

Of the five active landfills serving Los Angeles County that accept construction and demolition material, only one (Burbank Landfill Site No. 3) has adequate estimated capacity through 2040 or longer. It is estimated that the total volume of construction and demolition materials for the HSR Build Alternative would be 77,137 cubic yards before recycling (approximately 0.06 percent of the total remaining capacity of the five active landfills that accept construction and demolition materials [CalRecycle 2016]). After diversion, construction and demolition materials would occupy approximately 0.03 percent of the total remaining capacity of the active landfills. State regulations such as AB 939, the California Integrated Waste Management Act, require local governments to manage solid waste reuse and disposal. The expansion of existing facilities and construction of new facilities would be addressed under separate environmental review completed for those

projects. Because state law and the general provisions of the Authority's construction contracts require recycling of waste generated by construction, and because construction waste from the HSR Build Alternative and other cumulative projects would be disposed of in a landfill facility with sufficient permitted capacity to accommodate the solid waste disposal needs, landfill capacity is anticipated to be sufficient for the combined demand. Therefore, there would not be a cumulative construction impact related to solid waste to which the HSR Build Alternative would contribute.

### *Operation*

**Utilities**

With the projected 2040 population and employment growth in the RSA, which includes numerous planned residential and commercial developments along with the HSR Build Alternative, there would be increased demand for utilities. Development projects would coordinate with utility providers during the environmental process to obtain utility service to support the proposed uses. In addition, the cities of Burbank, Glendale, and Los Angeles and utility providers anticipate planned development and growth and account for this in their demand forecasts. The stations proposed as part of the HSR Build Alternative would require connections to local utility services, including natural gas, petroleum, and telecommunications. The incremental draw on these services would be equivalent to similar commercial uses in the area. Where necessary, the Authority would modify existing utilities to accommodate the project, including relocations and upgrades. The relocation, extension, expansion, and connection of utilities and associated temporary utility disruptions from the HSR Build Alternative and other cumulative projects would occur but would be resolved during project construction. Therefore, there would not be a cumulative impact related to utilities to which the HSR Build Alternative would contribute.

**Wastewater**

Operation of the HSR Build Alternative along with the other cumulative development projects (particularly residential, commercial, and industrial) would generate wastewater and increase the demand on sewer and wastewater treatment facilities. The HSR Build Alternative would require wastewater treatment for the HSR stations and the permanent track alignments (e.g., tunnel cleaning, fire and life safety, domestic needs, and general maintenance operations). Sewage treatment capacity in the RSA is adequate to support the proposed cumulative developments as well as the HSR system. The HSR facilities would not exceed or substantially contribute to the exceedance of the existing capacity of any of these municipal systems, because HSR facilities volumes would represent less than 2 percent of the capacity of all of the wastewater treatment facilities serving the Burbank to Los Angeles Project Section. Additionally, the Authority would coordinate with the cities of Burbank, Glendale, and Los Angeles for the construction of adequate wastewater infrastructure and pay its fair share of the impact fee for any improvements to the cities' sewer systems. Cumulative development projects would generate wastewater and would also pay the required impact fee for any improvements to the cities' sewer systems. Therefore, there would not be a cumulative impact related to wastewater and sewer facilities to which the HSR Build Alternative would contribute.

**Energy**

With the projected 2040 population and employment growth in the RSA, which includes numerous planned residential, commercial, and industrial developments, the HSR Build Alternative, and adjacent HSR project sections, there would be increased demand for energy. Peak- and base-period electricity demand in the region would increase with cumulative development and would require additional energy generation and transmission capacity.

The energy supplied under the cumulative condition would be provided from the statewide energy grid. Long-term projections by the California Energy Commission of in-state generation capacity (e.g., for 2035) are limited to 10 years using decennial census population data, economic growth projections, and climate change forecasts. Electricity generation and distribution infrastructure decisions typically are not made more than 2 to 3 years in advance of construction. However, effective management of California's grid requires that new electricity generation remains balanced with demand. Thus, an extensive planning and review process is undertaken to maintain this balance. The summer power consumption in the RSA in 2016 was estimated at 54,459 megawatts with a reserve margin of 24 percent (California Independent System Operator

2016). California's population is projected to exceed 44 million by 2030 (Public Policy Institute of California 2016), which would lead to an increase in energy use in residences and in commercial and industrial buildings. This increased energy use is expected to require 67,772 megawatts of peak summer capacity in 2027 to meet demand while maintaining an adequate reserve margin (California Energy Commission 2015).

Residential, commercial, and industrial development projects are required to obtain permits and undergo environmental review so that the electricity demands of the project can be met. In addition, electricity providers make regular near-term demand projections that incorporate anticipated demand from planned development and 10-year projections. New transmission and distribution lines or existing facilities upgrades needed to serve the increased demand are generally projected 2 to 3 years in advance of construction.

Electrical demand for propulsion of the HSR system and for operation of the HSR system at terminal stations, storage depots, and maintenance facilities is conservatively estimated to be 16,388,500 million British thermal units (MMBtu) annually (44,900 MMBtu per day) under the 50 percent fare scenario and 10,950,000 MMBtu annually (30,000 MMBtu per day) under the 83 percent fare scenario[5]. This includes transmission losses, propulsion of the trains, and operation of the trains at terminal stations and at storage depots. Although electricity supplies for 2040 are uncertain, given the available planning period and the known demand from the project, energy providers have sufficient information to include the Burbank to Los Angeles Project Section and other projects listed as part of this cumulative scenario (including the adjacent HSR project sections) in their demand forecasts, which would inform future decisions regarding new infrastructure necessary to meet energy demand. In addition, to enhance the benefits of the HSR system, the Authority has set a goal of procuring renewable electricity to provide power for HSR operation. Although the HSR system would result in an increase in electricity demand, it would reduce the energy demands from automobile and airplane travel. In the year 2040, the reduction in vehicle miles traveled is estimated to be approximately 1 billion miles (Authority 2017). Therefore, there would not be a cumulative impact on energy demand during operation to which the HSR Build Alternative would contribute.

**Water Infrastructure and Resources**

Recent changes in water management include improvements in storing water during dry years, water exchange agreements, water optimization techniques, water transfers, and the use of water banking. Many of these activities emphasize long-term water management objectives to improve management of local water supply, augment supply, increase water efficiency, and reduce demand.

Water demand for the HSR Build Alternative is associated with water use at the tunnels (for tunnel cleaning, fire life safety, domestic needs, and general maintenance operations), the Burbank Airport Station, and LAUS. The proposed Burbank Airport Station would require an estimated 165 acre-feet per year, which would be a 53 percent decrease in acre-feet per year compared to existing conditions. Water use at the Burbank Airport Station would represent approximately 0.6 percent of Burbank's total water supply by the year 2040. The HSR Build Alternative operations at LAUS would require an estimated 168 acre-feet per year by 2040, which would be an increase of about 99 acre-feet/year compared to existing conditions. Water use at LAUS represents approximately 0.02 percent of the Los Angeles Department of Water and Power's (LADWP) total supply in 2040. The existing and planned water supplies for the cities of Burbank, and Glendale are adequate to meet the projected demand during normal, dry, and multiple dry water years through 2040, according to the applicable Urban Water Management Plans for these areas. Sufficient water supplies would be available in the city of Burbank because the anticipated demand for water to serve the Burbank Airport station would be less water than the existing uses on the same areas and would represent a small fraction of the total supplies available.

[5] A 50 percent fare scenario assumes cost of HSR travel would be 50 percent of comparable air and auto travel costs and an 83 percent fare scenario assumes cost of HSR travel would be 83 percent of comparable air and auto travel costs.

According to the 2015 Urban Water Management Plan for the city of Los Angeles, LADWP would have sufficient supply to adequately serve its existing service area during normal, dry, and multiple dry years. However, it has not yet been determined if the project-generated increase in operational water demand at LAUS is within the existing and future service capacity of LADWP. In the absence of verification of the sufficiency of future LADWP supplies to meet project-generated operational water demand at LAUS, PUE-MM#2 requires the Authority to prepare a water supply analysis in coordination with LADWP to verify the sufficiency of existing and future LADWP supplies for project operations at LAUS without resulting in impacts to LADWP's existing service commitments. The HSR Build Alternative would also cause an indirect increase in urban water demand associated with the population increase from induced growth effects anticipated as a result of the project (as compared to the No Project projections).

Cumulative development projects, as well as the station areas for the adjacent HSR project sections, would also increase water demand, which would be projected by water providers and approved through a permitting process. Cumulative transportation projects that include landscaping elements, including the adjacent HSR project sections, would also increase water demand, but most of the increase in water demand would occur from cumulative development projects. As with many communities in California, more conservation measures would be required to reduce water demand during multiple years of drought. In particular, the Water Conservation Act of 2009 (SB X7-7) requires urban water purveyors to reduce customer water demand by 20 percent by 2020 through increases in water efficiency (California Department of Water Resources 2009). Additionally, Executive Order B-37-16 established a new water use efficiency framework for California. The order bolstered the state's drought resilience and preparedness by establishing longer-term water conservation measures that include permanent monthly water use reporting, new urban water use targets, reducing system leaks and eliminating clearly wasteful practices, and strengthening urban drought contingency plans.

The HSR Build Alternative and other cumulative projects, including the adjacent HSR project sections, would be required to coordinate with water supply agencies, evaluate the reliability of existing and projected water supplies and projects that meet certain thresholds, and prepare a water supply assessment that confirms adequate water supplies are available. If adequate water supplies are not available, the Authority would secure additional supplies from the State Water Project and pay the water agencies its fair share of the State Water Project fees. According to the 2015 Urban Water Management Plans for the cities of Los Angeles, Burbank, and Glendale, the water supply is anticipated to be adequate for meeting the projected water demand associated with future growth through the year 2040, including those projects considered under the cumulative scenario (Los Angeles Department of Water and Power 2016; Burbank Water and Power 2016; City of Glendale Water and Power 2016). For LAUS in particular, operational water use would be approximately 0.02 percent of LADWP's annual supply in normal, dry, and multiple dry year scenarios. Mitigation measure PUE-MM#2 would require the Authority to prepare an updated water supply analysis for the HSR Build Alternative at LAUS that identifies the detailed water supply needs for operation of the HSR Build Alternative at LAUS. However, in the absence of verification of the sufficiency of future LADWP supplies to meet project-generated operational water demand at LAUS even with implementation of PUE-MM#2, operation of the HSR Build Alternative at LAUS may result in impacts to LADWP's existing service commitments. Therefore, the HSR Build Alternative would contribute to a cumulative impact on water supplies during operation. The Authority will, to the maximum extent feasible, coordinate with LADWP to verify the sufficiency of water supplies and fund the expansion of water supplies and infrastructure necessary to reduce impacts related to operational water use at LAUS.

**Solid Waste Disposal/Recycling Facilities**

Operation of the HSR Build Alternative would generate solid waste, including passenger refuse disposal at stations and materials used for HSR system maintenance. Station operations would generate most of this solid waste. Estimates for solid waste generated by the stations represent less than 1 percent of the estimated permitted daily disposal capacity for landfills in the area.

Solid waste generated during operation of cumulative transportation projects, including the HSR Build Alternative, would be limited to maintenance. Solid waste generated by cumulative

development projects would generate most of the increases to solid waste generation under the cumulative condition. However, county planning documents account for the increased need for solid waste facilities and maintain adequate landfill capacity to serve the projects developed under the cumulative condition, including the HSR Build Alternative.

California is expected to continue its solid waste diversion policies to further reduce the per-capita need for landfill capacity in the future, including with respect to cumulative development. In particular, AB 341, Solid Waste Diversion, establishes a goal of reaching a statewide diversion rate of 75 percent by 2020. In addition, one of the existing landfills (Burbank Landfill Site No. 3) serving Los Angeles County will have adequate estimated capacity through 2040 (CalRecycle 2016). Under the Resource Conservation and Recovery Act, the California Integrated Waste Management Act of 1989 (AB 939), local jurisdictions are required to prepare annual plans for new or expanded solid waste disposal services before the estimated closure dates of the existing facilities. Therefore, there would not be a cumulative impact on solid waste disposal services or landfills during operation to which the HSR Build Alternative would contribute.

#### *CEQA Conclusion*

The HSR Build Alternative and other cumulative projects, including the adjacent HSR project sections, would increase demand on utilities and energy supplies. With the exception of water usage for project operations at LAUS, it is anticipated that the additional demand from the HSR Build Alternative would be met by existing providers. As described in PUE-IAMF#1, PUE-IAMF#3, and PUE-IAMF#4, design measures, technical memoranda, and public notifications would be included and adhered to as part of the design of the HSR Build Alternative. With the exception of water supplies from LADWP for project operations at LAUS, the existing facilities and supplies would be sufficient to accommodate future demand of the HSR Build Alternative and other cumulative projects, including the adjacent HSR project sections, during normal, dry, and multiple dry years. Therefore, with the exception of water supplies from LADWP for project operations at LAUS, there would not be a significant cumulative impact under CEQA related to public utilities and energy systems to which the HSR Build Alternative would contribute. Therefore, CEQA does not require mitigation.

The HSR Build Alternative would contribute to the significant cumulative impact resulting from water usage during project operations at LAUS because the sufficiency of future LADWP supplies to meet project-generated operational water demand at LAUS cannot be verified even with implementation of mitigation. PUE-MM#2 requires the Authority to prepare a water supply analysis in coordination with LADWP, but it is unknown if that water supply analysis will confirm that sufficient water supplies are available. Therefore, the contribution of the HSR Build Alternative to the significant cumulative impact to water resource supply would be cumulatively considerable.

### *3.19.8.7 Biological and Aquatic Resources*

#### Resource Study Area

The cumulative RSA for evaluating impacts on plants and wildlife consists of the cities of Los Angeles, Burbank, and Glendale. The cumulative RSA encompasses all habitats used by special-status plants and wildlife species that could be affected by the HSR Build Alternative within those cities.

The cumulative RSA for aquatic resources is the Los Angeles River Watershed. The Los Angeles River Watershed is also the basis for the project-level RSA and it considers downstream receiving waters. The cumulative RSA encompasses all aquatic resources that could be affected by the HSR Build Alternative. Under the cumulative condition, ongoing urban development and redevelopment would continue within the cumulative RSAs.

#### Cumulative Condition

Together, the HSR Build Alternative and the past, present and reasonably foreseeable projects identified in Appendix 3.19-A constitute the cumulative condition relevant to biological and aquatic resources. Portions of adjacent HSR project sections (Palmdale to Burbank and Los Angeles to

Anaheim) were considered in the cumulative condition as it pertains to the cumulative RSA for plants and wildlife, defined as the cities of Los Angeles, Burbank, and Glendale. The cities of Los Angeles, Burbank, and Glendale are developed, with limited open space available for future development. Habitats for special-status plants and animals have been lost due to past urbanization. In addition, habitat fragmentation by urbanization creates isolated "islands" of natural habitat and negatively affects wildlife movement by disrupting natural wildlife corridors. As fragmentation continues, connectivity between habitats and the special-status plant and animal populations they support is lost. While development of future projects may have the potential to affect special-status species, there is little potential for cumulative biological and aquatic resource impacts given the existing lack of habitat and connectivity in the cumulative RSAs. Past habitat fragmentation and loss of connectivity has resulted in minimal suitable habitat within the cumulative RSA; therefore, the HSR Build Alternative would have little chance to further impact the already fragmented habitat.

**Contribution of the High-Speed Rail Build Alternative**

***Construction***

The permanent conversion of existing land uses for the HSR Build Alternative would result in impacts on biological and aquatic resources within the cumulative RSAs. However, due to the nearly complete built environment in the project vicinity and the existing use as a rail corridor, the effects of the HSR Build Alternative on biological and aquatic resources would be limited.

The HSR Build Alternative includes multiple IAMFs and mitigation measures that have been refined as a result of coordination with federal, state, and local agencies, including the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, the California Department of Fish and Wildlife, and the State Water Resources Control Board. The following IAMFs and mitigation measures would be implemented to minimize temporary construction effects for the HSR Build Alternative:

- **IAMFs**
  - BIO-IAMF#1: Designate Project Biologist, Designated Biologists, Species-Specific Biological Monitors, and General Biological Monitors
  - BIO-IAMF#3: Prepare Worker Environmental Awareness Program (WEAP) Training Materials and Conduct Construction-Period WEAP Training
  - BIO-IAMF#5: Prepare and Implement a Biological Resources Management Plan
  - BIO-IAMF#6: Monofilament Restrictions
  - BIO-IAMF#7: Prevent Entrapment in Construction Materials and Excavations
  - BIO-IAMF#8: Delineate Equipment Staging Areas and Traffic Routes
  - BIO-IAMF#9: Dispose of Construction Spoils and Waste
  - BIO-IAMF#10: Clean Construction Equipment
  - BIO-IAMF#11: Maintain Construction Sites
  - BIO-IAMF#12: Design the Project to be Bird Safe
- **Mitigation Measures**
  - BIO-MM#1: Conduct Presence/Absence Pre-Construction Surveys for Special-Status Plant Species and Special-Status Plant Communities
  - BIO MM#2: Prepare and Implement Plan for Salvage and Relocation of Special-Status Plant Species
  - BIO-MM#14: Conduct Pre-construction Surveys and Delineate Active Nest Buffers Exclusion Areas for Breeding Birds

- BIO-MM#15: Conduct Pre-construction Surveys and Monitoring for Raptors
- BIO-MM#25: Conduct Pre-construction Surveys for Special-Status Bat Species
- BIO-MM#26: Implement Bat Avoidance and Relocation Measures
- BIO-MM#27: Implement Bat Exclusion and Deterrence Measures
- BIO-MM#34: Monitor Construction Activities within Aquatic Resources
- BIO-MM#35: Implement Transplantation and Compensatory Mitigation Measures for Protected Trees
- BIO-MM#37: Minimize Effects to Wildlife Movement Corridors during Construction
- BIO-MM#47 Prepare and Implement a Compensatory Mitigation Plan (CMP) for Impacts to Aquatic Resources
- BIO-MM#55: Prepare and Implement a Weed Control Plan
- BIO-MM#56*:* Conduct Monitoring of Construction Activities
- BIO-MM#61: Establish and Implement a Compliance Reporting Program
- BIO-MM#62: Prepare Plan for Dewatering and Water Diversions
- BIO-MM#63: Work Stoppage

With implementation of IAMFs and mitigation measures, there would be no or very limited temporary, construction-related impacts on special-status plant and animal species, natural communities, aquatic resources, and wildlife movement corridors from the construction of the HSR Build Alternative.

The other cumulative projects within the biological RSA are also in a built-out urban environment where there are limited biological and aquatic resources. Similar to the HSR Build Alternative, other cumulative projects would be required to comply with regulatory requirements, including federal, state, and local government laws and regulations that protect special-status plant and animal species, natural communities, aquatic resources, and wildlife movement corridors. The other cumulative projects with a potential to affect biological and aquatic resources would also be required to consult with and obtain permits from the applicable regulatory agencies Therefore, cumulative impacts associated with these projects (i.e., past, present, and reasonably foreseeable future actions) would be mitigated through consultation and permitting with the appropriate regulatory agencies such that there would be limited impacts on biological and aquatic resources to which construction of the Build Alternative would contribute.

***Operation***

The HSR Build Alternative and other cumulative projects (within the cumulative RSA for plants and wildlife) would be in an area that is already heavily developed. Therefore, there would be very limited permanent impacts on special-status plant and animal species (and suitable habitat for such species), natural communities, aquatic resources, and wildlife movement corridors from operation of the HSR Build Alternative and other cumulative projects. Prior to mitigation, the Palmdale to Burbank Project Section would contribute to the degradation of aquatic resources within the Los Angeles River Watershed (Aquatic Resources RSA). Indirect temporary impacts (i.e., noise, dust, and vibration) would occur as a result of routine maintenance activities along the HSR alignment that would take place infrequently or temporarily. In addition, permanent operations effects, which include noise, light, vibration, and wind generated from moving trains, would occur daily from operation of the HSR system. The HSR Build Alternative would operate within an existing railroad transportation corridor, so these effects would not be new to the RSAs; however, they would be additive to existing conditions.

With the exception of the Palmdale to Burbank Project Section, the other cumulative projects are in a built-out urban environment where there are limited biological and aquatic resources. Although most of the Palmdale to Burbank Project Section would be in a more rural environment,

the portion of the Palmdale to Burbank Project Section adjacent to the Burbank to Los Angeles Project Section would be in a built-out urban environment and impacts on aquatic species would be limited. Similar to the HSR Build Alternative, other cumulative projects, including the Palmdale to Burbank Project Section, would be required to comply with regulatory requirements such as federal, state, and local government laws and regulations that protect special-status plant and animal species, natural communities, aquatic resources, and wildlife movement corridors. The other cumulative projects with a potential to affect biological and aquatic resources would also be required to consult with and obtain permits from the applicable regulatory agencies. Therefore, cumulative impacts associated with these projects would be mitigated through consultation and permitting with the appropriate regulatory agencies such that there would be limited impacts on biological and aquatic resources to which operation of the HSR Build Alternative could contribute.

#### *CEQA Conclusion*

Due to the nearly completely built-out environment in the project vicinity and the location of the HSR Build Alternative within an existing railroad corridor, biological and aquatic resources in the cumulative RSAs are limited. Additionally, for each cumulative project, including the adjacent HSR project sections, regulatory permits would be required from applicable agencies for activities that could affect sensitive biological and aquatic resources. Compensation for impacts, particularly on aquatic resources and bat roost impacts, may be required through the regulatory permitting process. Three specific mitigation measures pertaining to bat species are required to be implemented: BIO-MM#25, BIO-MM#26, and BIO-MM#27. With incorporation of these mitigation measures, operational impacts on special-status wildlife species would be less than significant under CEQA because bat roosts would be identified and measures would be implemented to avoid, minimize, or compensate for impacts. Therefore, there would not be a significant cumulative impact under CEQA related to either biological or aquatic resources to which the HSR Build Alternative could contribute. As noted previously, the existing habitat fragmentation and loss of connectivity results in minimal habitat for biological and aquatic resources within the cumulative RSA, and the HSR Build Alternative would have little potential to further impact the already fragmented habitat. Therefore, CEQA does not require mitigation.

### *3.19.8.8 Hydrology and Water Resources*

#### Resource Study Area

The cumulative RSA for evaluating impacts on floodplains is the Federal Emergency Management Agency-designated 100-year floodplains crossed by the direct RSA, which is the project footprint plus a 250-foot buffer. The geographic boundaries of this RSA are sufficiently broad for evaluating cumulative impacts because floodplain impacts (i.e., increases in water surface elevations) are localized and occur in a specific floodplain where a structure is being proposed.

The cumulative RSA for evaluating impacts on surface waters is the Los Angeles River Watershed, which covers a land area of approximately 834 square miles. The geographic boundaries of this RSA encompass the entire Los Angeles River Watershed because hydrologic and water quality impacts on surface waters are regional in nature and can affect downstream waters in the watershed. Therefore, including the entire Los Angeles River Watershed provides a sufficiently broad RSA for addressing cumulative impacts.

The cumulative RSA for evaluating impacts on groundwater is the Central Subbasin of the Coastal Plain of Los Angeles and the San Fernando Valley Groundwater Basin. The geographic boundaries of this RSA were chosen because hydrologic and water quality impacts on groundwater are regional and can affect the groundwater basin. Therefore, including the entire groundwater basin provides a sufficiently broad RSA for addressing cumulative impacts.

Only the portions of the adjacent HSR project sections (i.e., Palmdale to Burbank and Los Angeles to Anaheim project section) that are within these RSAs are included in this discussion of cumulative impacts for hydrology and water resources.

### Cumulative Condition

Under the cumulative condition, ongoing development and redevelopment would change the land use within the RSAs, disturb soil during construction, increase impervious surface area (which can increase runoff and decrease groundwater infiltration), alter pollutants of concern in stormwater runoff, increase the demand for flood control facilities, and increase the risk for flooding. However, the cumulative projects, including the adjacent HSR project sections, would be required to comply with National Pollutant Discharge Elimination System (NPDES) requirements and implement BMPs to reduce water quality impacts and increase infiltration. Linear transportation projects may require structures within surface waters, resulting in changes to water surface elevation and boundaries of floodplains. Continued population growth and development would increase the number of people and structures exposed to the risk of inundation from flooding or dam failure.

### Contribution of the High-Speed Rail Build Alternative

#### *Construction*

Linear transportation projects contributing to cumulative conditions may cross and place structures within Federal Emergency Management Agency-designated 100-year floodplains. Of the cumulative projects identified in Figure 3.19-1, the Glendale Boulevard-Hyperion Avenue Complex of Bridges (T13), the North Spring Street Viaduct Widening and Rehabilitation (T16), and the Los Angeles to Anaheim Project Section (T23) are the only projects that would place structures within a 100-year floodplain and result in an increase in the water surface elevation (the Los Angeles River). Blockage of flood flows by multiple linear projects is not a cumulative issue because increases in flood levels are generally limited to the vicinity of any new structures placed in the floodplain. Because changes in water surface elevation from new structures placed within the 100-year floodplain are localized, the structures placed in the Los Angeles River 100-year floodplain from the HSR Build Alternative would not be close enough to the structures placed in the floodplain by the Glendale Boulevard-Hyperion Avenue Complex of Bridges (T13), the North Spring Street Viaduct Widening and Rehabilitation (T16), and the Los Angeles to Anaheim Project Section (T23) to result in a cumulative increase in the floodplain elevation. In addition, the linear facility in the floodplain that has the greatest restriction in floodwater conveyance defines the flood flow for future facilities. The linear facility in a floodplain that has the fewest or smallest culverts would dictate the flow of floodwaters independent of all other linear facilities in the same floodplain that have greater conveyance capacity. Through project design, the capacity of the flood conveyance features for the HSR Build Alternative would be equal to or greater than the flood conveyance capacity of existing linear facilities.

Nonlinear projects, such as mixed-use, residential, and commercial developments, may affect flood-flow volumes or rates in the Burbank to Los Angeles Project Section due to increases in impervious surface area. This could be exacerbated if inadequate drainage were provided by the HSR Build Alternative near proposed new or existing development areas. Therefore, implementation of the HSR Build Alternative in conjunction with other planned and approved projects and plans could result in a cumulative increase in flood levels. However, the floodplain crossings of the HSR Build Alternative would allow 100-year flows to pass through without increasing the existing water surface elevation by more than 1 foot. Furthermore, the Burbank to Los Angeles Project Section and other cumulative projects encroaching on a 100-year floodplain (the Glendale Boulevard-Hyperion Avenue Complex of Bridges, the North Spring Street Viaduct Widening and Rehabilitation, and the Los Angeles to Anaheim Project Section) would be required to comply with Federal Emergency Management Agency regulations and the requirements set forth in U.S. Executive Order 11988, which entail a floodplain analysis to prevent projects from increasing the base flood elevation more than 1 foot in floodplains or substantially changing the floodplain limits. In addition, the Federal Emergency Management Agency requires the preparation of a Conditional Letter of Map Revision/Letter of Map Revision to acknowledge project-related changes to the base flood elevation of a floodplain for future floodplain planning purposes. Furthermore, city and/or county general plan policies, programs, and ordinances intended to offset the potential direct and cumulative flooding problems that may arise from development would apply to development projects in the indirect

RSA. Therefore, there would not be a cumulative impact associated with flooding to which the HSR Build Alternative would contribute.

**Surface Waters**

Construction associated with the HSR Build Alternative and the cumulative transportation and development projects (including the adjacent HSR project sections) would include ground-disturbing activities that could introduce pollutants of concern into stormwater runoff. Ground-disturbing activities, such as grading and excavation, could alter drainage patterns, redirect stormwater runoff, and increase the potential for erosion. In addition, construction activities could increase the amount of stormwater runoff by removing natural vegetation or compacting soil, thereby decreasing infiltration. Typical pollutants of concern associated with grading and earthmoving activities include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. Any of these pollutants have the potential to be transported via stormwater runoff into receiving waters. Therefore, implementation of the HSR Build Alternative, in conjunction with other cumulative projects, could result in a cumulative increase in pollutants and stormwater runoff during construction.

Projects developed under the cumulative condition that are near surface waters, such as transportation projects that cross or involve construction near rivers and channels, could have the greatest construction impacts. These cumulative projects include the following:

- Glendale Boulevard-Hyperion Avenue Complex of Bridges (T13)
- Beeline Compressed Natural Gas Fueling and Maintenance Facility (T12)
- Glendale Narrows Bikeway Culvert Bridge (T10)
- Burbank Channel Bikeway Regional Gap Closure (T8)
- Ventura Freeway (SR 134) to Magnolia Boulevard (T9)
- North Spring Street Viaduct Widening and Rehabilitation (T16)
- Link US (T17)
- Los Angeles River Revitalization Master Plan (D28)
- Los Angeles River Ecosystem Restoration Project (D29)
- Palmdale to Burbank HSR section (T22)
- Los Angeles to Anaheim HSR section (T23)

Construction in, across, near, and/or over surface water channels has the potential to degrade water quality directly, and this degradation could be exacerbated by concurrent construction schedules for multiple projects. In-water work during construction of the HSR Build Alternative would be restricted to the dry season, as specified in HYD-IAMF#3. However, if the channel has year-round flows, dewatering or diversion of the surface water flow could be required. The contractor would develop a water diversion plan prior to construction, which would include the installation of cofferdams or sandbag barriers around the work areas (such as in locations where piers or abutments would be constructed) to keep water out and reduce sediment pollution from construction work in and under water. Where temporary water diversion is required, it would be removed once construction is complete and the channel would be restored to its pre-existing condition. The other cumulative projects considered in this evaluation that require work in a waterbody that has year-round flows would either restrict work in the waterbody to the dry season or dewater/divert the surface flow. If dewatering or diversion is required, it is standard practice for the construction contractor to develop a water diversion plan and water crossing plan prior to construction to reduce impacts on surface water. Further, it should be noted that the HSR Build Alternative would neither preclude nor conflict with the restoration activities proposed under the *Los Angeles River Revitalization Master Plan* or the Los Angeles River Ecosystem Restoration Final Feasibility Report and Environmental Impact Statement/Environmental Impact Report. While there would be some geographical overlap between the HSR Build Alternative and the LA River Ecosystem Restoration Project, specifically at Taylor Yard and Bowtie parcel, the HSR Build Alternative would not preclude or conflict with the restoration activities planned for the Los Angeles River.

The HSR Build Alternative disturbs greater than 1 acre of soil and is subject to the requirements of the NPDES, including the Construction General Permit, during construction. Compliance with

the Construction General Permit requires the preparation of a Stormwater Pollution Prevention Plan to identify project-specific BMPs that would target pollutants of concern during construction. In addition, the Stormwater Pollution Prevention Plan would describe temporary drainage patterns on construction sites and indicate stormwater discharge locations from those sites to the existing drainage system in order to maintain the existing drainage pattern to the maximum extent practicable. Implementation of the Stormwater Pollution Prevention Plan would reduce potential impacts on surface water quality. Further, hydromodification management controls would be implemented during construction to maintain pre-project hydrology by emphasizing on-site retention of stormwater runoff.

The Burbank to Los Angeles Project Section is in a highly urbanized area consisting primarily of impervious surface. Increased development from construction of cumulative projects would result in new areas of impervious surface and changes in land use that could introduce new sources of runoff pollution under the cumulative condition that could affect surface water quality. In addition, increased development would change on-site drainage patterns, decrease infiltration, and increase the volume and rate of runoff during a storm. In addition, increases in impervious surface area would increase the total amount of pollutants traveling to on-site drainages and downstream receiving waters. Pollutants associated with transportation and development projects include heavy metals, hydrocarbons (e.g., fuels and solvents), nutrients, sediments, organic compounds, pesticides, trash and debris, pathogens, and oil and grease. Any of these pollutants have the potential to be transported via stormwater runoff into receiving waters. Therefore, implementation of the HSR Build Alternative could result in a cumulative increase in pollutants of concern reaching receiving waters during operation.

The Los Angeles River, the Verdugo Wash, the Arroyo Seco, and the Burbank Western Chanel are all listed for various impairments on the Section 303(d) List. In addition, total maximum daily loads have been developed for metals and nutrients in the Los Angeles River and indicator bacteria in the Los Angeles River Watershed. Therefore, the HSR Build Alternative, could contribute to existing water quality impairments in the surface waters in the cumulative RSA. However, the HSR Build Alternative would be subject to the NPDES regulations and permits (e.g., the Construction General Permit, groundwater dewatering permits, and the county and Caltrans municipal separate storm sewer system permits) required by the State Water Resources Control Board and the Los Angeles Regional Water Quality Control Board to reduce impacts on water quality. Any projects within federal flood control facilities (such as the Los Angeles River) require review from the U.S. Army Corps of Engineers under Section 408 to ensure that the flood control facility's usefulness is not impaired. These regulations are in place to reduce new development and infrastructure projects' impacts on water quality. The HSR Build Alternative would implement BMPs designed to reduce pollutants in stormwater runoff and reduce water quality impacts, as required by the permit and regulations.

Construction of the HSR Build Alternative would result in an increase in impervious surface area from structures along the alignment as well as structures at the Burbank Airport Station and LAUS. The other transportation and development projects on the cumulative projects list, including adjacent HSR sections, would also increase impervious surface area and result in other land use changes that could increase pollutants in stormwater runoff. However, new development (including the HSR Build Alternative, adjacent HSR project sections, and other cumulative projects) would comply with the post-construction hydromodification requirements from the Authority's NPDES Municipal Separate Storm Sewer System Phase II Permit or the Los Angeles Municipal Separate Storm Sewer System Permit. Hydromodification requirements promote stormwater infiltration and reduce peak stormwater runoff. In addition, stormwater BMPs and low-impact development would be used to promote infiltration and detention. Overall, the design for the HSR Build Alternative and other cumulative projects, along with compliance with stormwater control measures, would result in only minor changes in the volume and rate of stormwater runoff from impervious surfaces. Therefore, there would not be a cumulative impact on surface waters to which the HSR Build Alternative would contribute.

**Groundwater**

Shallow groundwater (less than 50 feet below ground surface) occurs within the RSA, especially in locations where the cumulative RSA is adjacent to surface waters. It is likely that groundwater would be encountered during construction activities associated with the HSR Build Alternative, particularly during construction of the bridge piers and the below-grade sections of the alignment. If groundwater is encountered during construction, dewatering would be required. Dewatering groundwater during construction activities associated with the HSR Build Alternative and other cumulative projects (including the adjacent HSR project sections) could result in a cumulative decrease in the amount of groundwater available in the groundwater basin. The volume of groundwater that would be removed during construction of the HSR Build Alternative and other cumulative projects, including the adjacent HSR project sections, would be relatively minor due to the storage capacity of the groundwater basins (the storage capacity of the Central Subbasin of the Coastal Plain of Los Angeles Groundwater Basin is approximately 13,800,000 acre-feet and the storage capacity of the San Fernando Valley Groundwater Basin is approximately 3,670,000 acre-feet [DWR 2004a and 2004b]).

The amount of groundwater dewatering for bridge piers for the HSR Build Alternative, is likely to be relatively small and done in widely spaced locations. Any effects from groundwater dewatering would be temporary because dewatering would cease once construction has been completed. Additionally, for the HSR Build Alternative and adjacent HSR project sections, the Authority would control the amount of groundwater withdrawal and reinject groundwater at specific locations if necessary (GEO-IAMF#1).

The HSR Build Alternative includes construction of a tunnel under the Burbank Airport, which would have the greatest potential to result in cumulative impacts on groundwater. Because excavation would need to occur in relatively dry conditions, groundwater dewatering would be required during construction of the tunnel for the Burbank to Los Angeles Project Section to draw down the groundwater level to 5 feet below the bottom of the below-grade sections to prevent groundwater inflow into the below-grade sections. The Burbank to Los Angeles Project Section includes HWR-MM#1, which would require groundwater levels, flow, and quality to be monitored prior to, during, and after construction to reduce groundwater effects from below-grade construction. Regular monitoring would identify potential changes in the depth of groundwater beyond the expected seasonal variations. If groundwater is affected, monitoring of groundwater would continue until the groundwater system has returned to pre-construction conditions.

The adjacent Palmdale to Burbank Project Section also includes tunnel construction and would require groundwater dewatering under the Angeles National Forest, which is in the San Fernando Valley Groundwater Basin. The Palmdale to Burbank Project Section would include similar measures to ensure that groundwater dewatering during construction would not permanently affect groundwater levels. Additionally, due to the distance between the tunnel activities in each HSR project section, the groundwater dewatering activities of the two project sections would not combine to result in cumulative impacts on groundwater levels.

Construction of other cumulative projects in areas with high groundwater could allow a direct path for construction-related contaminants to reach groundwater, thereby affecting water quality, particularly in areas with perched groundwater. However, the HSR Build, would be subject to the requirements of the Construction General Permit, including implementation of a Stormwater Pollution Prevention Plan to reduce pollutants of concern that could affect groundwater quality during construction. Implementation of the Stormwater Pollution Prevention Plan would reduce potential impacts on groundwater quality.

The HSR Build Alternative would be in areas of existing development, within the urban areas of the cities of Burbank, Glendale, and Los Angeles. Because the areas primarily consist of impervious surfaces, the potential for groundwater recharge in the RSA is relatively low. Construction of the HSR Build Alternative, in conjunction with other cumulative projects, would increase impervious surface area that could in turn decrease infiltration and, by association, reduce the amount of water that can recharge the groundwater basins. This reduction in infiltration from the HSR Build Alternative would not be substantial due to the size of the groundwater basins compared to the HSR project's new impervious areas. In addition, the HSR

Build Alternative would include systems to infiltrate stormwater runoff. In addition, with implementation of post-construction BMPs, the HSR Build Alternative and the other cumulative projects would not affect groundwater quality because pollutants of concern would be removed from stormwater runoff before it infiltrates the groundwater basin. Therefore, there would not be a cumulative impact on groundwater to which the HSR Build Alternative would contribute.

***Operation***

The RSAs are in a highly developed, urbanized area. Operational activities and pollutants associated with the HSR Build Alternative and other cumulative projects, including the adjacent HSR project sections, would be similar to those currently occurring in the RSAs. Additionally, new development would be required to comply with NPDES requirements and implement operational BMPs to reduce pollutants of concern in stormwater runoff, which would reduce operations impacts on water resources. Therefore, there would not be a cumulative operations impact on hydrology and water resources to which the HSR Build Alternative would contribute.

***CEQA Conclusion***

The HSR Build Alternative includes a new Main Street bridge and that would include new structures in the Los Angeles River. However, the HSR Build Alternative would be consistent with the goals of the Los Angeles River Revitalization Master Plan to maintain the existing flood capacity in the river and the Los Angeles River Ecosystem Project to provide flood storage. The bridge structures would be designed to provide flow conveyance and connectivity and to comply with the hydraulic criteria of the applicable jurisdiction. For these reasons, the HSR Build Alternative would be consistent with the goals of the Los Angeles River Revitalization Master Plan to maintain the existing flood capacity in the river and the Los Angeles River Ecosystem Project to provide flood storage. Additionally, the HSR Build Alternative includes BMPs to reduce pollutants of concern in stormwater runoff discharged to the Los Angeles River. Therefore, the HSR Build Alterative would not degrade water quality in a manner that may impede restoration of the Los Angeles River ecosystem or habitat. For these reasons, the HSR Build Alternative would be consistent with the goals of the Los Angeles River Revitalization Master Plan and Los Angeles River Ecosystem Project to improve water quality and would not impede habitat or ecosystem restoration of the river. Cumulative impacts resulting from these projects and the HSR Build Alternative would be negligible.

Further, all cumulative projects, including adjacent HSR project sections, would be required to comply with existing Federal Emergency Management Agency, U.S. Army Corps of Engineers, and NPDES requirements that regulate construction and operation of development projects. Implementation and adherence to HYD-IAMF#1 through HYD-IAMF#3 would minimize impacts to hydrology and water resources under the HSR Build Alternative. With compliance with regulatory requirements and implementation of BMPs, there would not be a significant cumulative impact under CEQA related to hydrology and water resources to which the HSR Build Alternative would contribute. Therefore, CEQA does not require mitigation.

### *3.19.8.9 Geology, Soils, Seismicity, and Paleontological Resources*

**Resource Study Area**

The cumulative RSA for evaluating impacts associated with geology, soils, and seismicity consists of all the geologic units that are partially overlain by the HSR Build Alternative project footprint in the San Fernando Valley, the Elysian Park Hills, and the Los Angeles Basin. Some geologic and seismic hazards, such as soil failures, settlement, corrosivity, shrink-swell, erosion, and earthquake-induced liquefaction risks, are limited to the project site level and do not accumulate across projects. However, other issues, such as seismicity and faulting, would be cumulatively additive across projects should the associated damage affect multiple projects within the same geographic area and timespan. Therefore, the cumulative RSA allows for the analysis of cumulative impacts associated with seismicity and faulting at a broader regional level.

The cumulative RSA for evaluating impacts on paleontological resources consists of all the geologic units that are partially overlain by the HSR Build Alternative project footprint in the San

Fernando Valley, Elysian Park Hills, and Los Angeles Basin. Paleontological resources occur as part of the broader geologic record and are irregularly distributed both across a geographic region and throughout the vertical extent of the geologic units in any given region. The fossil record comprises all fossils occurring in the geologic record, and impacts on any one paleontological resource occur in the context of the entire fossil record of a region. Therefore, the cumulative RSA allows for the analysis of cumulative impacts on paleontological resources at a broader regional level.

### Cumulative Condition

Together, the HSR Build Alternative and the other reasonably foreseeable cumulative projects identified in Appendix 3.19-A, including the adjacent HSR project sections, constitute the cumulative condition relevant to geology, soils, seismicity, and paleontological resources.

Some impacts associated with geology, soils, and seismicity are considered on a site-specific basis, where impacts would only occur as a direct result of project-related ground-disturbing activities, such as with soil failures (e.g., inadequacy of load-bearing soils), settlement, corrosivity, shrink-swell, erosion, and earthquake-induced liquefaction risks. These types of issues are limited to the project site level and are generally not cumulative across projects. Other issues, such as seismicity, faulting, and dam failure inundation, are cumulative across projects due to the regional nature of potential impacts. Therefore, impacts on these resources are assessed at a broader regional level.

Potential geology, soils, and seismicity impacts during construction relate to mineral resources. Cumulative development in the region could result in the loss of available mineral resources. With regard to seismicity, the probability that a surface fault rupture event would coincide with construction activities is low. However, there are several events that have potential to affect the project during the construction phase (e.g. ground shaking, liquefaction, dam failure, landslide). All of the cumulative projects, including the adjacent HSR project sections, would be built in a seismically active region, which would expose the public to a chance of property damage.

Cumulative development in the region could result in the loss or degradation of paleontological resources. Once lost, such resources cannot be recovered, which could result in a cumulative impact on paleontological resources. However, with the exception of the adjacent Palmdale to Burbank Project Section, the cumulative projects would occur in a primarily urban, built-out environment where ground disturbance has already occurred. Construction of the adjacent Palmdale to Burbank Project Section would include excavation, grading, and other ground-disturbing construction activities that could affect paleontologically sensitive geologic units within the RSA. Additionally, together with the Burbank to Los Angeles Project Section, excavation activities extending below the previous depth of disturbance would have the potential to encounter paleontological resources. While some construction activities may destroy paleontological resources, discovery of paleontological resources during construction would also result in more fossils being recovered, curated in qualified museums, and made available for scientific discovery.

### Contribution of the High-Speed Rail Build Alternative

#### *Construction*

**Geology, Soils, and Seismicity**

Construction of the development projects and infrastructure and transportation projects listed in Appendix 3.19-A, including the adjacent HSR project sections, as well as the HSR Build Alternative, would require aggregate, ballast rock, concrete, and steel reinforcement. Construction of the cumulative projects could result in a reduction of available aggregate and mineral resources; however, not all of these materials would originate from inside the RSA. Earthwork construction for the HSR Build Alternative would be performed in such a manner as to achieve a balanced condition where the quantity of soil or earthen materials removed through excavation would be roughly equal to the quantity of material placed in embankments, reducing the need for aggregate material. When the HSR Build Alternative is considered along with other reasonably foreseeable future projects, including the adjacent HSR project sections, there would

be a large demand for aggregates and other construction materials. However, it is anticipated that sufficient materials would be available to meet the demands of the HSR Build Alternative in combination with the adjacent HSR project sections and other proposed projects in the area. In addition, construction of the HSR Build Alternative may temporarily reduce the availability to access zoned mineral resources, as well as access to existing mining facilities near the alignment. With implementation of standard design and construction protocols regarding the procurement of mineral resources required for construction (such as sand and gravel), potential risks to the availability of mineral resources during construction of the HSR Build Alternative would not increase. Therefore, there would not be a cumulative impact on mineral resources to which the HSR Build Alternative would contribute.

Impacts related to future development in the RSA would involve geotechnical hazards associated with site-specific soil conditions, erosion, and ground shaking during earthquakes. Regarding potential seismic impacts during construction, impacts would be effectively avoided or minimized through IAMFs, and would not affect other cumulative projects. Therefore, there would not be a cumulative impact on geotechnical hazards to which the HSR Build Alternative would contribute.

**Paleontological Resources**

The HSR Build Alternative and other planned projects, including the adjacent HSR project sections, have the potential to cumulatively disturb, damage, or destroy scientifically important fossil resources. Once lost, such resources cannot be recovered. There are no known paleontological resources in the HSR Build Alternative project footprint, station sites, or electric power utility improvement areas. However, based on the paleontological sensitivity of geologic units within the RSA, there is a potential for paleontological resources to be discovered during construction of the HSR Build Alternative and other cumulative projects, including the adjacent HSR project sections. The locations of any undiscovered paleontological resources are unknown, and the presence of paleontological resources in one area does not preclude or imply the presence of paleontological resources in another. Nonetheless, an increase in the amount of ground disturbance in geologic units sensitive to paleontological resources corresponds with an increase in the potential to affect significant paleontological resources.

Temporary construction easements, non-ground disturbing construction activities, and the operational activities associated with the HSR Build Alternative could result in substantial cumulative impact on significant paleontological resources because they would involve ground disturbance in paleontologically sensitive geologic units. Most project construction activities would involve ground disturbance in geologic units sensitive to paleontological resources. Therefore, the HSR Build Alternative could contribute to cumulative impacts on significant paleontological resources if those resources are present in the RSA.

Complete avoidance of impacts on paleontological resources is typically achieved through mitigation, including preparation of paleontological mitigation plans, construction monitoring, avoidance where feasible, collection of fossils where avoidance is not feasible, and curation of scientifically significant paleontological resources. If paleontological resources are encountered during construction of the HSR Build Alternative, the scientific value of the fossil deposit would be largely or completely preserved through the implementation of GEO-IAMF#11 through GEO-IAMF#15, which would require retaining a qualified paleontological resources specialist who would review the final design of each construction package that involves work in a paleontologically sensitive geologic unit; develop a Paleontological Resource Monitoring and Mitigation Plan for the construction package; provide WEAP training for paleontological resources; and halt construction, evaluate, and treat if paleontological resources are found. These IAMFs include controlled collection and investigation of fossils after discovery and their curation in a qualified museum. The proposed IAMFs would reduce the HSR Build Alternative's impact on paleontological resources. With these measures in place, construction of the HSR Build Alternative would not result in the destruction of unique paleontological resources or sites. The other cumulative projects, including the adjacent HSR project sections, would also be required to halt work and recover any paleontological resources encountered during construction. Therefore, there would not be a cumulatively considerable contribution to this cumulative impact from the HSR Build Alternative.

### *Operation*

**Geology, Soils, and Seismicity**

Impacts related to future development in the RSA would involve geotechnical hazards associated with site-specific soil conditions, erosion, and ground shaking during earthquakes. Regarding potential seismic impacts during operation, impacts would be effectively avoided or minimized through IAMFs, such as complying with the latest seismic design criteria and halting operations of the HSR system in the event of an earthquake, and would not affect other cumulative projects. Impacts associated with geologic and soil issues are typically confined to a project site or within a localized area around a project site. Therefore, geologic or soil impacts of the HSR Build Alternative would not affect off-site areas associated with the other cumulative projects or adjacent HSR project sections beyond station areas. Cumulative development in the RSA would, however, increase the overall potential for causing substantial adverse effects by potentially increasing the risk of loss of life, injuries, or destruction due to seismic hazards.

Hazards pertaining to geology, soils, and seismicity would be addressed individually for each project developed under the cumulative scenario, including the HSR Build Alternative and adjacent HSR project sections. Foreseeable future transportation and development projects, would be subject to environmental review under CEQA and/or NEPA, as applicable. This project-specific analysis is required because these hazards are particular to each site and to specific design features for that project. Geologic issues are typically addressed through compliance with design standards and building code requirements. Construction procedures for each cumulative project would have to adhere to accepted engineering and safety guidelines and standards. Appropriate project design features and mitigation measures would be implemented as part of the adjacent HSR project sections and as needed for the other cumulative projects to avoid or reduce effects associated with geology, soils, and seismicity. Design and construction of the HSR Build Alternative and the adjacent HSR project sections would conform to construction design standards, construction BMPs and building code requirements. Additionally, GEO-IAMF#6 and GEO-IAMF#8 include measures to minimize seismic impacts on people and structures should an earthquake or surface fault rupture occur. GEO-IAMF#6 would include the installation of early warning systems and routine maintenance on this section of the HSR system. GEO-IAMF#8 would include continuous monitoring and immediate shutdown in the event of an earthquake on any of the faults identified in the project-level RSA to allow confirmation of acceptable conditions before service would resume in the affected HSR project section. Because these IAMFs are standardized measures for the HSR system, they would reduce the impacts of the HSR Build Alternative and the adjacent HSR project sections related to geology and soils. The HSR Build Alternative would therefore not contribute to cumulative impacts related to geology and soils.

Seismically induced dam failure could result in flooding in large areas of the cities of Burbank, Glendale, and Los Angeles from the Devil's Gate Dam, Hansen Dam, and Eagle Rock Dam. The reasonably foreseeable future projects, including the adjacent HSR project sections, would increase the number of people exposed to this flood risk. Portions of the HSR Build Alternative and the adjacent Palmdale to Burbank Project Section are within the flood inundation zones of Hansen Dam and Eagle Rock Dam. However, due to the distance to the dams, the risk of exposure to flooding of the HSR Build Alternative as a result of dam failure is no greater than existing conditions and would not directly or indirectly cause potential risk of loss of life, injury, or destruction beyond what people are exposed to currently in the RSA. The HSR Build Alternative would therefore not contribute to the cumulative increased exposure of people and facilities to seismically induced flood risk.

**Paleontological Resources**

Operational activities associated with the HSR Build Alternative would not involve ground disturbance in undisturbed, native geologic units. Therefore, operation of the HSR Build Alternative would not affect paleontological resources. Similarly, operation of the adjacent HSR project sections or other cumulative projects would not require ground disturbance that would affect paleontological resources. Therefore, there would not be a cumulative impact on paleontological resources to which the HSR Build Alternative would contribute.

### *CEQA Conclusion*

Construction of the HSR Build Alternative and other cumulative projects, including the adjacent HSR project sections, could reduce available aggregate and mineral resources. However, with implementation of standard design and construction protocols regarding the procurement of mineral resources required for construction (such as sand and gravel), it is anticipated that sufficient aggregate and construction materials would be available for construction of the HSR Build Alternative, and there would be no permanent loss of a locally important mineral resource recovery site as a result of the HSR Build Alternative. Further, implementation of GEO-IAMF#1 through GEO-IAMF#5 would minimize impacts on geological resources. There would not be a significant cumulative impact under CEQA related to aggregate and mineral resources during project construction to which the HSR Build Alternative would contribute. Therefore, CEQA does not require mitigation.

The HSR Build Alternative would not directly or indirectly cause potential risk of loss of life, injuries, or destruction as a result of seismically-induced slope failure associated with cut and fill during construction beyond what people currently experience in the resource hazards RSA. Implementation of GEO-IAMF#10 would minimize the effects should a cut and fill slope fail during a seismic event. This IAMF would involve preparation of a technical memorandum documenting how specific guidelines have been incorporated into the HSR Build Alternative design and construction. There would not be a significant cumulative impact under CEQA related to seismic hazards during project construction to which the HSR Build Alternative would contribute; therefore, the impact under CEQA would not be significant and no mitigation is required.

There is potential for a significant cumulative impact under CEQA related to the construction of multiple projects in geologic units considered sensitive for paleontological resources. Compliance with regulatory standards and implementation of IAMFs and BMPs associated with the HSR Build Alternative would minimize impacts on paleontological resources. Further, implementation of GEO-IAMF#11 through GEO-IAMF#15 would minimize impacts on paleontological resources. Paleontological resources discovered during construction would be avoided or collected and curated in compliance with regulatory requirements. With these measures in place, construction of the HSR Build Alternative would not result in the destruction of unique paleontological resources or sites. Therefore, there would not be a cumulatively considerable contribution to this cumulative impact from the HSR Build Alternative. Therefore, CEQA does not require mitigation.

Operation of the HSR Build Alternative and cumulative projects, including the adjacent HSR project sections, could result in geology, soils, and seismicity impacts during project operation. Impacts associated with geology, soils, and seismicity would be reduced through implementation of design standards and building code requirements. Further, implementation of GEO-IAMF#6 through GEO-IAMF#10 would minimize impacts related to geology, soils, and seismicity. Therefore, there would not be a significant cumulative impact under CEQA related to geology, soils, and seismicity to which the HSR Build Alternative would contribute. Therefore, CEQA does not require mitigation.

No operations impacts on paleontological resources would occur because impacts on paleontological resources only have the potential to occur during the construction phase of the cumulative projects, including the adjacent HSR project sections. Therefore, there would not be a significant cumulative impact under CEQA related to paleontological resources during project operation to which the HSR Build Alternative would contribute, and CEQA does not require mitigation.

## *3.19.8.10 Hazardous Materials and Wastes*

### Resource Study Area

The cumulative RSA for evaluating impacts from hazardous materials and wastes is the project footprint plus a 0.25-mile radius around the HSR Build Alternative alignment and stations. The geographic area of the cumulative RSA accounts for potential releases of hazardous materials within 0.25 mile of schools. Other effects associated with hazardous materials are localized and would not contribute to cumulative impacts.

### Cumulative Condition

Together, the HSR Build Alternative and the other reasonably foreseeable future projects, including the adjacent HSR project sections, that are identified in Appendix 3.19-A constitute the cumulative condition relevant to hazardous materials and wastes. Under the cumulative condition, construction activities would result in a temporary increase in transportation, storage, use, and disposal of hazardous materials mainly consisting of construction fuels, oils, mechanical fluids, and other transportation-related chemicals. Because the RSA is urban and built out, operation of the cumulative projects would result in the use and transport of hazardous materials and wastes typically found in an urban environment. Most of the cumulative projects are residential, commercial, transportation, bridge maintenance, or utility improvements where hazardous materials use would not be frequent or in large quantities compared to the existing industrial uses already present in the RSA.

### Contribution of the High-Speed Rail Build Alternative

#### *Construction*

Cumulative development in the RSA would result in an incremental increase in the temporary transportation, storage, use, and disposal of hazardous materials mainly consisting of construction fuels, oils, mechanical fluids, and other transportation-related chemicals. This incremental increase could result in accidental spills and the need for waste disposal. Construction of the HSR Build Alternative and other cumulative projects would comply with existing regulations governing the handling, use, and disposal of hazardous waste.

While hazardous materials handling may increase during construction and may in some cases be within 0.25 mile of an existing or proposed school, compliance with federal, state, and local regulations related to the transport, handling, and disposal of hazardous waste would reduce the potential for the HSR Build Alternative to result in an impact that could combine with similar impacts of other cumulative projects. Therefore, the HSR Build Alternative would not contribute to cumulative impacts related to hazardous materials.

#### *Operation*

Most of the cumulative projects are residential, commercial, transportation, bridge maintenance, or utility improvements where hazardous materials use would not be frequent or in large quantities compared to the existing industrial uses in the RSA. Routine maintenance activities along the HSR Build Alternative and at HSR stations would periodically involve the use of small amounts of hazardous materials (e.g., solvents, paints, vehicle fuels, and pesticides) that are not expected to be acutely hazardous. Substantial amounts of hazardous materials would not be routinely transported, used, or disposed. In addition, operational use of hazardous materials would be similar to that already occurring along the existing railroad corridor. The HSR Build Alternative would operate on electric power. As a result, long-term risks associated with intermittent handling and use of hazardous materials near a school during HSR Build Alternative operation would be negligible. Furthermore, the use and disposal of hazardous materials would comply with existing regulations (e.g., the Resource Conservation and Recovery Act). Because use of hazardous materials during operation of the HSR Build Alternative would be similar to existing conditions and because hazardous materials would be handled according to existing regulations, the HSR Build Alternative would not result in cumulatively considerable impacts related to use of hazardous materials. Therefore, the HSR Build Alternative would not contribute to cumulative impacts related to hazardous materials.

#### *CEQA Conclusion*

The HSR Build Alternative, in combination with the other cumulative projects, could contribute incrementally to the transport, storage, use, and disposal of hazardous materials and wastes within the RSA. However, these incremental contributions would be controlled by existing regulations (e.g., the Resource Conservation and Recovery Act). Compliance with regulatory requirements would reduce the risk of releases and exposure to hazards related to the HSR Build Alternative and would also reduce potential impacts from the other cumulative projects. Further, implementation of HMW-

IAMF#1 through HMW-IAMF#10 would minimize impacts related to hazardous materials and wastes. There would not be a significant cumulative impact under CEQA related to hazardous materials and wastes to which the HSR Build Alternative would contribute. Therefore, CEQA does not require mitigation.

### *3.19.8.11 Safety and Security*

#### Resource Study Area

The cumulative RSA for evaluating impacts associated with safety and security consists of the cities of Los Angeles, Burbank, and Glendale. The geographic area of this RSA allows for a review of other projects under the cumulative condition that would affect emergency response and evacuation routes because of impacts on roadway connectivity to emergency service providers.

#### Cumulative Condition

Under the cumulative condition, ongoing growth trends within the cumulative RSA would continue, resulting in increased demand for emergency response, law enforcement, and fire protection services. Projected growth through 2040, combined with the HSR Build Alternative and the other reasonably foreseeable cumulative projects identified in Appendix 3.19-A, including the adjacent HSR project sections, constitute the cumulative condition relevant to safety and security. Cumulative impacts on safety and security would occur if the impacts of the projected growth and planned development, along with existing development, were to combine and result in an inability of the service providers (e.g., police and fire) to respond to emergencies or if, in the cumulative condition, projects would impair emergency access to, implementation of, or physically interfere with an adopted emergency response plan or emergency evacuation plan.

The cumulative projects identified in Appendix 3.19-A, including the adjacent HSR project sections, would increase the demand for fire protection, law enforcement, and other emergency response services in the RSA. Each of the specific projects included in the cumulative condition would be required to follow strict Occupational Safety and Health Administration and other safety practices. Each cumulative project would also be required to implement standard construction and safety plans, construction transportation plans, and traffic control plans, as necessary, to reduce the need for emergency services and reduce impacts on emergency response times. Environmental review of specific projects would be required to ensure that impacts associated with safety and security issues are identified and mitigated. Therefore, impacts associated with the demand for public services are project-specific and not cumulative in nature, and there would not be a cumulative impact associated with safety or security in the cumulative condition.

#### Contribution of the High-Speed Rail Build Alternative

##### *Construction*

The construction of the HSR Build Alternative, adjacent HSR project sections, and other planned development and transportation projects would require several thousand construction workers per year. The localized temporary increase in population due to the influx of construction workers could temporarily increase the demand for fire protection, law enforcement, and other emergency response services in the RSA. In addition, road closures and detours could result in increased response times for emergency responders.

Construction of the HSR Build Alternative, adjacent HSR project sections, and other planned developed and transportation projects would involve earthwork, which could disrupt soils and expose workers to airborne transmission of the fungus that causes Valley Fever.

Criminal activity around the HSR Build Alternative construction sites would be typical of the types of crimes that occur at other heavy construction sites, such as theft of equipment and materials, or vandalism after work hours. Construction contractors would institute security measures common to construction sites, including securing equipment and materials in fenced and locked storage areas, as well as the use of security personnel after working hours. Security lighting would be required to be focused on the site to deter theft and vandalism.

Similar to the HSR Build Alternative, the cumulative projects identified in Appendix 3.19-A, including adjacent HSR project sections, would be required to follow Occupational Safety and Health Administration and other safety practices, including fugitive dust control plans and Valley Fever action plans. They would also be required to implement standard construction and safety plans, construction transportation plans, and traffic control plans, as necessary, to reduce the need for emergency services and reduce impacts on emergency response times. The other cumulative projects would also be required to provide lighting, fencing, and implement security measures to deter theft or vandalism. Because most of the development would occur over time, local agencies would have time to plan for increased demand during construction activities to reduce cumulative impacts. Additionally, security impacts would be limited to each individual project site. Therefore, there would not be a cumulative impact on safety and security to which the HSR Build Alternative would contribute.

***Operation***

The population growth expected by 2040 would result in a cumulative increase in demand for fire protection, law enforcement, and other emergency response services. The operation of the HSR Build Alternative and adjacent HSR sections, along with a large number of proposed residential projects and mixed-use residential and commercial development—such as the Burbank Town Center Project (D5), the First Street Village Mixed-Use Project (D7), The Premier on First [D8], the Elysian Park Lofts (D20), and College Station (D22) —would contribute to increased demand for emergency services. The long-term demand would be difficult to accommodate without increased funding for fire protection and law enforcement agencies. However, new or expanded development would be designed and constructed to be consistent with local land use plans and would comply with agency approval conditions, including fair-share development fees to pay for additional emergency services required to maintain service standards (as required in S&S-MM#1).

Road closures and modified traffic routing along the HSR tracks could result in increased response times for emergency responders. SS-IAMF#2 would require coordinating with emergency responders to incorporate roadway modifications that maintain existing traffic patterns and fulfill response route needs during HSR operation. In addition, the HSR Build Alternative and the adjacent HSR project sections would reduce the volume of traffic on state highways compared to the future conditions without HSR, because some long-distance travelers would use the HSR system instead of driving. Additionally, construction of the grade separations would prevent train and automobile/bicycle/pedestrian conflicts that currently have the potential to occur at the existing at-grade crossings. The Burbank to Los Angeles Project Section and adjacent HSR project sections would include standard design features and operating and emergency response plans. The Authority would coordinate with city and county law enforcement agencies and fire departments through the Fire and Life Safety Program for emergency response in case of an accident or other emergency. In addition, the Authority would monitor the response of local fire, rescue, and emergency service providers to incidents at stations. It would also provide a fair-share cost of additional emergency response services, as required.

Other planned transportation projects in the RSA, including the adjacent HSR project sections, would expand existing public transportation options, build new bicycle and pedestrian paths, improve existing highways and roadways (including I-5 and State Route 134), and link existing facilities to other transportation services (e.g., the Burbank-Glendale-Pasadena Airport Intermodal Ground Access Link). The highway projects that would occur under the cumulative condition would improve traffic flow, encourage ridesharing, and decrease surface-street traffic. These improvements would reduce congestion and therefore would cumulatively benefit access for fire protection, law enforcement, and other emergency service vehicles, positively affecting response times.

Increased travel safety would be a cumulative benefit of the HSR Build Alternative, adjacent HSR project sections, and other transportation improvement projects identified in Appendix 3.19-A because they would improve overall safety for regional travel. In addition, the HSR system and other transportation projects would help improve emergency response times by reducing the volume of traffic on highways and surface streets because some long-distance travelers would use the HSR system instead of driving. Additionally, the HSR Build Alternative and adjacent HSR

project sections would implement positive train control, which would help to avoid collisions with other trains that could otherwise lead to derailment. The HSR Build Alternative and adjacent HSR project sections would also include grade separations to help prevent train and automobile/ bicycle/pedestrian conflict.

Security risks such as the potential for crime, violence, and acts of terrorism for rail facilities and system operations could increase because of the cumulative projects, including the adjacent HSR sections, and as a result of other planned urban and transportation development that would increase population within the RSA. However, SS-IAMF#3 would require increased security procedures and HSR improvements to deter crime and terrorism, including vulnerability assessments, intrusion detection, security lighting, and security and training procedures. Furthermore, the goals and policies contained in the general plans for the cities of Los Angeles, Burbank, and Glendale contain elements for the efficient expansion or upgrading of law enforcement, fire protection, and emergency medical services to accommodate future growth in the RSA (City of Los Angeles 2001; City of Burbank 1997; City of Glendale 1996). With these measures in place, the HSR Build Alternative would not result in increased crime, violence, and acts of terrorism. Therefore, there would not be a cumulative impact on safety and security to which the HSR Build Alternative would contribute.

***CEQA Conclusion***

Construction of the HSR Build Alternative, adjacent HSR project sections, and other planned projects in the cumulative RSA would increase demand for emergency response services, increase response times, and expose workers and residents to airborne transmission of the fungus that causes Valley Fever. To prevent Valley Fever during construction, each cumulative project would incorporate measures to control fugitive dust emissions and therefore would not combine to result in a significant cumulative impact associated with the spread of Valley Fever.

New or expanded development would be designed and constructed to be consistent with local land use plans and would comply with agency approval conditions, including fair-share development fees to pay for additional emergency services required to maintain service standards; therefore, these increases would not combine to result in a significant cumulative impact on emergency services. The HSR Build Alternative and other cumulative projects, including adjacent HSR project sections, would be required to implement standard construction and safety plans, construction transportation plans, and traffic control plans, as necessary, to reduce the need for emergency services and reduce impacts on emergency response times. Further, implementation of SS-IAMF#1, SS-IAMF#2, and SS-IAMF#4 would minimize impacts related to safety and security during construction of the HSR Build Alternative. The HSR Build Alternative, adjacent HSR project sections, and other cumulative projects would provide lighting and fencing and would implement security measures to deter theft or vandalism to reduce security impacts during construction.

Increased travel safety would be a cumulative benefit of the HSR Build Alternative and other cumulative transportation improvement projects, including the adjacent HSR project sections. The HSR Build Alternative and adjacent HSR project sections include features such as positive train control and grade separations to reduce the potential for rail accidents and to reduce transportation and traffic hazards. Further, implementation of SS-IAMF#3 would require a hazard management program and would minimize impacts related to hazards resulting from the HSR Build Alternative. The HSR Build Alternative and adjacent HSR sections would also include increased security procedures and improvements to deter crime and terrorism, including vulnerability assessments, intrusion detection, security lighting, and security and training procedures to reduce security impacts during operation. There would not be a significant cumulative impact under CEQA related to safety and security to which the HSR Build Alternative would contribute. Therefore, CEQA does not require mitigation.

### *3.19.8.12 Socioeconomics and Communities*

#### Resource Study Area

There are two cumulative RSA boundaries relevant to socioeconomics and communities. The cumulative RSA for evaluating communities, neighborhoods, displacements, and relocations consists of the southern portion of Los Angeles County, including the cities of Burbank and Glendale and, within the city of Los Angeles, the neighborhood council areas of Sun Valley, Los Feliz, Atwater Village, Glassell Park, Arroyo Seco, Silver Lake, Elysian Valley Riverside, Greater Echo Park Elysian, Greater Cypress Park, Historic Cultural, Lincoln Heights, Downtown Los Angeles, and Boyle Heights. The geographic area of this RSA captures potential cumulative impacts on communities along the alignment because it includes all of the cities and communities that would be directly affected by the HSR Build Alternative. The cumulative RSA for evaluating economic effects is Los Angeles County.

#### Cumulative Condition

As listed in Appendix 3.19-A, development and transportation projects are planned throughout the RSA in the reasonably foreseeable future, including the adjacent HSR project sections. As described in Section 3.19.8.3, Noise and Vibration, construction of these projects, together with the HSR Build Alternative, could exceed the thresholds for noise or vibration at sensitive receivers. As described in Section 3.19.8.1, Transportation, construction of the HSR Build Alternative and other cumulative projects, including the adjacent HSR project sections, would cause delays and changes in community circulation patterns from detours and delays. In addition, utility interruptions, temporary use of properties, changes in access, temporary loss of on-street parking, and parking intrusion would disrupt community cohesion in the RSA during construction of the HSR Build Alternative and the cumulative projects. In addition, there is a potential for other cumulative projects, particularly larger transportation projects (including the adjacent HSR project sections), to require residential and business displacements. The adjacent HSR project sections could result in residential and/or business displacements within Neighborhood Council Areas (NCA) that overlap the Burbank to Los Angeles Project Section: Sun Valley NCA (Palmdale to Burbank Project Section) and the Historic Cultural NCA and Downtown Los Angeles NCA (Los Angeles to Anaheim Project Section).

#### Contribution of the High-Speed Rail Build Alternative

##### *Construction*

**Communities and Neighborhoods**

Construction of the HSR Build Alternative would result in temporary impacts on communities, such as parking loss, increased noise, increased traffic, increased response times for emergency responders, disruption of access, pedestrian and cyclist safety hazards, changes in visual quality or aesthetics, disruption of established patterns of interaction among community members, and alteration of community character and function of communities and neighborhoods. These temporary impacts would occur primarily adjacent to an existing railroad corridor; they would not bisect or isolate established communities. However, the temporary impacts on communities from construction of the HSR Build Alternative would represent a short-term disruption to the surrounding communities and would temporarily degrade community cohesion and character.

Implementation of NV-IAMF#1, AQ-IAMF#1, AQ-IAMF#2, TR-IAMF#2 through TR-IAMF#7, TR-IAMF#11, TR-IAMF#12, and SS-IAMF#1 would reduce the HSR Build Alternative's temporary construction impacts on communities from increases in noise and dust, changes in visual quality, traffic congestion, and changes to access, impacts on parking, and impacts on emergency response times. Mitigation measures N&V-MM#1, AVQ-MM#1, and AVQ-MM#2 would be implemented to address impacts from temporary increases in noise and temporary changes in visual quality. The adjacent HSR project sections would require similar IAMFs and mitigation measures because they are standard features and measures for the HSR system. Because all projects requiring discretionary action under the cumulative condition would be subject to environmental review, many of the other foreseeable cumulative projects would also include measures to reduce these impacts. However, temporary cumulative impacts on communities

could still occur, because some level of disruption to communities would be expected due to the potential for the construction schedules of the HSR Build Alternative, the adjacent HSR project sections, and other cumulative projects to overlap.

Mitigation measure CUM-N&V-MM#1 would reduce the potential cumulative noise impacts of overlapping construction activities in the same area by requiring consultation and coordination with agencies regarding the timing of construction activities. The adjacent HSR project sections would also implement CUM-N&V-MM#1. Cumulative mitigation measure CUM-S&C-MM#1 would require coordination with the project sponsors or other entities responsible for construction of the other cumulative projects, including local or regional governments, regarding construction schedules and potential closures, detours, and other elements of construction. CUM-TRAN-MM#1 would reduce the potential cumulative traffic impacts on the same intersections and roadways from detours and closures by requiring consultation and coordination with agencies regarding the timing of construction activities, closures, and detours. However, even with implementation of these mitigation measures, cumulative impacts on communities could still occur during construction of the HSR Build Alternative and adjacent HSR project sections because there is no guarantee that construction of the cumulative projects could be conducted in a manner that would sufficiently reduce community disruption during construction. Due to the length of the construction period and the number of detours and closures required to construct the HSR Build Alternative, under NEPA the HSR Build Alternative would result in a cumulatively considerable contribution to impacts on community cohesion and character during construction.

The HSR Build Alternative, including the adjacent HSR project sections, would have a beneficial effect on communities during construction as result of short-term employment opportunities. Construction of the HSR Build Alternative, including the adjacent HSR project sections, would stimulate short-term employment and create a large number of temporary jobs. Given the size of the local unemployed civilian labor force, it is anticipated that the existing workforce, including jobs indirectly created by the HSR Build Alternative and the adjacent HSR project sections (e.g., healthcare and food service), would absorb these temporary jobs. Because the local workforce is large enough to adequately absorb the jobs, the HSR Build Alternative, including the adjacent HSR project sections, would not necessitate the construction of additional housing or community facilities to serve the construction workforce. Therefore, there would be no impacts related to temporary population increases from short-term employment and the need for increased housing and services. The existing unemployed workforce is also large enough to fill the temporary demand for workers in the cumulative condition. The cumulative impact of job creation from construction of the HSR Build Alternative and other existing and reasonably foreseeable future projects, including the adjacent HSR project sections, would not negatively affect communities and the region.

Property acquisitions and relocation of residences, community facilities, or businesses/services that are important to a community can permanently disrupt a community and affect community character and cohesion. Construction of the HSR Build Alternative would result in 12 residential displacements and relocations of swaths of businesses, which would occur in the city of Burbank and the city of Los Angeles NCAs of Lincoln Heights and Sun Valley (overlapping with the Palmdale to Burbank Project Section), altering the physical shape of these communities. These changes would occur in an industrial area of the Lincoln Heights NCA, close to and adjacent to residences. Most of the affected businesses are light industrial (e.g., trucking yard, towing, rock and gravel), but there are also two retail businesses (i.e., auto parts and restaurant equipment). These businesses serve specific industries, provide services regionally, and do not serve as community gathering places.

Several neighborhoods within the city of Los Angeles show high community cohesion based on demographic indicators, including Lincoln Heights. Because Lincoln Heights possesses a high degree of community cohesion, it is reasonable to conclude that the right-of-way displacements in this neighborhood as a result of the HSR Build Alternative would have disruptive effects on the community and would degrade community character and cohesion within the Lincoln Heights neighborhood. The removal of these businesses and this residence would change the nature and

character of this community by removing swaths of businesses that may be used as community gathering spaces and that are directly adjacent to established neighborhoods.

Construction of the HSR Build Alternative would also result in property acquisitions and residential and business displacements in the cities of Burbank and Glendale, and other neighborhoods in the city of Los Angeles.

Most business displacements in the city of Burbank would occur on the periphery of the Burbank community, along frontage roads or adjacent to existing railroad right-of-way. Many of the businesses that would be displaced are commercial in nature and do not appear to be open to the public, do not serve as a community gathering area, and do not contain "anchor businesses" that support the local community and draw in consumers. In Los Angeles, commercial displacements within the Atwater Village NCA and Historic Cultural NCA (which overlaps with the Los Angeles to Anaheim Project Section) would generally be scattered, would occur adjacent to the existing rail corridor and on the peripheries of established neighborhoods and communities, and would not occur in areas where community gatherings would take place. Therefore, acquisitions and displacements would not change the existing community character and cohesion in the cities of Burbank and Glendale, or in other neighborhoods in the city of Los Angeles. The HSR Build Alternative and adjacent HSR project sections would be built primarily within the existing railroad right-of-way, adjacent to residential, commercial, and industrial communities, and they would not permanently create a new physical barrier in, divide, or isolate established communities. In addition, potential impacts on community cohesion and character from business displacements and relocations for the HSR Build Alternative and the adjacent HSR project sections would be addressed through the implementation of SOCIO-IAMF#2 and SOCIO-IAMF#3. These IAMFs would provide relocation assistance to all residents and businesses displaced by the HSR Build Alternative and the adjacent HSR project sections in compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and establish an appraisal, acquisition, and relocation process in consultation with affected cities, counties, and property owners. With implementation of these two IAMFs, displacements and relocations resulting from the construction of the HSR Build Alternative combined with other cumulative projects, including the adjacent HSR project sections, would not result in cumulative impacts on community character and cohesion under NEPA.

In summary, construction of the HSR Build Alternative combined with other existing and reasonably foreseeable future projects, including the adjacent HSR project sections, would result in temporary cumulative impacts on community character and cohesion because there is no guarantee that construction of the cumulative projects could be conducted in a manner that would sufficiently reduce these impacts. Because of the extent of construction activities required to build the HSR system, under NEPA the HSR Build Alternative's contribution to cumulative impacts on community character and cohesion would be considerable. However, construction of the HSR Build Alternative would not permanently create a new physical barrier in, divide, or isolate established communities.

**Displacements and Relocations**

Construction of the HSR Build Alternative would require the acquisition of property for right-of-way and facilities. These acquisitions would displace 5 residential units and estimated 84 commercial, industrial, and retail businesses (1,747 estimated displaced employees) in Los Angeles County. The cumulative RSA includes the adjacent HSR project sections, which also would displace residences and businesses. There are enough suitable replacement locations available for the residences and businesses within the replacement area, which includes neighborhoods in the affected cities of Burbank, Glendale, and Los Angeles. The areas studied and considered for replacement sites are within a 5-mile radius of the areas where displacements would occur. The 5-mile radius was chosen to accommodate all displacees within or near their neighborhoods. In addition, there is a sufficient number of suitable replacement locations available for the industrial, commercial, and retail sectors in the cities of Burbank, Glendale, and Los Angeles. There are two automotive repair businesses or related services proposed to be displaced in the city of Burbank, two automotive repair businesses proposed to be displaced in the city of Glendale, and three automotive repair businesses or related services proposed to be displaced in the city of Los Angeles. Relocating automotive businesses could require modification

of equipment or reconfiguration of other properties to meet specifications. The Los Angeles to Anaheim Project Section would require only one displacement within the city of Los Angeles (an industrial building), for which there are suitable replacement properties available. The Palmdale to Burbank Project Section would displace seven businesses within the city of Burbank, for which suitable replacement properties are also available.

SOCIO-IAMF#2 would provide relocation assistance to all residents displaced by the HSR Build Alternative in compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, and SOCIO-IAMF#3 would provide relocation assistance to all residents displaced by the HSR Build Alternative in compliance with the Uniform Act and would establish an appraisal, acquisition, and relocation process in consultation with affected cities, counties, and property owners as outlined in a relocation mitigation plan. These IAMFs would minimize the potential for construction of the HSR Build Alternative to relocate businesses outside their existing communities and would also apply to the adjacent HSR project sections. As such, the HSR Build Alternative would relocate an estimated 84 businesses in Burbank, Glendale, and Los Angeles. However, sufficient replacement locations are available, and the HSR Build Alternative would not contribute to cumulative impacts related to displacements and relocations.

**Economic Effects**

Construction of the HSR Build Alternative would have beneficial economic effects within the region relating to short-term project spending during construction and long-term employment and sales tax gains. Construction of the HSR Build Alternative would generate temporary sales tax revenues for Los Angeles County. The expected annual gain in sales tax revenue during construction of the HSR Build Alternative is greater than the expected loss of sales tax from business relocations. Therefore, the overall net impact on sales tax revenue would be beneficial for Los Angeles County during construction of the HSR Build Alternative. Acquisitions from the construction of the HSR Build Alternative would result in property and sales tax losses. Local school districts would experience revenue losses from property tax losses and student displacement. The cities of Burbank, Glendale, and Los Angeles and Los Angeles County would experience revenue losses from reduced property and sales taxes. However, the estimated revenue losses represent a very small percentage (less than 0.01 percent or less in property tax revenue loss and less than 0.01percent or less in sales tax revenue loss [Authority 2019a]) of the overall revenues in each affected jurisdiction and school district. In addition, the HSR Build Alternative would not result in considerable residential migration or extensive changes to the business environment from business closures. Furthermore, these sales tax revenue losses could be temporary because they would occur during the time when affected businesses are closed for construction of the HSR Build Alternative or while displaced businesses relocate to a new location. In many cases, relocations would generate tax revenues within the same taxing jurisdiction, so the losses estimated above may be temporary. Any permanent job losses are expected to be offset by the new direct, indirect, and induced job creation resulting from operation of the HSR Build Alternative. Because the Los Angeles to Anaheim Project Section would require only one relocation of an industrial building, the economic impact would be minimal. The Palmdale to Burbank Project Section would displace seven businesses within the city of Burbank. However, it is anticipated that replacement properties within the same taxing jurisdiction would be available based on the number of properties currently available. Overall, the HSR Build Alternative, in combination with planned projects in the cumulative RSA, would result in job creation and beneficial economic activity in the region.

### *Operation*

**Communities and Neighborhoods**

Operation of the HSR Build Alternative combined with other reasonably foreseeable future projects, including the adjacent HSR project sections, would have permanent impacts on communities and neighborhoods in the immediate vicinity of the HSR Build Alternative, primarily as a result of visual changes and increased noise levels.

Operation of the HSR Build Alternative could result in permanent impacts on communities from visual changes and increased noise levels. Because the HSR Build Alternative would operate

intermittently and within an existing railroad corridor, there would not be a long-term impact on community character and cohesion. Visual changes would primarily occur at the Sonora Avenue and Grandview Avenue grade separations and the Chevy Chase Drive closure/Goodwin Avenue undercrossing, which would introduce prominent visual elements that conflict with the existing environment. AVQ-IAMF#1, AVQ-IAMF#2, AVQ-MM#3, and AVQ-MM#4, as described in Section 3.19.8.14, would be implemented to address permanent visual changes from operation of the HSR Build Alternative. After implementation of these IAMFs and mitigation measures, permanent visual changes from operation of the HSR Build Alternative would not affect community character and cohesion. Therefore, operation of the HSR Build Alternative would not result in or contribute to cumulative impacts on community character and cohesion. Overall, cumulative effects from operation of the HSR Build Alternative and other reasonably foreseeable future projects, including the adjacent HSR project sections, would not divide or isolate established communities, degrade existing community cohesion and character, or substantially affect existing communities and neighborhoods in the vicinity of the HSR Build Alternative.

Operation and maintenance of the HSR Build Alternative would generate long-term employment opportunities in the following two ways: (1) direct creation of jobs required to support the operation and maintenance of the HSR Build Alternative and indirect creation of jobs required to support the workforce, and (2) indirect creation of jobs from improved accessibility to areas and businesses surrounding the HSR stations. Given the size of the local unemployed civilian labor force (212,600) in Los Angeles County (California Employment Development Department 2017), it is anticipated that these direct and indirect jobs would be absorbed by local workers. Because the jobs would be adequately absorbed by the local workforce, the HSR Build Alternative would not necessitate construction of additional housing or community facilities to serve the station workers. Therefore, job creation from the operation of the HSR Build Alternative would not have impacts related to permanent population increases or the need for increased housing and services. The adjacent HSR project sections would also generate the same type of long-term employment and would not necessitate the construction of additional housing or community facilities to serve the station workers. Therefore, operation of the HSR Build Alternative would not contribute to cumulative impacts related to temporary population increases or the need for increased housing and services.

**Displacements and Relocations**

Although they are permanent, property acquisitions and resulting residential and business displacements and relocations would occur only during the construction phase of the HSR Build Alternative. Therefore, operation of the HSR Build Alternative would not result in or contribute to cumulative impacts associated with displacements and relocations.

**Economic Effects**

Operation and maintenance of the HSR Build Alternative and adjacent HSR project sections would have a net benefit within the region related to long-term employment and sales tax gains ($1,167,900 for Los Angeles County assuming a 9-year construction period of 2020 to 2028). Operation of the HSR Build Alternative would not result in or contribute to cumulative impacts associated with long-term employment and sales tax gains.

### *CEQA Conclusion*

Within the context of CEQA, the analysis of construction impacts focuses on the potential for the HSR Build Alternative to result in the division of communities. Construction of the HSR Build Alternative in combination with planned projects in the cumulative RSA, including adjacent HSR project sections, could result in temporary and permanent impacts associated with the division of communities and displacements and relocations of residences and businesses. However, with the implementation of SOCIO-IAMF#2, which would provide relocation assistance to all residents displaced by the HSR Build Alternative, and SOCIO-IAMF#3, which would establish an appraisal, acquisition, and relocation process in consultation with affected cities, counties, and property owners, impacts on communities would not divide existing communities.

The HSR Build Alternative would result in a temporary new physical barrier from tunnel construction south of the Burbank Airport Station and temporarily increased noise and vibration

impacts. The HSR Build Alternative would also result in temporary parking and circulation impacts from construction and alteration of the function of communities and neighborhoods. However, the time-limited nature of these temporary construction impacts and the project mitigation measures would reduce the degree to which temporary circulation and the temporary introduction of a physical barrier south of Burbank Airport Station would divide existing communities. Therefore, there would not be a significant cumulative impact under CEQA related to socioeconomics and communities during construction of the HSR Build Alternative to which the HSR Build Alternative would contribute

Operation of the HSR Build Alternative in combination with adjacent HSR project sections and other planned projects in the cumulative RSA would result in permanent job creation that could be adequately absorbed by the local workforce. Displacements and relocations would occur only during construction of the HSR Build Alternative. There would not be a significant cumulative impact under CEQA related to socioeconomics and communities during operation of the HSR Build Alternative to which the HSR Build Alternative would contribute. Therefore, CEQA does not require mitigation.

### *3.19.8.13 Station Planning, Land Use, and Development*

**Resource Study Area**

The cumulative RSA for evaluating impacts associated with station planning, land use, and development consists of the cities of Los Angeles, Burbank, and Glendale, which are, in general, dense, urban areas in Los Angeles County. The geographic boundaries of this RSA are based on the planning areas for the municipalities in which the stations are located, as well as the fact that land use is regulated by incorporated cities or other planning agencies and boundaries. Since the Burbank Airport Station would be shared by the adjacent Palmdale to Burbank Project Section and Los Angeles Union Station would be shared by the Los Angeles to Anaheim Project Section, cumulative impacts regarding station planning, land use, and development are addressed in this discussion.

**Cumulative Condition**

Under the cumulative condition, ongoing growth trends within the cumulative RSA would continue, which would result in temporary and permanent changes in land use patterns, including the conversion of land to transportation use, and there would be disruptions or conflicts to planned land use patterns, such as from noise and EMI/EMF.

Substantial growth is projected in the RSA and the cities and communities along the Burbank to Los Angeles Project Section. Under the cumulative condition, several projects are planned to accommodate that growth. Many of the cumulative projects could result in changes to land uses. Generally, development would occur in the framework of existing general or specific plans of the municipality in which it occurs. Planning documents relevant to the cities of Burbank, Glendale, and Los Angeles (including the land use elements of general plans, community plans, and other planning documents) generally encourage infill and higher-density development in urban areas and concentrations of urban land uses near transit corridors to provide more modal choices for residents and workers. These policies are being implemented in the region regardless of whether the HSR Build Alternative is built.

Under the cumulative condition, temporary construction-related project impacts could occur on various land uses if they become part of a temporary construction easement, such as a staging area. These types of impacts, which could include noise, air quality (dust), and increased traffic, would be limited to the construction activities and would therefore be short-term. Generally, affected parcels would be returned to previous/existing land use functions in the same or better condition as before their use. Several of the cumulative projects, including the adjacent HSR project sections, would also convert existing nontransportation land uses to transportation use, alter land use patterns, or change the intensity of land uses, creating potential conflicts with other adjacent land uses. This is especially true in the cities of Burbank and Los Angeles, which share a portion of the adjacent HSR project sections. Overall, under the cumulative condition, construction of the HSR Build Alternative and the cumulative projects, which include the adjacent

HSR project sections, could result in incrementally significant land use impacts in the RSA from the temporary use of land during construction, permanent conversion of existing and planned land uses to transportation use, alteration of land use patterns, and conflicts with existing and planned land uses.

Under the cumulative condition, major cumulative projects consist of transportation/transit (including the adjacent HSR project sections), industrial, commercial, and residential development. Because of the existing urban environment, operation of these cumulative projects would not conflict with the existing land uses. Operational uses, and noise and vibration generated from those uses, would be similar to uses in the existing condition. Noise levels would continue to be typical for the urban setting and would be dominated by vehicular traffic and railroad operations. In addition, each cumulative project would undergo environmental review and include measures to reduce potential noise impacts on adjacent sensitive land uses. The adjacent HSR project sections would include the same IAMFs and mitigation measures as the HSR Build Alternative to reduce these impacts. However, even with mitigation, there is a potential for the HSR Build Alternative and other cumulative projects to result in incrementally significant cumulative noise impacts on adjacent land uses. Similar to the HSR Build Alternative, the other cumulative transit projects would be required to mitigate for EMF impacts so that they would not interfere with existing radio or electronic systems at the area airports or those used by the local police departments, fire departments, and emergency medical technicians.

**Contribution of the High-Speed Rail Build Alternative**

***Construction***

Construction of the HSR Build Alternative and other planned projects, including the adjacent HSR project sections, would result in changes to land uses. Construction of the HSR Build Alternative, including the Burbank Airport Station and improvements to LAUS to accommodate the HSR system, as well as other cumulative projects (including the adjacent HSR project sections), would require the temporary use of land for construction activities, and would likely result in temporary impacts on adjacent land uses, such as increases in noise levels and dust on nearby residential uses and certain types of public facilities (e.g. schools and parks) within the RSA.

The land temporarily used for the HSR Build Alternative for construction staging, laydown, and fabrication would be unavailable for existing uses during the 28-month construction period. LU-IAMF#3 would ensure that construction and staging areas used temporarily during construction would be returned to a condition equal to the pre-construction staging condition. The HSR alignment's temporary impacts related to noise would be reduced through compliance with NV-IAMF#1, which would require documentation of how federal guidelines for minimizing noise and vibration would be employed near sensitive receptors. The temporary impacts related to air quality would be reduced through compliance with AQ-IAMF#1, which would require the preparation of a fugitive dust control plan identifying the minimum features that would be implemented during ground-disturbing activities, and AQ-IAMF#2, which would require the use of low-volatile-organic-compound paint during construction. TR-IAMF#2, which would require the preparation of a Construction Transportation Plan, would minimize access disruptions for residents, businesses, customers, delivery vehicles, and buses by limiting road closures to the hours that are least disruptive to access for the adjacent land uses and making detours available to affected motorists. It should be noted that a temporary construction easement typically does not encompass a full parcel and would only affect land use in one part of an existing parcel. Furthermore, the Authority would negotiate with property owners to lease the land required for the temporary construction easement.

Overall, the HSR Build Alternative, including the HSR station at LAUS, would temporarily convert slightly less than 4 percent of the existing land uses in the RSA and 4 percent of the planned land uses in the RSA. Although construction of the HSR Build Alternative would result in a short-term land use that is incompatible with adjacent residential land uses, schools, and parks, it would not cause adjacent land to temporarily change uses and would not temporarily alter land use patterns because none of the inconveniences resulting from the construction process would be severe enough to require the indirect displacement of residences, schools, parks, or other land uses.

Implementation of the IAMFs described above would minimize the potential for construction to alter existing land use patterns, and no mitigation would be required to address the potential for construction of the HSR alignment to temporarily alter land use patterns. Therefore, temporary impacts on existing and planned land uses from the construction of the HSR Build Alternative would not contribute to cumulative impacts on existing and planned land uses.

Construction of the HSR Build Alternative, including the Burbank Airport Station and the HSR station at LAUS, would permanently convert approximately 153 acres of existing and planned land uses to transportation use. There are no IAMFs that would avoid or minimize the permanent direct impacts from land use conversion related to the construction of the HSR Build Alternative, including the permanent alteration of land use patterns. No feasible mitigation measures are available to minimize or mitigate the direct conversion of existing and planned land uses or the impacts related to altering land uses. However, because the HSR Build Alternative (including the Burbank Airport Station and the HSR station at LAUS) would permanently convert approximately 4 percent of the existing and planned land uses in the RSA, the acreage that would be converted is minimal compared to the overall RSA. Therefore, the HSR Build Alternative's contribution to cumulative impacts on existing and planned land uses would not be considerable.

***Operation***

Substantial growth is projected in the RSA and the cities and communities in the project corridor. Under the cumulative condition, local land use plans and projects listed in Appendix 3.19-A would accommodate that growth. Many of the cumulative projects could result in changes to land uses. However, those changes would occur during the construction process.

Operation of the HSR Build Alternative, including the Burbank Airport Station and the HSR station at LAUS, when considered with the other planned projects, including the adjacent HSR project sections, would have the potential to conflict with land use patterns. Operation of the HSR Build Alternative would result in increased noise levels adjacent to residential and noise-sensitive commercial uses, as well as at nearby parks and schools, and other sensitive land uses. Although operation of the Burbank Airport Station and LAUS would also result in increased noise levels, there are no sensitive receivers within 250 feet of these stations; therefore, no noise impacts are anticipated from operation of the stations. There are no IAMFs that would avoid or minimize increased noise levels from operation of the HSR Build Alternative. Mitigation measures N&V-MM#3 and N&V MM#4, described in Section 3.4.7, would be implemented to address operational noise impacts. With implementation of these mitigation measures, increased noise levels would not result in permanent land use conflicts. Therefore, increased noise levels from operation of the HSR Build Alternative would not contribute to a cumulative impact related to land use conflicts.

Operation of the Burbank Airport Station and LAUS would increase parking demand by approximately 3,210 spaces and 2,010 spaces, respectively, near each station for the horizon year (2040). The parking supply at the Burbank Airport Station would be adequate to meet the projected daily parking demand, and parking impacts from operation of the Burbank Airport Station would not result in direct land use conflicts. At the HSR station at LAUS, there would be a total of 2,250 vehicle parking spaces in three areas near the station, where parking would be shared with other operators. HSR passengers would also use the existing pick-up/drop-off and transit plaza facilities at LAUS. The parking supply at LAUS would therefore be adequate to meet the projected daily parking demand, and parking impacts from operation of LAUS would not result in direct land use conflicts. Therefore, increased demand for parking from operation of the HSR Build Alternative would not contribute to a cumulative impact related to land use conflicts.

Operation of the HSR Build Alternative would also generate EMF that could interfere with magnetically sensitive equipment at one facility along the alignment and could cause radio frequency interference with radio systems at one police station. Operation of the Burbank Airport Station would generate EMF that could interfere with radio and other electronic systems at Hollywood Burbank Airport. The potential for interference with sensitive high-tech electronic devices would be addressed through the Authority's 2011 *CHSTP Planning Stage Electromagnetic Compatibility Program Plan* (Technical Memorandum 300.02, Revision 0; Authority 2011), the design criteria of the HSR Build Alternative, and EMI/EMF-IAMF#2. These

require the Authority to monitor field conditions to determine if electromagnetic compatibility issues arise and to provide the necessary coordination with affected third parties to resolve the problem. With implementation of this IAMF, operation of the HSR Build Alternative, including the Burbank Airport Station, would not result in permanent conflicts with surrounding land uses from EMF. Therefore, EMF generated from operation of the HSR Build Alternative would not contribute to a cumulative impact related to land use conflicts.

The concentration of growth at transit hubs and high-density, sustainable development patterns encouraged by the HSR Build Alternative would reduce the amount of land needed to accommodate growth currently projected and growth associated with the HSR Build Alternative. Therefore, the HSR Build Alternative would not induce substantial unplanned growth, and the HSR Build Alternative would have no impact on land use consumption. Under current city and county general plans in the SCAG planning area, communities in Los Angeles County have adequate space to accommodate planned growth by 2040 and HSR-induced growth in their current spheres of influence.

Current land use trends would likely change with the presence of the HSR Build Alternative, because operation HSR would encourage denser, more compact urban development around the Burbank Airport Station and LAUS. However, the HSR Build Alternative would not affect key development constraints that affect both station sites. In the case of LAUS, land use changes would be limited because LAUS is an existing transportation hub where transit-oriented development (TOD) has already and is currently occurring. LAUS is in a built-out area that includes several historic resources, and the viability of TOD in the area surrounding LAUS is constrained by U.S. Route 101 to the south and the Los Angeles River to the east. In the area surrounding the proposed Burbank Airport Station, any future development would not include residential uses due to the area's proximity to Hollywood Burbank Airport.

LU-IAMF#1 would require the Authority to prepare a memorandum for the Burbank Airport Station and LAUS describing how the Authority's station-area development guidelines would be applied to achieve the anticipated benefits of station-area development, including TOD advancement. Station-area planning is the coordinated effort to advance TOD and capture the benefits of the increased access provided by a new HSR station. Implementation of LU-IAMF#1 would increase benefits and reduce potential land use impacts by implementing the Authority's station-area development principles and guidelines. In addition to potential benefits from minimizing land consumption needs for new growth, dense development near HSR stations would concentrate activity conveniently located near stations. This would increase the use of the HSR system, generating additional HSR ridership and revenue to benefit the entire state. It also would accommodate new growth on a smaller footprint. Reducing the land needed for new growth should reduce pressure for new development on nearby habitat areas, in environmentally fragile or hazardous areas, and on agricultural lands. Denser development allowances also would enhance joint development opportunities at or near stations, which in turn could increase the likelihood of private financial participation in construction and operation related to the HSR system. A dense development pattern can better support a comprehensive and extensive local transit and shuttle system, bicycle and pedestrian paths, and related amenities that can serve the local communities as well as provide access to and egress from HSR stations. The Authority's adopted policies would ensure that implementation of the HSR system would maximize station-area development that serves local communities and economies while increasing HSR ridership.

LU-IAMF#2 would require the Authority to prepare a memorandum for the Burbank Airport Station and LAUS describing the local agency coordination and station-area planning conducted to prepare the station environment for HSR operation. Implementation of LU-IAMF#2 would increase benefits and reduce potential land use impacts through coordination with local agencies to prepare the station area for HSR operation. In partnership with the Authority, local agencies would plan for and encourage multimodal hubs, promote commerce at and around stations, and advance TOD strategies to support station areas that are mixed-use, are pedestrian-accessible, and have development that supports HSR.

With implementation of the station-area planning efforts in LU-IAMF#1 and LU-IAMF#2, the potential for induced growth to accelerate implementation of local development plans in Burbank and Los Angeles would not substantially change land use patterns in a way that is incompatible with adjacent land uses. In fact, induced TOD development would be consistent with planning documents in this urban area and would present an indirect land use benefit. With implementation of mitigation measures LU-MM#1 and LU-MM#2, operation of the Burbank Airport Station would result in beneficial effects, and there would be no conflicts with land use patterns. Therefore, regional growth from operation of the HSR Build Alternative would not contribute to a cumulative impact related to land use conflicts.

#### *CEQA Conclusion*

Construction of the HSR Build Alternative in combination with the other planned projects, including the adjacent HSR project sections, would result in temporary and/or permanent conversion of land. The acreage of land that the HSR Build Alternative, including the Burbank Airport Station and the HSR station at LAUS, would temporarily and/or permanently convert as a result of construction activities is minimal (153 acres) when compared to the total acreage of land uses in the overall RSA (4,407 acres). In addition, the HSR Build Alternative would not result in permanent land use conflicts with unique land uses. Therefore, the HSR Build Alternative would not contribute to a significant cumulative impact under CEQA related to station planning, land use, and development. Therefore, CEQA does not require mitigation.

Operation of the HSR Build Alternative in combination with operation of adjacent HSR project sections and other planned projects would result in increased noise levels, EMF, and conflict with existing and planned land uses. With implementation of IAMFs and mitigation measures, operation of the HSR Build Alternative would not contribute to significant cumulative impacts related to land use conflicts or conflict with established land use patterns. Therefore, CEQA does not require mitigation.

### *3.19.8.14 Parks, Recreation, and Open Space*

#### Resource Study Area

The cumulative RSA for evaluating impacts on parks, recreation, and open space consists of the cities of Los Angeles, Burbank, and Glendale. The geographic boundary of this RSA was selected because these resources are regulated by the local jurisdiction in which each facility is located.

#### Cumulative Condition

Together, the HSR Build Alternative and other cumulative projects listed in Appendix 3.19-A, including the adjacent HSR project sections, constitute the cumulative condition for parks, recreation, and open space. Under the cumulative condition, ongoing population growth and proposed development would continue within the cumulative RSA and would contribute to impacts on parks, recreation and open space. There are no open space resources in the RSA for the HSR Build Alternative. Therefore, there would be no cumulative impacts on open space resources from implementation of the HSR Build Alternative, and they are not discussed in the cumulative analysis.

Construction of reasonably foreseeable projects, including the adjacent HSR project sections, would require the use of heavy equipment during grading and construction activities, which would result in temporary cumulative noise, air quality, and visual impacts and interfere with pedestrian and vehicle access to park and recreational resources. These types of impacts are localized construction-related impacts that are most likely to occur when recreational resources are within 300 feet of project construction activities and staging areas.

#### Contribution of the High-Speed Rail Build Alternative

#### *Construction*

Construction of the HSR Build Alternative would require heavy equipment during grading and construction activities, which would result in temporary noise, air quality, and visual impacts and interfere with pedestrian and vehicle access to park and recreational resources within 300 feet of

project construction activities and staging areas. In conjunction with construction of other cumulative projects, including adjacent HSR project sections, HSR Build Alternative construction could not result in temporary cumulative noise, air, visual, and access impacts on park, recreation, and open space resources because these would not diminish the capacity to use the these resources for specific and defined recreational activities.

Construction of the HSR Build Alternative would require a permanent acquisition or conversion of land from the planned San Fernando Railroad Bike Path in the city of Glendale, the planned San Fernando Bike Path (Phase 3) in the city of Burbank, Rio de Los Angeles State Park, the proposed Taylor Yard G2 River Park, and Albion Riverside Park. Project-specific mitigation requires the HSR Build Alternative to comply with the California Park Preservation Act by providing compensation or land, or both, for impacts on publicly owned parks. The HSR Build Alternative would maintain the capacity, function, and values of Rio de Los Angeles State Park, proposed Taylor Yard G2 River Park, and Albion Riverside Park and would not prevent the use of recreational activities. The San Fernando Bike Path (a Class I bike path) would be rerouted as a Class II bike lane along N Lake Street. However, the permanent easement needed for construction and operation of the HSR Build Alternative would preclude the planned San Fernando Railroad Bike Path from being built if the bike path does not exist at the time of HSR construction. If the planned San Fernando Railroad Bike Path does not exist at the time of construction, the Authority would be required to consult with the official with jurisdiction to identify an alternative route for the continuation of the lost use and functionality of the resource, including maintaining connectivity. Therefore, no permanent easements or acquisitions would be required if the planned bike path is rerouted prior to HSR construction. If the planned San Fernando Railroad Bike Path already exists at the time of HSR construction, the entire bike path would be permanently incorporated into the permanent easement area required for the HSR right-of-way. The loss of this resource would result in a loss of connectivity and recreation use. The loss of the San Fernando Railroad Bike Path (which would take place only if the currently planned bike path exists at the time of HSR construction) would represent a cumulative impact.

None of the other projects included on the cumulative projects list would require permanent acquisition of park, recreation, and open space facilities. Development projects would be required to pay fees, pursuant to the Quimby Act, to the applicable city for development of park or recreational facilities. It is possible that the Palmdale to Burbank Project Section could also affect the planned San Fernando Bike Path (Phase 3) in the City of Burbank. However, measures would be proposed as part of the project to mitigate these impacts. Based on their locations, none of the cumulative projects, including the Palmdale to Burbank Project Section, would require acquisition of land from the San Fernando Railroad Bike Path.

***Operation***

Operation of the HSR Build Alternative in combination with the other cumulative projects, including adjacent HSR project sections, could increase use of park and recreational resources, which can result in physical deterioration of the park or recreational resources. Cumulative projects that increase population, such as residential projects, would result in the greatest increase in use of parks. However, the HSR Build Alternative would not result in significant permanent increases in resident or worker population within the general area of the project corridor or within any localized areas in the vicinity. Because the increase in population would be small and spread throughout Los Angeles County, the HSR Build Alternative would not substantially increase use of parks or recreational facilities. It would not result in the physical deterioration of the recreational resources as a result of increased use of the resource. Therefore, the HSR Build Alternative would not contribute to cumulative impacts from increased use of parks and recreational facilities.

Operation of the HSR Build Alternative in combination with the other planned projects, including adjacent HSR project sections, could result in access, noise, and visual impacts on park and recreational resources. Park and recreational users could experience increased noise from HSR operation or visual degradation of views to and from the park or recreational resource. However, as discussed in Section 3.4, Noise and Vibration, and Section 3.15, Parks, Recreation and Open

Space of this EIR/EIS, park and recreational uses would only be exposed to operational noise and visual impacts from passing trains for a relatively short duration as the trains pass through or near the area.

However, operation of the HSR trains would have no noise or visual impacts on park and recreational resources that would result in changes in the character of these resources or their functions and values in the long term. In addition, there are no projects listed on the cumulative project list, including the adjacent HSR project sections, that would result in permanent operational noise or visual impacts on park and recreational resources that would change the character of the resources or their functions and values in the long term.

Operation of the HSR Build Alternative would permanently affect access to the planned San Fernando Railroad Bike Path. However, none of the other cumulative projects, including the adjacent HSR project sections, would impede access to this bike path. Although the HSR Build Alternative would introduce visual elements that would affect the recreational resources at Pelanconi Park, none of the other cumulative projects are near this park. Therefore, none of these cumulative projects would introduce visual elements that could result in permanent visual impacts on this park, and there would be no cumulative access, noise, or visual impacts on parks or recreational resources to which the HSR Build Alternative would contribute.

***CEQA Conclusion***

Construction activities associated with the HSR Build Alternative in combination with the other planned projects, including adjacent HSR project sections, would result in temporary cumulative noise, air quality, and visual impacts and would interfere with pedestrian and vehicle access to park and recreational resources. However, these impacts would be localized and would only occur within approximately 300 feet of the HSR Build Alternative project footprint. Neither the HSR Build Alternative nor any of the other planned and reasonably foreseeable projects would result in permanent noise or visual impacts on park and recreational resources within the cumulative RSA. Furthermore, the HSR Build Alternative would not change the character or functions and values of the park and recreational resources. A technical memorandum that identifies design measures such as safe access to existing recreational facilities would be implemented under PK-IAMF#1 that would reduce impacts related to park access. There would not be a significant cumulative impact under CEQA related to parks and recreational resources to which the HSR Build Alternative would contribute. Therefore, CEQA does not require mitigation.

With respect to permanent acquisitions, although the HSR Build Alternative would require a permanent easement of land from the planned San Fernando Railroad Bike Path, the other cumulative projects, including the Palmdale to Burbank Project Section, would not affect parks nor would they acquire land or require permanent easements from the San Fernando Railroad Bike Path. Therefore, there would not be a significant cumulative impact under CEQA related to the acquisition of park, recreation, and open space resources to which the HSR Build Alternative would contribute. Therefore, CEQA does not require mitigation.

Operation of the HSR Build Alternative in combination with the other planned projects, including adjacent HSR project sections, could increase use of park and recreational resources. However, the HSR Build Alternative would result in a minor increase in population that would in turn lead to a minor increase in use of park and recreational resources throughout the RSA. Therefore, the HSR Build Alternative would not contribute to significant cumulative impacts from increased use of parks or recreational facilities, and CEQA does not require mitigation.

Operation of the HSR Build Alternative in combination with the other planned projects, including adjacent HSR project sections, could result in access, noise, and visual impacts on park and recreational resources. Noise and visual impacts from the passing high-speed trains for the HSR Build Alternative and adjacent HSR project sections would be short in duration and would not contribute to cumulative impacts. Although operation of the HSR Build Alternative would result in significant unavoidable access impacts on one planned bike path and visual impacts on one park, none of the other cumulative projects, including the adjacent HSR project sections, would result in access or noise impacts on these same recreational resources. There would not be a cumulative

access, noise, or visual impact on parks and recreational facilities to which the HSR Build Alternative would contribute. Therefore, CEQA does not require mitigation.

### *3.19.8.15 Aesthetics and Visual Quality*

#### Resource Study Area

The cumulative RSA for evaluating aesthetics and visual quality is the HSR Build Alternative viewshed (i.e., the area that could have views of the HSR Build Alternative features) within 0.25 mile of the track. This RSA reflects the distance from the HSR Build Alternative where cumulative projects would have visual impacts that would overlap with those of the HSR Build Alternative. Adjacent HSR project sections are analyzed as part of the 0.25-mile cumulative RSA.

#### Cumulative Condition

Over the past century, the visual character of the cumulative RSA has been transformed to a developed, urbanized area. Under the cumulative condition, continued development will intensify the urban nature of the area and redevelopment will alter the existing character by adding new visual elements to the cumulative RSA. However, the HSR Build Alternative and other planned and reasonably foreseeable developments, including the adjacent HSR project sections, would be compatible with the urban setting, and the existing visual quality would not be substantially degraded in the cumulative condition. Further, the HSR Build Alternative would not conflict with applicable zoning and other regulations governing scenic quality. For the portion of the Palmdale to Burbank and Los Angeles to Anaheim Project Sections within the cumulative RSA, HSR trains would operate in proximity to existing trains, which would reduce the uniqueness of seeing trains operating through the area. Although the Burbank Airport Station would be a new activity focal point in the community and would appear as a highly active transportation hub, the Burbank Airport Station would be close to the Hollywood Burbank Airport, which is an existing active transportation hub. Improvements to LAUS for the HSR station would appear similar to the existing activity at LAUS.

Construction of the cumulative projects, including roadway, highway, and transit projects, and residential, commercial, and industrial developments, would create temporary visual changes and introduce new visual elements from construction staging, equipment, lighting, and spoils.

Although construction activities for the cumulative projects, including the HSR Build Alternative and adjacent HSR project sections would be temporary, these activities could overlap and combine to create a cumulative visual impact on certain views due to the scale and proximity of the cumulative projects. However, because construction of the cumulative projects would occur in a highly urban setting and would be generally compatible with the area's urban visual character, the cumulative impacts on aesthetics and visual quality in the cumulative condition would be less than significant under CEQA.

#### Contribution of the High-Speed Rail Build Alternative

##### *Construction*

Development of the HSR Build Alternative and other planned projects, including adjacent HSR project sections, would result in construction activities that would create temporary visual changes and introduce new visual elements from construction staging, equipment, lighting, and spoils. Construction staging areas and pre-cast operations yards for the HSR Build Alternative would generally be surrounded by commercial or industrial lands, away from high-sensitivity viewer groups. Additionally, the staging areas would be outside the immediate foreground (i.e., 0 to 500 feet) of existing residential, recreational, or other high-sensitivity viewers. Therefore, construction staging areas would not substantially degrade visual quality for high-sensitivity viewers.

Construction laydown areas used to store construction materials and equipment would be located throughout the length of the right-of-way and could temporarily cause substantial changes to visual quality where highly visible construction activities are near sensitive viewers. In addition, lighting of temporary structures (e.g., trailers, fencing, and parking) and for nighttime construction could spill over to off-site areas, resulting in substantial disturbances to nearby residents and

motorists. Soil movement during construction, such as grading, excavation, and import or export by truck, could cause the release of dust, which could impair visibility. To reduce potential impacts associated with construction laydown areas during the construction period, the construction contractor would prepare a technical memorandum identifying how the proposed project would reduce construction-related aesthetic and visual quality disruption (AVQ-MM#1). To reduce disruption to nearby residents and motorists during the construction period, the construction contractor would also prepare a technical memorandum to verify that the construction contractor will shield nighttime construction lighting and direct it downward in such a manner as to reduce the light that falls outside the construction site boundaries (AVQ-MM#2). AQ-IAMF#1 would include preparation of a fugitive dust control plan and implementation of dust emissions control requirements to reduce impacts associated with fugitive dust.

Construction of the HSR Build Alternative would involve visual disruption from construction and assembly of at-grade, retained-fill, and tunnel segments; clearing of existing vegetation; and demolition of buildings and other structures. Where alignment construction occurs within the foreground distance of residential, recreational, or other high-sensitivity viewers, it may result in substantial changes to visual quality. To reduce disruption to nearby highly sensitive viewers due to the construction and assembly of at-grade, retained-fill, and tunnel segments, the contractor, partnering with the Authority, would coordinate with local jurisdictions on the design of the HSR Build Alternative so that these segments are designed appropriately to fit in with the local visual context (AVQ-MM#3). To reduce visual disruption from clearing of existing vegetation, the contractor would plant trees or other vegetation along the edges of the HSR right-of-way in locations adjacent to residential areas to visually screen the surface alignment on retained fill from the residential area (AVQ-MM#4).

The HSR Build Alternative staging areas would not result in cumulative visual impacts because they would be outside the immediate foreground of sensitive viewers. Construction activities at the laydown areas and along the HSR alignment, combined with construction activities of other nearby cumulative projects occurring concurrently (including the adjacent HSR project sections), could have cumulative changes to visual quality in the vicinity of residential, recreational, or other highly sensitive viewers. However, construction of the HSR Build Alternative and other cumulative projects, including the adjacent HSR project sections, would occur in a highly urban setting, and residential areas would be shielded from construction activities of the HSR Build Alternative by trees and vegetation, which would reduce cumulative visual impacts during construction.

The railroad alignment for the HSR Build Alternative would be in a tunnel/trench in Burbank. Therefore, there would be no permanent visual impacts from construction of this portion of the alignment. The surface and elevated sections of the HSR Build Alternative would be built in an already urban environment within an existing rail corridor. The Authority has adopted design standards and guidelines that reduce visual impacts through context-sensitive design, as specified in AVQ-IAMF#1, AVQ-IAMF#2, and AVQ-IAMF#3. Additionally, mitigation measure AVQ-MM#4 would provide vegetation screening for the surface alignment on retained fill adjacent to residential areas. With implementation of these measures, the railroad portion of the HSR Build Alternative would not alter the existing visual character within the RSA and would be visually compatible with the natural and cultural environments. Therefore, the existing visual quality would not be substantially degraded by the introduction of the railroad alignment and visual effects would be considered neutral.

However, the permanent construction of the Sonora Avenue grade separation, the Grandview Avenue grade separation, and the Flower Street grade separation would introduce prominent visual elements to the existing cultural environment. These grade separations would be out of scale with the surrounding commercial uses and would contrast with the existing cultural environment. Therefore, the overall visual character of these grade separations would be incompatible with the visual character of the existing cultural environment. However, none of the other cumulative projects, including the adjacent HSR project sections, are near these three grade separations. Therefore, the grade separations would not combine with other cumulative projects to create a cumulative visual impact on sensitive viewers, and there would not be a cumulative visual impact to which construction of the HSR Build Alternative would contribute.

The addition of intrusion protection railings to the three historic bridges in the visual RSA would conflict with the visual character of these historic properties, create an impact to the scenic values of these visual/cultural resources, and cause aesthetic degradation of existing visual quality. The three historic bridges are the Arroyo Seco Parkway Historic District, the Broadway Viaduct, and the Spring Street Viaduct. While there would be some added impacts from the HSR Build Alternative with respect to visual resources, there are no other visual impacts from cumulative projects that would combine to create a cumulative impact to visual resources as a result of the HSR Build Alternative.

***Operation***

Operational activities of the HSR Build Alternative would include passenger access to and from stations, use of parking structures or lots, maintenance activities along the HSR Build Alternative trackway, and facility security patrols. Maintenance activities would occur around the Burbank Airport Station and LAUS as well as along the trackway periodically. These activities would be similar to maintenance activities that occur for other major infrastructure facilities in the area, such as freeways, the Metrolink rail line, and local major arterial streets. Security patrols would be infrequent and would not introduce new permanent structures. Lighting associated with maintenance and security would be similar to existing sources of nighttime light in the location of the stations and along the trackway. Because the HSR Build Alternative would be built within an existing rail corridor, light spillover and glare from HSR trains and structures would be similar to existing conditions. The HSR Build Alternative would be compatible with the urban setting and operational activities would be similar to those already occurring in the rail corridor. Therefore, operational activities would not substantially degrade aesthetics or visual quality during operation, and there would not be a cumulative visual impact to which operation of the HSR Build Alternative would contribute.

***CEQA Conclusion***

Construction and operation of the HSR Build Alternative, portions of the adjacent HSR project sections within the cumulative RSA, and other planned developments, would occur in a highly urban setting. Most of the planned developments would be compatible with the area's urban visual character. Several of the grade separations proposed as part of the HSR Build Alternative would be incompatible with the visual character of the existing cultural environment. However, none of the other cumulative projects are near these proposed grade separations, and the grade separations would not combine with other cumulative projects to create a cumulative visual impact on sensitive viewers. Also, implementation of AVQ-IAMF#1 and AVQ-IAMF#2 would minimize impacts related to aesthetics and visual quality. Furthermore, trees and vegetation would shield residential areas from construction and operation activities of the HSR Build Alternative. There would not be a significant cumulative impact under CEQA related to aesthetic and visual quality to which the HSR Build Alternative would contribute. Therefore, CEQA does not require mitigation.

### *3.19.8.16 Cultural Resources*

**Resource Study Area**

The cumulative RSA for evaluating archaeological properties is Los Angeles County. This RSA encompasses the geographic range of known archaeological properties on which the HSR Build alternative could potentially have an impact.

The cumulative RSA for evaluating built resources consists of the cities of Los Angeles, Burbank, and Glendale. This RSA encompasses areas that contain built resources that may be directly or indirectly affected by the cumulative condition. This RSA also provides the historic context for the built environment. This RSA is assumed to include built resources that are eligible or could become eligible for listing on national, state, and local registers of historic resources in the reasonably foreseeable future.

### Cumulative Condition

Los Angeles County and the cities of Los Angeles, Burbank, and Glendale have a long history of human occupation. Therefore, they have the potential to contain prehistoric and historic archaeological resources, as well as historic-era architectural resources (built resources). Large portions of the RSA for archaeological resources are urbanized areas that have been subject to construction of infrastructure and land development; therefore, it is anticipated that archaeological resources have been disturbed by previous infrastructure and land development projects. However, in a dense urban area such as Los Angeles, where the entire landscape has been used historically, historic archaeological deposits can occur anywhere within that landscape in both disturbed and intact contexts. Therefore, construction activities related to continued urbanization and development projected under the cumulative condition could result in exposure and disruption of cultural resources, including archaeological resources and traditional cultural properties, and could result in removal of or damage to historic architectural resources. Linear projects in the cumulative scenario that require extensive excavation (including the adjacent HSR project sections), such those shown on Figure 3.19-A-1 in Appendix 3.19-A, are examples of projects that have the greatest potential to cause cumulative impacts on archaeological resources. Both the HSR Build Alternative and the adjacent Palmdale to Burbank Project Section include a tunnel section that would require the use of a tunnel boring machine and would likely damage or destroy unknown cultural resources encountered beneath the ground surface. Although the adjacent Los Angeles to Anaheim Project Section would require excavation, it does not include a tunnel section within the cumulative RSA.

Impacts on cultural resources, including built-environment historic architectural resources, prehistoric- and historic-era archaeological resources, and traditional cultural properties, tend to be individual in nature and specific to the context of the resource and to the aspects of integrity that contribute to a resource's eligibility for listing in the California Register of Historical Resources or the National Register of Historic Places. Nevertheless, because their individual significance is unknown until analyzed, potential impacts on cultural resources caused by cumulative projects, including the adjacent HSR project sections, can collectively contribute to loss of cultural resources, often a nonrenewable resource, in the environment. In addition, implementation of multiple projects can result in cumulative impacts on particular resources, such as historic districts or landscapes that have not yet been recorded or discovered. Cumulative development in the RSA may contribute to the loss of, or have an impact on, resources such as districts or landscapes that are currently unknown or that may be affected by other foreseeable projects.

Indirect cumulative noise and vibration impacts on cultural resources, especially built historic architectural resources, could combine to result in cumulative impacts if the cumulative projects are close enough that noise and vibration generated during construction or operation overlap (e.g., the adjacent HSR project sections).

### Contribution of the High-Speed Rail Build Alternative

#### *Construction*

Construction of the HSR Build Alternative, portions of the adjacent HSR project sections within the built resources RSA, and other cumulative projects that would occur simultaneously and near a historic built resource could cumulatively result in vibration damage to historic buildings. The adjacent Los Angeles to Anaheim Project Section is close to historic built environment resources near LAUS. However, a built-environment treatment plan is a required compliance document for cultural resources that would be affected by the HSR project, including the Burbank to Los Angeles Project Section and the adjacent HSR project sections. As part of CUL-IAMF#6, the built-environment treatment plan would include a pre-construction conditions assessment, plan for protection, and repair of inadvertent damage. In addition, a built-environment monitoring plan (CUL-IAMF#7) and protection and/or stabilization measures (CUL-IAMF#8) would be implemented to reduce the risk of damage to historic buildings during construction of the HSR Build Alternative. These IAMFs would also be implemented for the adjacent HSR project sections.

The HSR Build Alternative would construct a new Main Street bridge north of the historic Main Street Bridge near Main and Albion Streets in the city of Los Angeles. Construction of the new Main Street bridge would change the character of use of the historic Main Street bridge and the physical features that contribute to its historic significance, and would introduce visual elements that diminish the integrity of the property's significant historic features. However, none of the other cumulative projects, including the adjacent HSR project sections, are near the historic Main Street Bridge. Therefore, the HSR Build Alternative would not contribute to cumulative impacts on this resource.

The HSR Build Alternative would encroach on the historic property boundaries of the Arroyo Seco Parkway Historic District and cause direct physical destruction of, or damage to, the historic property, or alterations that are not consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties. An at-grade HSR alignment would be built within the existing railroad right-of-way that passes beneath the historic Los Angeles River bridge on the west bank, and the existing non-HSR alignment that passes beneath the bridge on the east bank would be reconfigured. A new intrusion protection railing would be built on the historic bridge deck above the HSR alignment to prevent people and objects from entering the right-of-way from the bridge. However, the only cumulative project near the Arroyo Seco Parkway Historic District is the Los Angeles River Revitalization Master Plan (D28). According to the Programmatic EIR prepared for the Los Angeles River Revitalization Master Plan (City of Los Angeles and U.S. Army Corps of Engineers 2007), the Los Angeles River Revitalization Master Plan would not affect this historic resource. Therefore, the HSR Build Alternative would not contribute to cumulative impacts on this resource.

The HSR Build Alternative would encroach on the property boundary of the Broadway (Buena Vista) Viaduct and may cause direct physical destruction of, damage to, or alteration of these historic properties. An at-grade HSR alignment would be built within the existing railroad right-of-way that passes beneath the bridges on the west bank of the Los Angeles River. The electrified tracks with overhead contact system and restriction fences would be between two of the piers of the bridge. A new intrusion protection railing would be built on the historic bridge deck above the HSR alignment to prevent people and objects from entering the right-of-way from the bridge. The Los Angeles River Revitalization Master Plan (D28) would be near the Broadway (Buena Vista) Viaduct but would not affect this historic resource. No other cumulative projects, including the adjacent HSR project sections, would affect the Broadway (Buena Vista) Viaduct; therefore, the HSR Build Alternative would not contribute to cumulative impacts on this resource.

The HSR Build Alternative would encroach on the property boundary of the North Spring Street Viaduct and may cause direct physical destruction of, damage to, or alteration of these historic properties. The electrified tracks with overhead contact system and restriction fences would be between two of the piers of the bridge and a new intrusion protection railing would be built on the historic bridge deck above the HSR alignment. The North Spring Street Viaduct would be widened as part of the North Spring Street Viaduct Widening and Rehabilitation Project (T16). According to the Final EIR/EA for the North Spring Street Viaduct Widening and Rehabilitation Project (City of Los Angeles and Caltrans 2011), the widening would adversely affect the viaduct by removing some of the historic details and materials on the south side of the viaduct that are considered character-defining. However, even though the North Spring Street Viaduct Widening and Rehabilitation Project would cause some physical damage to the viaduct, the characteristics that qualify the property as historic would be preserved. Likewise, the introduction of new rail technology as part of the HSR Build Alternative would not diminish the integrity of this resource or prevent it from conveying its historic significance because railroad infrastructure has always been part of the setting of this historic property. Therefore, the HSR Build Alternative would not contribute to cumulative impacts on this resource.

Because field surveys for archaeological resources have not yet been conducted due to lack of access, the exact location of one known archaeological resource (P-19-101229, a vestige of a small circular brick wall feature) is not known at this time. In addition, unknown archaeological resources could be present in the Archaeological Properties RSA. Therefore, there is a potential for construction activities to result in the partial or total destruction or removal of these resources.

IAMFs and mitigation measures have been incorporated into the HSR Build Alternative to reduce the potential for ground disturbance-related impacts on archaeological sites before and during construction. These IAMFs and mitigation measures are standard for the California HSR System and would apply to the HSR Build Alternative and the adjacent HSR project sections. CUL-IAMF#1 would require a geospatial layer of any archaeological sites to be added to construction drawings. CUL-IAMF#2 would require construction personnel to attend a WEAP training session to be able to recognize potential cultural resources and to follow the appropriate procedures should a discovery be made during construction. CUL-IAMF#3 would require completion of archaeological surveys prior to any ground-disturbing activities. CUL-IAMF#4 would allow for the relocation of project features if archaeological sites are discovered during surveys. CUL-IAMF#5 would require the preparation of an archaeological monitoring plan. Mitigation measure CUL MM#1 would require discovered resources to be preserved in place or recovered, CUL MM#2 would require construction activities to be halted near a find until it can be assessed by an archaeologist, and CUL MM#3 would require a phased identification as property access is granted to determine the location of archaeological resources. These IAMFs and mitigation measures are generally accepted to address impacts on archaeological sites. Implementation of these measures would reduce the impacts on unknown archaeological resources during construction of the HSR Build Alternative. Therefore, the HSR Build Alternative would not contribute to cumulative impacts on archaeological resources.

### *Operation*

Activities that affect archaeological resources are typically associated only with project construction and are therefore discussed above under construction.

The anticipated noise from operation and maintenance of the HSR Build Alternative would not indirectly affect any of the historic built resources within the area of potential effect because these resources do not derive their National Register of Historic Places significance from being located in a quiet setting. In addition, it is extremely rare for vibration from train operations to cause any sort of building damage, even minor cosmetic damage.

The major cumulative projects consist of transportation/transit (including the adjacent HSR project sections), industrial, commercial, and residential development. The cumulative projects would be compatible with the built-out urban setting. Operational uses, and noise and vibration generated from those uses, would be similar to those occurring in the existing condition. Noise levels would continue to be typical for the urban setting and would be dominated by vehicular traffic and railroad operations. Because the historic built resources in the RSA do not derive their National Register of Historic Places significance from being located in a quiet setting, it is not anticipated that noise generated from the other cumulative projects, including the adjacent HSR project sections, would affect these resources. Similar to the HSR Build Alternative, it is unlikely that the operation of the cumulative projects, including the adjacent HSR project sections, would generate vibration at levels that could cause building damage in the cumulative RSA. Therefore, there would not be a cumulative operations impact on cultural resources to which the HSR Build Alternative would contribute.

### *CEQA Conclusion*

There is a potential for construction activities of HSR Build Alternative, portions of the adjacent HSR project sections within the cumulative RSA, and other cumulative projects to result in the partial or total destruction or removal of unknown cultural resources. However, the HSR Build Alternative would implement CUL-IAMF#1 through CUL-IAMF#5, which are generally accepted measures to address impacts on archaeological sites. Implementation of these IAMFs would reduce the impacts on unknown archaeological resources during construction of the HSR Build Alternative. Therefore, the HSR Build Alternative would not contribute to cumulative impacts on archaeological resources.

Construction of the HSR Build Alternative and other cumulative projects, including the adjacent HSR project sections, would not be close enough to affect most historic resources in the RSA. However, the North Spring Street Viaduct Widening and Rehabilitation Project and the HSR Build

Alternative would both affect the North Spring Street Viaduct, but the effects would not diminish the integrity of this resource or prevent it from conveying its historic significance. Therefore, there would not be a significant cumulative impact under CEQA related to historic resources to which construction of the HSR Build Alternative would contribute, and CEQA does not require mitigation.

Operation of the HSR Build Alternative, portions of the adjacent HSR project sections in the cumulative RSA, and other cumulative projects would not generate noise and vibration levels that would affect historic built resources because they are already in an urban environment dominated by vehicular traffic and railroad operation noise, the historic built resources in the RSA do not derive their significance from being located in a quiet setting, and it is extremely rare for vibration from train operations to cause building damage. Therefore, there would not be a significant cumulative operations impact under CEQA related to historic resources to which the HSR Build Alternative would contribute, and CEQA does not require mitigation.

### *3.19.8.17 Environmental Justice*

#### Resource Study Area

The cumulative RSA for environmental justice (EJ) is defined as Census tracts partially or fully within 0.5 mile of the HSR Build Alternative project footprint. The cumulative RSA for EJ is larger than the RSAs for direct and indirect impacts on low-income and minority populations in order to capture EJ impacts associated with the construction and operation of the HSR Build Alternative and the regional EJ impacts associated with other anticipated planned development, including the adjacent HSR project sections.

#### Cumulative Condition

Under the cumulative condition, planned and committed projects, including the adjacent HSR project sections, would be built by the 2040 planning horizon for the HSR project. Planned projects include land development, transportation, bridge maintenance, utility, and sewer projects. Construction of these projects could result in temporary and permanent disruptions to EJ populations. Temporary construction impacts from planned projects could include noise, vehicle delay, and traffic detours. Long-term impacts from planned projects could include property acquisition. Long-term effects related to operation could include noise and vibration impacts and permanent road closures. Property acquisitions for new developments that displace residences and businesses would affect county and local government revenues if displacements cause losses in school district funding, property tax, or sales and use tax revenues. Foreseeable future development would likely include both beneficial and adverse impacts on populations and communities. If the incremental effects of multiple projects were to combine to create disproportionate and adverse impacts on low-income and minority populations in specific communities, this would be considered a cumulative impact under NEPA. Even after mitigation, the adjacent Los Angeles to Anaheim Project Section would have disproportionately high and adverse impacts on low-income and minority populations during construction related to hazardous materials and waste, air quality, noise and vibration, aesthetics and visual quality, cultural resources, community cohesion, economic vitality, displacement of persons and businesses, and changes to employment, and it would have adverse impacts on low-income and minority populations during operation related to noise and vibration, traffic and circulation, and community cohesion. However, the cumulative projects, including the adjacent HSR project sections, are distributed throughout the cities of Burbank, Glendale, and Los Angeles, and many of them would generate tax revenues.

#### Contribution of the High-Speed Rail Build Alternative

##### *Construction*

With the exception of the adjacent Los Angeles to Anaheim Project Section, the HSR Build Alternative, combined with other cumulative projects, would result in a limited set of adverse impacts on low-income and minority populations in the RSA. However, the impacts of the HSR Build Alternative and other planned projects on low-income and minority populations would not be greater in kind and magnitude than those that would be experienced by the general population

because low-income and minority populations and non-low-income and non-minority populations are both present throughout the RSA, where effects from construction would occur. Adverse impacts during construction of the HSR Build Alternative would occur related to transportation/traffic; air quality; noise and vibration; community cohesion; station planning and land use; displacements and relocations; parks, recreation, and open space; aesthetics and visual quality; and cultural resources. However, even with the impacts from the adjacent Los Angeles to Anaheim Project Section, these adverse impacts would be experienced by both low-income and minority and by non-low-income and non-minority populations. Therefore, the HSR Build Alternative would not result in disproportionately high and adverse impacts on low-income or minority populations living within the RSA.

With the proposed design measures, BMPs, offsetting benefits, and mitigation commitments, the Authority has preliminarily concluded that the HSR Build Alternative would not result in disproportionately high and adverse environmental effects on low-income and minority populations. Therefore, the HSR Build Alternative would not contribute to disproportionate, adverse cumulative impacts on low-income and minority populations, and the HSR Build Alternative would not contribute to cumulative impacts on low-income and minority populations.

***Operation***

With the exception of the adjacent Los Angeles to Anaheim Project Section, the HSR Build Alternative, combined with other cumulative projects, would result in a limited set of adverse impacts on low-income and minority populations in the RSA. However, the impacts of the HSR Build Alternative and other planned projects on low-income and minority populations would not be greater in kind and magnitude than those that would be experienced by the general population because low-income and minority populations and non-low-income and non-minority populations are both present throughout the RSA, where effects from operation would occur. Adverse impacts on low-income and minority populations during operation of the HSR Build Alternative would occur related to transportation/traffic, air quality, noise and vibration, community cohesion, station planning and land use, and parks, recreation, and open space. However, even with the impacts from the adjacent Los Angeles to Anaheim Project Section, these adverse impacts would be experienced by both EJ and non-low-income and non-minority populations. Therefore, the HSR Build Alternative would not result in disproportionately high and adverse impacts on low-income or minority populations living within the RSA.

The low-income and minority populations within the RSA would experience beneficial effects resulting from the HSR Build Alternative and the adjacent HSR project sections, including improved regional accessibility, reduced vehicle trips on freeways, improvements to active transportation infrastructure, safety improvements to both pedestrians and bicyclists along the existing rail corridor, and a reduction in statewide air quality and GHG emissions. All populations near the project footprint, including minority and low-income populations in the RSA, as well as non-low-income and non-minority populations, would experience these benefits.

With the proposed design measures, BMPs, offsetting benefits, and mitigation commitments, the Authority has preliminarily concluded that the HSR Build Alternative would not result in disproportionately high and adverse environmental effects on low-income and minority populations. Therefore, the HSR Build Alternative would not contribute to disproportionate, adverse cumulative impacts on low-income and minority populations.

***CEQA Conclusion***

EJ is a NEPA-mandated analysis in accordance with U.S. Executive Order 12898, which requires federal agencies to assess the potential for their actions to have disproportionately adverse and/or beneficial environmental and health impacts on minority and low-income populations. However, CEQA does not require an analysis of impacts on low-income and minority populations.

## 3.19.9 Mitigation Measures (for any newly identified significant cumulative impacts)

This section provides a discussion of the mitigation measures required specifically to reduce the cumulative impacts of the HSR Build Alternative. This summary does not include project-level mitigation measures previously discussed in the EIR/EIS sections for each resource area (Sections 3.2 through 3.17).

### *3.19.9.1 Transportation*

***CUM-TRAN-MM#1: Consult with Agencies Regarding Construction Traffic Impacts***

To reduce the potential overlapping traffic impacts on the same intersections and roadways from detours and closures, the Authority would consult with local city and county planning departments and other agencies with projects anticipated to be constructed concurrently with the Burbank to Los Angeles Section of the California HSR System. Consultation would entail notifying the departments/agencies regarding the anticipated HSR construction, detour, and closure schedules and would allow for adjustment of construction schedules for adjacent projects or projects near the HSR Build Alternative.

### *3.19.9.2 Noise and Vibration*

***CUM-N&V-MM#1: Consult with Agencies Regarding Construction Noise and Vibration Impacts***

To reduce the potential overlapping noise- and vibration-generating construction activities in the same area, the Authority would consult with local city and county planning departments and other agencies with projects anticipated to be constructed concurrently with the Burbank to Los Angeles Section of the California HSR System. Consultation would entail notifying the departments/agencies regarding the anticipated HSR construction schedule and would allow for adjustment of construction schedules for adjacent projects or projects near the HSR Build Alternative.

### *3.19.9.3 Socioeconomics and Communities*

***CUM-S&C-MM#1: Cumulative Construction Impacts on Communities.***

During construction of the HSR Build Alternative, consultation would occur with the project sponsors or other entities, including local or regional governments, to coordinate construction schedules and potential closures, detours, and other elements of construction in order to reduce impacts on surrounding communities. Such coordination would include planning for vehicular, pedestrian, and bicycle detours, performing community outreach to make residents and businesses aware of potential issues in advance, and allowing for public input and feedback in planning for construction.

### *3.19.9.4 Early Action Projects*

As described in Chapter 2, Section 2.5.2.9, early action projects would be completed in collaboration with local and regional agencies. They include grade separations and improvements at regional passenger rail stations. These early action projects are analyzed in further detail to allow the agencies to adopt the findings and mitigation measures as needed to construct the projects. The following cumulative mitigation measures would be required for the early action projects:

- CUM-TRAN-MM#1: Consult with Agencies Regarding Construction Traffic Impacts
- CUM-N&V-MM#1: Consult with Agencies Regarding Construction Noise and Vibration Impacts
- CUM-S&C-MM#1: Cumulative Construction Impacts on Communities

### 3.19.10 Impact Summary

Table 3.19-9 and Table 3.19-10, respectively, summarize cumulative construction impacts and cumulative operations impacts for all resource areas and any cumulative mitigation measures that apply to these impacts

**Table 3.19-9 Summary of Cumulative Construction Impacts**

| Resource | HSR Build Alternative Cumulative Construction Impact | CEQA Impact | Cumulative Mitigation |
|---|---|---|---|
| **Transportation** | | | |
| Transportation | The HSR Build Alternative's contribution to the cumulative impact would be cumulatively considerable under NEPA. | Less than Significant | CUM-TRAN-MM#1 (NEPA only) |
| **Air Quality and Global Climate Change** | | | |
| Air Quality | The HSR Build Alternative's contribution to the cumulative impact would be cumulatively considerable. | Significant (Cumulatively Considerable) | None Available |
| Global Climate Change | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |
| **Noise and Vibration** | | | |
| Noise | The HSR Build Alternative's contribution to the cumulative impact would be cumulatively considerable. | Significant (Cumulatively Considerable) | CUM-N&V-MM#1 |
| Vibration | The HSR Build Alternative's contribution to the cumulative impact would be cumulatively considerable. | Significant (Cumulatively Considerable) | CUM-N&V-MM#1 |
| **EMF and EMI** | | | |
| EMF and EMI | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |
| **Public Utilities and Energy** | | | |
| Public Utilities | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |
| Energy | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |
| **Biological and Aquatic Resources** | | | |
| Biological and Aquatic Resources | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |

| Resource | HSR Build Alternative Cumulative Construction Impact | CEQA Impact | Cumulative Mitigation |
|---|---|---|---|
| **Hydrology and Water Resources** | | | |
| Floodplains | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |
| Surface Waters | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |
| Groundwater | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |
| **Geology, Soils, Seismicity, and Paleontological Resources** | | | |
| Geology, Soils, Seismicity | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |
| Paleontological Resources | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |
| **Hazardous Materials and Waste** | | | |
| Hazardous Materials and Waste | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |
| **Safety and Security** | | | |
| Safety and Security | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |
| **Socioeconomics and Communities** | | | |
| Communities and Neighborhoods | The HSR Build Alternative's contribution to the cumulative impact would be cumulatively considerable under NEPA. | Less than Significant | CUM-S&C-MM#1 (NEPA only)<br>CUM-TRAN-MM#1 (NEPA only)<br>CUM-N&V-MM#1 (NEPA only) |
| Displacements and Relocations | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |
| Economic Effects | The HSR Build Alternative would not contribute to a cumulative impact. | Beneficial | None Required |
| **Station Planning, Land Use, and Development** | | | |
| Station Planning, Land Use, and Development | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |

| Resource | HSR Build Alternative Cumulative Construction Impact | CEQA Impact | Cumulative Mitigation |
|---|---|---|---|
| **Parks, Recreation, and Open Space** | | | |
| Parks, Recreation, and Open Space | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |
| **Aesthetics and Visual Quality** | | | |
| Aesthetics and Visual Quality | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |
| **Cultural Resources** | | | |
| Cultural Resources | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |
| **Environmental Justice** | | | |
| Environmental Justice | The HSR Build Alternative would not contribute to a cumulative impact. | Not Applicable | Not Applicable |

CEQA = California Environmental Quality Act
EMF = electromagnetic fields
EMI = electromagnetic interference
HSR = high-speed rail
NEPA = National Environmental Policy Act

**Table 3.19-10 Summary of Cumulative Operations Impacts**

| Resource | HSR Build Alternative Cumulative Operations Impact | CEQA Impact | Cumulative Mitigation |
|---|---|---|---|
| **Transportation** | | | |
| Transportation | The HSR Build Alternative's contribution to the cumulative impact would be cumulatively considerable under NEPA. | Beneficial | None Required |
| **Air Quality and Global Climate Change** | | | |
| Air Quality | The HSR Build Alternative would not contribute to a cumulative impact. | Beneficial | None Required |
| Global Climate Change | The HSR Build Alternative would not contribute to a cumulative impact. | Beneficial | None Required |
| **Noise and Vibration** | | | |
| Noise | The HSR Build Alternative's contribution to the cumulative impact would be cumulatively considerable | Significant (Cumulatively Considerable) | None Available |
| Vibration | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |
| **EMF and EMI** | | | |
| EMF and EMI | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |
| **Public Utilities and Energy** | | | |
| Public Utilities | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |
| Energy | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |
| **Biological and Aquatic Resources** | | | |
| Biological and Aquatic Resources | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |

| Resource | HSR Build Alternative Cumulative Operations Impact | CEQA Impact | Cumulative Mitigation |
|---|---|---|---|
| **Hydrology and Water Resources** | | | |
| Floodplains | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |
| Surface Waters | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |
| Groundwater | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |
| **Geology, Soils, Seismicity, and Paleontological Resources** | | | |
| Geology, Soils, Seismicity | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |
| Paleontological Resources | The HSR Build Alternative would not contribute to a cumulative impact. | No impact | None Required |
| **Hazardous Materials and Waste** | | | |
| Hazardous Materials and Waste | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |
| **Safety and Security** | | | |
| Safety and Security | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |
| **Socioeconomics and Communities** | | | |
| Communities and Neighborhoods | The HSR Build Alternative would not contribute to a cumulative impact. | No impact | None Required |
| Displacements and Relocations | The HSR Build Alternative would not contribute to a cumulative impact. | No impact | None Required |
| Economic Effects | The HSR Build Alternative would not contribute to a cumulative impact. | Beneficial | None Required |
| **Station Planning, Land Use, and Development** | | | |
| Station Planning, Land Use, and Development | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |

| Resource | HSR Build Alternative Cumulative Operations Impact | CEQA Impact | Cumulative Mitigation |
|---|---|---|---|
| **Parks, Recreation, and Open Space** | | | |
| Parks, Recreation, and Open Space | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |
| **Aesthetics and Visual Quality** | | | |
| Aesthetics and Visual Quality | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |
| **Cultural Resources** | | | |
| Cultural Resources | The HSR Build Alternative would not contribute to a cumulative impact. | Less than Significant | None Required |
| **Environmental Justice** | | | |
| Environmental Justice | The HSR Build Alternative would not contribute to a cumulative impact. | Not Applicable | Not Applicable |

CEQA = California Environmental Quality Act
EMF = electromagnetic fields
EMI = electromagnetic interference
HSR = high-speed rail
NEPA = National Environmental Policy Act