

1 PROJECT PURPOSE, NEED, AND OBJECTIVES

1.1 Introduction

1.1.1 The High-Speed Rail System

The California Legislature passed the High-Speed Rail Act in 1996, forming the California High-Speed Rail Authority (Authority) as a State of California (State) governing body with responsibility for planning, designing, constructing, and operating the California High-Speed Rail (HSR) System. In establishing the Authority, the State Legislature found that the state's transportation facilities were insufficient to meet the needs of the state's existing population, that the state's population and the travel demands of its citizens would continue to grow, and that the development of an HSR system is a necessary and viable alternative to automobile and air travel in the state. The Authority's mandate under the High-Speed Rail Act is to develop an HSR system that coordinates with the state's existing transportation network, which includes intercity rail and bus lines, regional commuter rail lines, urban rail and bus transit lines, highways, and airports.

The Authority proposes to construct, operate, and maintain an electric-powered HSR system in California, connecting the San Francisco Bay Area and Central Valley to Southern California. When completed, the nearly 800-mile train system would provide new passenger rail service to more than 90 percent of the state's population. More than 200 weekday trains would serve the statewide intercity travel market.¹ The California HSR System would use state-of-the-art electrically powered, steel-wheel-on-steel-rail technology, including contemporary safety, signaling, and automated train control systems, with trains capable of operating speeds of up to 220 miles per hour in HSR sections that are fully grade-separated and on dedicated track alignment.

The California HSR System, as illustrated on Figure 1-1, would be implemented in two phases. Phase 1 would connect San Francisco to Los Angeles and Anaheim via the Pacheco Pass and the Central Valley. Phase 2 would extend the California HSR System from the Central Valley (starting at the Merced Station) to the state's capital in Sacramento and from Los Angeles to San Diego.

1.1.2 Decision to Develop a Statewide High-Speed Rail System

The Authority and Federal Railroad Administration (FRA) used a tiered environmental review process to support tiered decisions for the California HSR System. Tiering of environmental documents means addressing a broad program in "Tier 1" environmental documents, then analyzing the details of individual projects within the larger program in subsequent project-specific or "Tier 2" environmental documents.

The *Final Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the Proposed California High-Speed Train System (Statewide Program EIR/EIS)* (Authority and FRA 2005) provided a programmatic analysis of implementing the California HSR System across the state and compared it to the impacts of a No Project Alternative and a modal alternative that involved expanding airports, freeways, and conventional rail to meet the state's future transportation needs. It also evaluated an HSR alternative, which included consideration of different train technologies and vehicle types, as well as potential corridor and station locations. At the conclusion of the Statewide Program EIR/EIS, the Authority and FRA made the decisions shown in Table 1-1.

¹ "Intercity rail passenger transportation" is defined at U.S. Code Title 49, Section 24102(4) as "rail passenger transportation except commuter rail passenger transportation." "Commuter rail passenger transportation" is defined at 49 U.S.C. 24102(3) as "short-haul rail passenger transportation in metropolitan and suburban areas usually having reduced fare, multiple rides, and commuter tickets and morning and evening peak period operations."



Figure 1-1 Statewide High-Speed Rail System—Implementation Phases

Table 1-1 2005 Authority and FRA Decisions

Decision Step	2005 Tier 1 Decisions
Selection of transportation option	Selected the HSR Alternative over the Modal Alternative (expanded airports and freeways) and the No Project Alternative (no action) to serve California's growing transportation needs.
Selection of train technology	Selected very-high-speed, electrified steel-wheel-on-steel-rail technology over magnetic levitation, lower-speed, electrified steel-wheel-on-steel-rail, and lower-speed diesel (non-electrified) steel-wheel-on-steel-rail technology.
Selection of preferred alignment corridors	Selected preferred corridors for most of the statewide system to be studied in more detail in Tier 2 EIR/EISs. Deferred selection of preferred corridors for Bay Area to Central Valley to a second Tier 1 EIR/EIS process.
Selection of preferred station locations	Selected station locations along the preferred corridors to be studied in more detail in Tier 2 EIR/EIS documents.
Adoption of mitigation strategies	Adopted broad mitigation strategies to be refined and applied at Tier 2, as part of project planning and development and environmental review.

Source: Authority, 2005; FRA, 2005
 Authority = California High-Speed Rail Authority
 EIR = environmental impact report
 EIS = environmental impact statement
 FRA = Federal Railroad Administration
 HSR = high-speed rail

After completing the Statewide Program EIR/EIS, the Authority and FRA prepared a second Program EIR/EIS to identify a corridor and station locations for the HSR connection between the Bay Area and the Central Valley, examining connections through the Pacheco Pass, the Altamont Pass, or both (*Bay Area to Central Valley High-Speed Train (HST) Final Program EIR/EIS*, Authority and FRA 2008). In 2008, the Authority and FRA selected a Pacheco Pass connection, with corridors and station locations for further examination in Tier 2 environmental reviews. As a result of litigation, the Authority prepared additional programmatic environmental review for the Bay Area and the Central Valley section, and again selected the Pacheco Pass connection (in the *Bay Area to Central Valley Partially Revised Final Program EIR* [Authority 2012a]). Table 1-2 lists the Authority's additional Tier 1 decisions.

Table 1-2 2008/2012 FRA and Authority Decisions

Decision Step	2008/2012 Tier 1 Decisions
Selection of preferred alignment corridors	Selected preferred corridors for connecting the Bay Area to the Central Valley north of Fresno to be studied in more detail in Tier 2 EIR/EIS documents.
Selection of preferred station locations	Selected station locations along the preferred corridors to be studied in more detail in Tier 2 EIR/EIS documents.
Adoption of mitigation strategies	Adopted broad mitigation strategies to be refined and applied at Tier 2, as part of project planning and development and environmental review.

Source: FRA, 2008; Authority, 2012b, 2012c, 2012d
 Authority = California High-Speed Rail Authority
 EIR = environmental impact report
 EIS = environmental impact statement
 FRA = Federal Railroad Administration

These Tier 1 decisions established the broad framework for the California HSR System that serves as the foundation for the Tier 2 environmental review of individual projects. Between Palmdale and Burbank, two corridors were advanced for Tier 2 study: a broad corridor inclusive

of Soledad Canyon and State Route (SR) 14 between Palmdale and Santa Clarita, and the Metrolink corridor between Sylmar and Burbank. The station locations advanced for Tier 2 study included the Palmdale Station at the Palmdale Transportation Center (Palmdale TC) and the Burbank Airport Station in downtown Burbank.

The Authority and FRA prepared these Tier 1 documents in coordination with the U.S. Environmental Protection Agency (USEPA) and the U.S. Army Corps of Engineers (USACE). The USEPA and the USACE concurred that the corridors selected by the Authority and FRA in Tier 1 were most likely to yield the least environmentally damaging practicable alternative as required under Section 404 of the Clean Water Act.

Electronic copies of the Tier 1 documents are available on request on CD-ROM by calling the Authority office at (916) 324-1541. The Tier 1 documents may also be reviewed at the Authority's offices during business hours at: 770 L Street, Suite 620, Sacramento, CA 95814 and 355 S Grand Avenue, Suite 2050, Los Angeles, CA 90071.

1.1.3 Implementation of the Statewide High-Speed Rail System

Since completion of the Tier 1 documents, the State of California has taken a series of steps to advance the implementation of a statewide HSR system. These efforts have resulted in securing dedicated funding for construction of the initial portion of the system in the Central Valley and have further defined the State's vision for completing the system. The HSR system has also become a key component of the State's strategy for reducing greenhouse gas (GHG) emissions.

1.1.3.1 California State Legislation and Funding

In August 2008, the California Legislature adopted Assembly Bill (AB) 3034, finding "it imperative that the state proceed quickly to construct a high-speed passenger train system to serve the major metropolitan areas," and submitting The Safe, Reliable, High-Speed Passenger Train Bond Act for the 21st Century (Proposition 1A) to the voters. In November 2008, California voters approved Proposition 1A, making \$9.95 billion in bond funds available to the Authority for initiating construction of the HSR system from San Francisco to the Los Angeles Basin and linking the state's major population centers. Proposition 1A includes provisions for continuing legislative oversight and requires the Authority to follow certain procedures to access bond funds. In 2012, the State Legislature passed Senate Bill (SB) 1029, which appropriated \$7.9 billion in federal grant funds (refer to Section 1.1.3.4 below) and Proposition 1A bond funds to begin construction of the HSR system.

The HSR system is identified as an integral GHG-reduction measure in the Climate Change Scoping Plan and subsequent updates prepared by the California Air Resources Board (CARB) pursuant to AB 32, the California Global Warming Solutions Act of 2006, which required a reduction in GHG emissions to 1990 levels by 2020 (CARB 2008, 2014, 2017). In 2014, the Legislature passed SB 862, which continuously appropriated 25 percent of specified cap-and-trade auction proceeds to Phase 1 (San Francisco to Anaheim) of the HSR system.² The Legislature found that the HSR system, once completed and operational, "will contribute significantly toward the goal of reducing emissions of greenhouse gases and other air pollutants" and provides "the foundation for a large-scale transformation of California's transportation infrastructure" by reducing millions of vehicles miles traveled by automobile and reducing the demand for air travel. In 2017, the Legislature extended the cap-and-trade program from 2020 to 2031 (AB 398).

1.1.3.2 Business Plans for the Statewide High-Speed Rail System

The High-Speed Rail Act requires the Authority to prepare, adopt, and submit a business plan to the State Legislature every 2 years describing its implementation approach for the California HSR System. Since 2008, the Authority has adopted business plans in accordance with this

² Cap-and-trade refers to the market-based mechanism established by CARB for achieving the GHG-reduction requirements in AB 32.

requirement. Most recently, the Authority adopted its 2020 Business Plan on February 9, 2021, and submitted to the State Legislature on April 12, 2021 (Authority 2021).

The 2020 Business Plan identifies major anticipated milestones for upcoming years, focusing on construction and program delivery. There are three key objectives and principles from the 2020 Business Plan:

- Expand economic development;
- Meet the state’s environmental objectives, particularly the reduction of GHG emissions; and
- Improve mobility for our citizens.

Like the previous business plans, the 2018 Business Plan describes the phased implementation of the California HSR System. As shown on Figure 1-1, Phase 1 would connect the state’s major metropolitan areas, extending from San Francisco and Merced to Los Angeles and Anaheim (the San Francisco Bay Area and Los Angeles Basin regions are considered the “bookends” of the California HSR System). Phase 2 would complete extensions to Sacramento and San Diego. Phased implementation of the California HSR System is consistent with the provisions of Proposition 1A. The 2018 Business Plan also continues to incorporate the concept of “blended” service³ in certain shared corridors in Northern and Southern California, including between San Francisco and San Jose and between Burbank and Anaheim.

With regard to the timing of Phase 1 implementation, the 2018 Business Plan continues the overall approach presented in the 2016 Business Plan, which prioritizes connecting the Silicon Valley to the Central Valley. To achieve that objective, the 2018 Business Plan calls for completing two lines initially—one in the Central Valley, from an interim station in Madera to Bakersfield, and one in the Bay Area/Silicon Valley, from San Francisco and San Jose to Gilroy—and then completing the connection from the Silicon Valley to the Central Valley via the Pacheco Pass tunnels. Completion of this Silicon Valley to Central Valley (“valley-to-valley”) connection would provide continuous HSR service from San Francisco to Bakersfield. After that portion of the system is built, it is anticipated that the system would be extended to complete all of Phase 1 and ultimately Phase 2.

The 2018 Business Plan supports concurrent investments to deliver early benefits to Southern California in the Burbank-Los Angeles-Anaheim corridor and to Northern California in the San Francisco to San Jose corridor, as well as completion of the environmental review for all Phase 1 project sections statewide, from Merced/San Francisco to Los Angeles/Anaheim, by 2022.

The Authority released a Draft 2020 Business Plan in February 2020 for public review and comment. The plan’s final adoption was expected at the December 2020 Board meeting for submittal to the Legislature by December 15, 2020. However, in coordination with the Legislature, the deadline for adoption of a Final Business Plan was extended. A Revised Draft 2020 Business Plan was released for public review on February 9, 2021. The 2020 Business Plan was adopted by the Authority Board of Directors on March 25, 2021 and submitted to the Legislature on April 12, 2021.

1.1.3.3 The California State Rail Plan

The federal Passenger Rail Investment and Improvement Act of 2008 (PRIIA) required states to develop state rail plans no less frequently than every 5 years, as a condition of eligibility for federal funding for HSR and intercity passenger rail programs. In accordance with the PRIIA, the State of California adopted the *California State Rail Plan* in 2013 (California Department of Transportation [Caltrans] 2013a).⁴ The 2013 *California State Rail Plan* stated that it “establishes

³ The California HSR Project Business Plan (<https://hsr.ca.gov/about/high-speed-rail-business-plans/>) discusses blended railroad systems and operations. This term refers to integrating the California HSR System with existing intercity, commuter, and regional rail systems through coordinated infrastructure (blended systems) and scheduling, ticketing, and other means (blended operations).

⁴ The State Rail Plan is available at <https://dot.ca.gov/programs/rail-and-mass-transportation/california-state-rail-plan>.

a statewide vision and objectives, sets priorities, and develops implementation strategies to enhance passenger and freight rail service in the public interest” (Caltrans 2013a.) The 2013 plan called for implementation of a statewide HSR system that is integrated into the existing intercity and commuter passenger rail network. In September 2018, Caltrans released the 2018 California State Rail Plan, which continues to emphasize HSR as a foundational component of statewide, integrated rail transportation network (Caltrans 2018).

1.1.3.4 The Federal Railroad Administration Grant Agreement

In 2009, the FRA announced a competitive grant program to fund HSR projects under the American Recovery and Reinvestment Act of 2009 through its High-Speed Intercity Passenger Rail Program. The State, acting through the Authority, successfully competed for these grant funds, and received awards totaling approximately \$3.48 billion. In 2010, the Authority entered into cooperative agreements with the FRA under which the FRA committed to provide the grant funds to support initial construction of the first phase of the California HSR System in the Central Valley, as well as related efforts for continued planning, engineering, and right-of-way preservation for the rest of the Phase 1 system between San Francisco and Anaheim.⁵

1.1.3.5 Project-Level Environmental Reviews

In accordance with the tiered approach to environmental review described in Section 1.1.2, the Authority is preparing Tier 2 (project-level) EIR/EISs for individual sections of the statewide HSR system. Each Tier 2 EIR/EIS includes a section of the HSR System that serves a useful transportation purpose on its own and could function independently even if the adjacent sections were not completed. In the event that adjacent project sections are not built, additional facilities, including a heavy maintenance facility, would be needed. Each Tier 2 EIR/EIS evaluates proposed alignments and stations in site-specific detail to provide a complete assessment of the direct, indirect, and cumulative effects of the proposed action; considers public and agency participation in the screening process; and is developed in consultation with resource and regulatory agencies, including the USEPA, USACE, and Surface Transportation Board (STB). The Authority intends each Tier 2 EIR/EIS to be sufficient to support USACE’s permit decisions and STB’s project approvals, where applicable. The Tier 2 project sections are shown in Figure 1-2.

To date, the Authority and FRA have completed Tier 2 EIS/EIRs for the following project sections:

- Merced to Fresno
- Fresno to Bakersfield
- Bakersfield to Palmdale⁶

Tier 2 EIR/EISs for the additional Phase 1 project sections, listed below, are all in progress:

- San Francisco to San Jose
- San Jose to Merced
- Palmdale to Burbank
- Burbank to Los Angeles
- Los Angeles to Anaheim

In addition, the Authority completed a Supplemental EIR/EIS for Merced to Fresno: Central Valley Wye, and the Fresno to Bakersfield Section Final Supplemental EIR and the Fresno to Bakersfield Section: Locally Generated Final Supplemental EIS.

⁵ The grant agreements are available at <https://hsr.ca.gov/about/capital-costs-funding/funding-plans/>.

⁶ The Bakersfield to Palmdale Project Section EIR/EIS was recirculated to address the recent candidate listing for the mountain lion and monarch butterfly. The EIS/EIS provided new information about the mountain lion and monarch butterfly, and identified two new mitigation measures to address impacts on wildlife resulting from lighting during construction and during project operation. The Final EIR/EIS was released on February 28, 2020, and the project was approved on August 19, 2021.



Source: Authority, 2016

Figure 1-2 Statewide High-Speed Rail System, Phase 1 and Phase 2—Project Sections

1.1.4 The Palmdale to Burbank Project Section

Consistent with the Tier 1 and Tier 2 decisions, the approximately 31- to 38-mile-long Palmdale to Burbank Project Section, from the northern Palmdale to Burbank Project Section limits in Palmdale to the southern limits in Burbank, includes six Build Alternatives that are evaluated in this Draft EIR/EIS. The Palmdale to Burbank Project Section extends through a variety of land uses and ecoregions, including urban, rural, and mountainous terrain. The Palmdale to Burbank Project Section corridor is shown in Figure 1-3.

Each of the six Build Alternatives—Refined SR14, SR14A, E1, E1A, E2, and E2A—would begin and end at the same location. The northern terminus of the Build Alternatives is Spruce Court in the city of Palmdale, which connects the Palmdale to Burbank Project Section to the approved Bakersfield to Palmdale Project Section (Figure 1-4). Continuing south, each of the six Build Alternatives would involve tunneling beneath the Angeles National Forest, including areas within the San Gabriel Mountains National Monument, before meeting the Burbank to Los Angeles Project Section track alignment and station. En route, the Refined SR14, SR14A, E1, and E1A Build Alternative alignments would traverse several City of Los Angeles neighborhoods, including Sylmar, Pacoima, and Sun Valley in the San Fernando Valley. In contrast, the E2 and E2A Build Alternative alignments would only traverse the Lake View Terrace and Shadow Hills neighborhoods. Refer to Chapter 2, Alternatives, for a detailed discussion of each of the six Build Alternatives.



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
 Source: Authority, 2020; National Geographic, 2021
 March 25, 2021

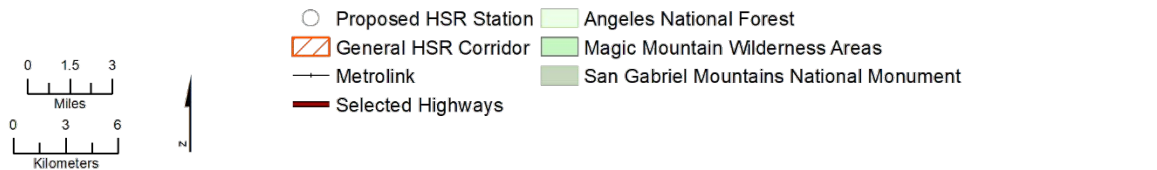
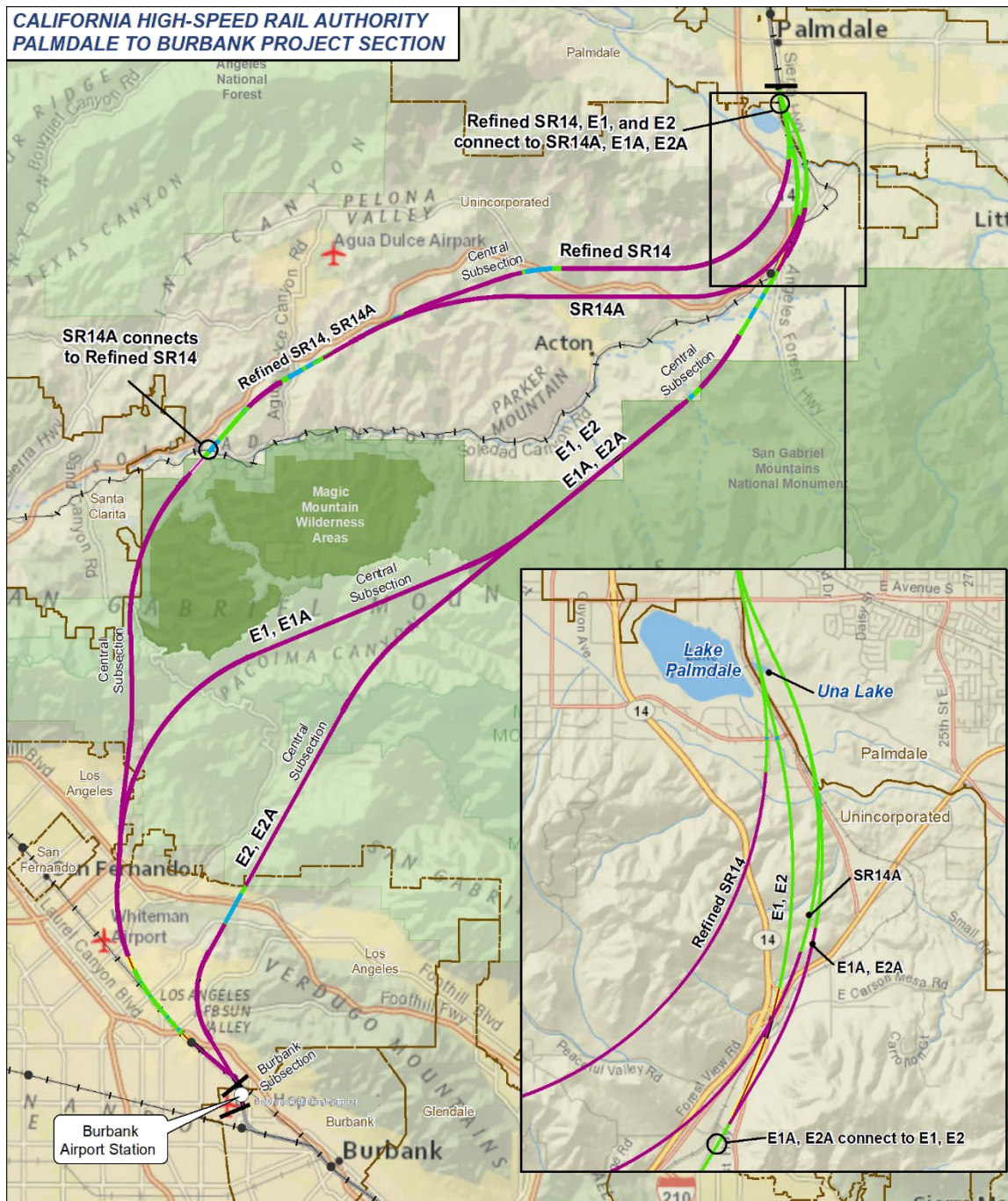


Figure 1-3 Palmdale to Burbank Project Section Corridor



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
 Source: Authority, 2020; National Geographic, 2021

March 26, 2021

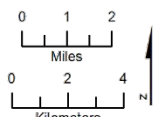
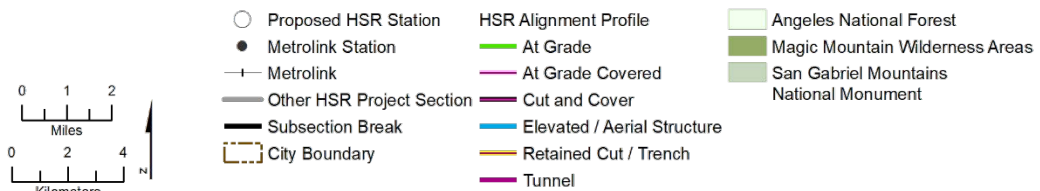


Figure 1-4 Palmdale to Burbank Project Section Build Alternatives

1.1.5 Lead Agencies, Cooperating Agencies, and Responsible Agencies

Pursuant to U.S. Code (U.S.C.) Title 23 Section 327, under the NEPA Assignment Memorandum of Understanding (MOU) between FRA and the State of California, effective July 23, 2019, the Authority is the federal lead agency for environmental reviews and approvals for all Authority Phase 1 and Phase 2 California HSR System projects.⁷ In this role, the Authority is the project sponsor and the lead federal agency for compliance with NEPA and other federal laws for the California HSR System, including the Palmdale to Burbank Project Section. The FRA has primary responsibility for developing and enforcing rail line safety regulations in accordance with 49 U.S.C. Subtitle V, Part A (49 U.S.C. 20101 et seq.), for conducting Government-to-Government tribal consultations as defined in Code of Federal Regulations Title 36, Part 800.16(m) and Executive Order 13175, Consultation and Coordination with Indian Tribal Governments, and for performing Clean Air Act Conformity determinations and other federal approvals retained by the FRA.

The following cooperating agencies involved in the NEPA review process for the Palmdale to Burbank Project Section are as follows:

- USACE (agreed by letter, dated December 30, 2009)
- STB (agreed by letter, dated May 2, 2013)⁸
- United States Forest Service (USFS) (agreed by letter, dated August 25, 2014)
- U.S. Department of Interior, Bureau of Land Management (agreed by letter, dated November 6, 2012)
- FAA (agreed by letter, dated March 4, 2021)

Multiple other federal agencies have been involved and contributed to the NEPA process, including the USEPA, the United States Fish and Wildlife Service, the National Park Service, and the Advisory Council on Historic Preservation.

Several California agencies (state and regional) will have to issue permits or approvals for the Palmdale to Burbank Project Section and therefore would be CEQA responsible agencies. These agencies include:

- California Department of Fish and Wildlife
- California Department of Transportation (Caltrans)
- California Public Utilities Commission, Los Angeles Office
- California Department of Water Resources
- California State Lands Commission
- State Water Resources Control Board
- Lahontan Regional Water Quality Control Board
- Los Angeles Regional Water Quality Control Board
- Antelope Valley Air Quality Management District
- South Coast Air Quality Management District

These agencies can use a Final EIR/EIS through the provisions of CEQA Guidelines Section 15220 et seq. or CEQA Guidelines Section 15096 to approve or permit aspects of the HSR project.

⁷FRA and the State of California. 2019. *Memorandum of Understanding between the Federal Railroad Administration and the State of California, Acting Through Its California State Transportation Agency and Its California High-Speed Rail Authority, for the State of California's Participation in the Surface Transportation Project Delivery Program Pursuant to 23 U.S.C. 327*. July 23, 2019.

⁸The Surface Transportation Board is an independent federal agency with jurisdiction over the construction and operations of new interstate rail lines (49 U.S.C. 10502, 10901). In 2013, STB determined it has jurisdiction over all sections of the proposed statewide California HSR System, including the Palmdale to Burbank Project Section, because of the system's connection to the existing interstate rail network (STB, Docket No. FD 35724 (April 18, 2013)).

1.1.6 Compatibility with Federal Transportation Policy

In 2008, the U.S. Congress enacted a major reauthorization of intercity rail passenger legislation, creating a new priority for rail passenger services in the nation's transportation system. The Passenger Rail Investment and Improvement Act of 2008 (Division B of Public Law 110-432) authorized the appropriation of federal funds to support the implementation of high-speed and intercity rail passenger services, including the authority for the Secretary of Transportation to establish and implement an HSR corridor development program. In the American Recovery and Reinvestment Act of 2009 (Public Law 111-5), Congress appropriated \$8 billion in capital assistance for HSR corridors and intercity passenger rail service. Congress provided an additional \$2.5 billion for this program in the Department of Transportation Appropriations Act (Title I, Division A of the Consolidated Appropriations Act, 2010). The Full-Year Continuing Appropriations Act of 2011 (Public Law 112-110) reduced available funding by \$400 million. In addition, FRA issued the *Strategic Plan, A Vision for High-Speed Rail in America* (FRA 2009), which describes the agency's plan for intercity passenger rail development and subsequent program guidance to implement the High-Speed Intercity Passenger Rail Program with funding provided by Congress through the appropriations acts.

In addition to the intercity rail passenger legislation discussed above, the California HSR System is also consistent with recent expressions of federal multimodal transportation legislation, most notably the Fixing America's Surface Transportation (FAST) Act (Public Law 114-94, December 4, 2015); the Moving Ahead for Progress in the 21st Century Act (Public Law 112-141, July 6, 2012); the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users; the Transportation Equity Act for the 21st Century (Public Law 109-59, August 10, 2005); and the Intermodal Surface Transportation Efficiency Act of 1991 (Public Law 102-240, December 18, 1991). These laws encourage public transportation investment that increases national productivity and domestic and international competition while improving safety and social and environmental conditions. Specifically, these laws encourage investments that offer benefits such as the following:

- Link all major forms of transportation
- Improve public transportation systems and services
- Provide better access to seaports and airports
- Enhance efficient operation of transportation facilities and service

As the most current expression of federal multimodal transportation policy, the FAST Act seeks to improve surface transportation infrastructure, including roads, bridges, transit systems, and the passenger rail network. It provides long-term funding certainty for surface transportation, meaning states and local governments can move forward with critical transportation projects, such as new highways and transit lines, with the confidence that they will have a federal partner over the long term. Overall, the FAST Act maintains current program structures and shares funding between highways and transit. The law also makes changes and reforms to many federal transportation programs, including streamlining the approval processes for new transportation projects and financing, providing new safety tools, and establishing new programs to advance critical freight projects (USDOT 2015).

1.2 Purpose and Need for the California High-Speed Rail System and the Palmdale to Burbank Project Section

1.2.1 Purpose of the High-Speed Rail System

The 2005 Statewide Program EIR/EIS established the purpose of the statewide HSR system and identified and evaluated alternative HSR corridor alignments and station locations as part of a statewide HSR system:

The purpose of the statewide HSR system is to provide a reliable high-speed electric-powered train system that links the major metropolitan areas of the state, and that delivers predictable and consistent travel times. A further objective is to provide an interface with commercial airports, mass transit, and the highway network and to relieve capacity constraints of the existing transportation system as increases in

intercity travel demand in California occur, in a manner sensitive to and protective of California's unique natural resources (Authority and FRA 2005).

1.2.2 Purpose of the Palmdale to Burbank Project Section

The purpose of the proposed project is to implement the Palmdale to Burbank Project Section of the California HSR System: to provide the public with electric-powered HSR service that provides predictable and consistent travel times between major urban centers consistent with Proposition 1A, and connectivity to airports, mass transit systems, and the highway network in the Antelope Valley and the San Fernando Valley; and to connect the northern and southern portions of the statewide HSR system.

Pursuant to the Clean Water Act Section 404(b)(1) Guidelines, the USACE must take into consideration the applicant's needs in the context of the geographic area of the proposed project in its consideration of the applicant's overall project purpose. FRA, the Authority, USACE, and USEPA signed the *Memorandum of Understanding - National Environmental Policy Act (42 U.S.C. 4321 et seq) and Clean Water Act Section 404 (33 U.S.C. 1344) and Rivers and Harbors Act Section 14 (33 U.S.C. 408) - Integration Process for the California High-Speed Train Program (NEPA-404-408 MOU)* in November 2010 to coordinate environmental reviews under NEPA with the regulatory processes under Section 14 of the Rivers and Harbors Act (Section 408) and Section 404 of the Clean Water Act.

The NEPA-404-408 MOU provides a structure for this process that includes several "checkpoint" reports. Pursuant to the NEPA-404-408 MOU, Checkpoint A sets out the purpose and need for the Tier 2 project, Checkpoint B identifies the range of alternatives to be analyzed in the Project EIR/EIS, and Checkpoint C includes an analysis to determine the preliminary least environmentally damaging practicable alternative. USACE and USEPA provided concurrence on the Palmdale to Burbank Project Section purpose and need statement in December 2014 and the range of alternatives in December 2020.

1.2.3 CEQA Project Objectives of the High-Speed Rail System in California and in the Palmdale to Burbank Project Section

The Authority's statutory mandate is to plan, build, and operate an HSR system coordinated with California's existing transportation network, particularly intercity rail and bus lines, commuter rail lines, urban rail lines, highways, and airports. In accordance with Section 15124 of the CEQA Guidelines, the Authority has responded to this mandate by adopting the following objectives and policies for the proposed California HSR System and the Palmdale to Burbank Project Section:

- Provide intercity travel capacity to supplement critically over-used interstate highways and commercial airports
- Meet future intercity travel demand that would be unmet by current transportation systems and increase capacity for intercity mobility.
- Maximize intermodal transportation opportunities by locating stations to connect with local transit, airports, and highways.
- Improve the intercity travel experience for Californians by providing comfortable, safe, frequent, and reliable high-speed travel.
- Provide a sustainable reduction in travel time between major urban centers.
- Increase the efficiency of the intercity transportation system.
- Maximize the use of existing transportation corridors and rights-of-way, to the extent feasible.
- Develop a practical and economically viable transportation system that can be implemented in phases and generate revenues in excess of operations and maintenance costs.

- Provide intercity travel in a manner sensitive to and protective of the region's natural and agricultural resources and reduce emissions and vehicle miles traveled (VMT)⁹ for intercity trips.

While these CEQA project objectives are not directly incorporated into the purpose and need under NEPA, an alternative's ability to achieve these CEQA project objectives will be considered in evaluating the reasonableness of an alternative under NEPA.

What is Vehicle Miles Traveled?

Vehicle miles traveled is a measurement of miles traveled by vehicles within a specified region for a specified time period. It is a helpful metric for discussing GHG reductions and travel congestion.

1.2.4 Statewide and Regional Need for the High-Speed Rail System in the Palmdale to Burbank Project Section Region

The approximately 31- to 38-mile-long Palmdale to Burbank Project Section is an essential component of the statewide HSR system. The Palmdale to Burbank Project Section would provide access to a new transportation mode and contribute to increased mobility throughout California. The Palmdale to Burbank Project Section would connect to both the Bakersfield to Palmdale and Burbank to Los Angeles Project Sections. As shown previously, Figure 1-2 depicts the Palmdale to Burbank Project Section within the California HSR System.

The need for an HSR system exists statewide, with regional demand contributing to this need. As discussed below in Section 1.2.4.1, the Palmdale to Burbank Project Section would contribute considerably to filling the statewide need for a new intercity transportation service that would connect it with the major population and economic centers and to other regions of the state.

The capacity of California's intercity transportation system, including within the Palmdale and Burbank Project Section vicinity, is insufficient to meet existing and future travel demands. The current and projected future system congestion will continue to result in deteriorating air quality, reduced reliability, and increased travel times. The system has not kept pace with the tremendous increase in population, economic activity, and tourism in the state, including that in the project vicinity. The interstate highway system, commercial airports, and the conventional passenger rail system¹⁰ serving the intercity travel market are operating at or near capacity and will require large public investments for maintenance and expansion to meet existing demand and future growth over the next 25 years and beyond. Moreover, the feasibility of expanding many major highways and key urban airports is uncertain; some needed expansions may be impractical or may be constrained by physical, political, and other factors. The need for improvements to intercity travel in California, including intercity travel between the Palmdale and Burbank Project Section vicinity, greater Southern California, the San Francisco Bay Area, and Sacramento, relates to the following issues:

- Future growth in demand for intercity travel, including the growth in demand within the Palmdale to Burbank Project Section corridor
- Capacity constraints that will result in increasing congestion and travel delays, including those in the Antelope Valley (cities of Lancaster and Palmdale) and in the city of Los Angeles (see Figure 1-3)
- Unreliability of travel stemming from congestion and delays, weather conditions, accidents, and other factors that affect the quality of life and economic well-being of residents, businesses, and tourism in California, including within the project vicinity

⁹ VMT is the total miles traveled by all vehicles in a specified area during a specified time.

¹⁰ Conventional passenger rail systems include inter-regional commuter rail services such as Amtrak and Metrolink. These are not to be confused with local, light, and heavy rail transit systems that generally operate within a smaller sub-regional area (e.g., Los Angeles County's Metro Rail System).

- Reduced mobility as a result of increasing demand on limited modal connections between major airports, transit systems, and passenger rail in the state, including within the project vicinity
- Poor and deteriorating air quality and increasing pressure on natural resources and agricultural lands due to the expansion of highways and airports, as well as continued urban development, including in Southern California
- Legislative mandates to moderate the effects of transportation on climate change, including required reductions in GHG emissions caused by vehicles powered by the combustion of carbon-based fuels

1.2.4.1 Travel Demand and Capacity Constraints

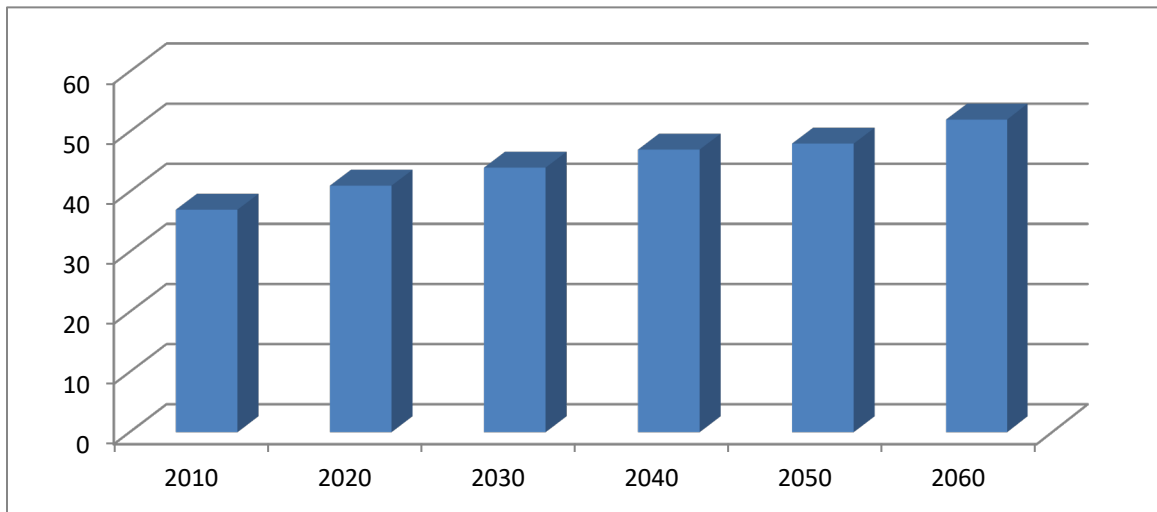
Intercity travel in California, including travel within this portion of Southern California is driven primarily by growth in population, goods movement, tourism, and the economy. The anticipated growth of the region necessitates transportation improvements. Population and economic growth will increase demand for a transportation system that is already under considerable pressure. The HSR system would increase the capacity, connectivity, and efficiency of the current intercity travel system. The California HSR System, including the Palmdale to Burbank Project Section, would interface at hubs with many modes of travel, thereby relieving pressure on the region’s transportation system in a manner that would reduce emissions and vehicle miles travels for intercity trips.

Population and Economic Growth

Population Growth

According to the California Department of Finance (CDOF), California’s population is expected to increase by over 26 percent from 2010 to 2040, from 37.3 million people to 47.2 million people. Figure 1-5 illustrates this forecasted population growth. The population is expected to grow steadily to approximately 52 million people by 2060 (CDOF 2014).

Between 2015 and 2040, the population of Los Angeles County is expected to increase by nearly 1.5 million residents—from approximately 10 million to over 11 million (an approximately 13 percent increase). The City of Los Angeles and Los Angeles County are expected to increase in population at a somewhat slower rate than the state’s overall projected increase of 21 percent over the same period (Table 1-3).



Source: California Department of Finance (CDOF), 2017

Figure 1-5 Current and Future California Population (in millions)

Table 1-3 Projected Population Growth in California and Los Angeles County (2015–2040)

Area	Population in 2015	Projected Population in 2040	Change 2015–2040		Annual Average Increase (%)
			Population	Percentage	
Los Angeles County	10,170,300 ¹	11,514,000 ²	1,343,700	13	0.9
City of Lancaster	161,100 ¹	209,900 ²	48,800	30	2
City of Palmdale	158,400 ¹	201,500 ²	43,100	27	2
City of Los Angeles	3,971,900 ¹	4,609,400 ²	637,500	16	1
City of Burbank	105,300 ¹	118,700 ²	13,400	13	0.8
Unincorporated Los Angeles County	1,051,000 ³	1,273,700 ²	222,700	21	1
State of California	39,144,800 ¹	47,233,200 ³	8,088,400	21	1

Sources: U.S. Census, 2015a; SCAG, 2016; CDOF, 2016

¹ Year 2015 population statistics from U.S. Census (2015a).

² Year 2040 projections obtained from SCAG (2016).

³ Year 2015 population in unincorporated Los Angeles County and 2040 population projections for State of California obtained from CDOF (2016).

2016 SCAG data do not include state-level projections; therefore, the 2040 State population number is obtained from the CDOF.

Calculated figures have been rounded to the nearest whole number.

CDOF = California Department of Finance

SCAG = Southern California Association of Governments

Much of the anticipated population growth is expected to occur in the metropolitan coastal areas or in Southern California's Inland Empire. However, growth and development in these regions have become increasingly challenged because of environmental constraints and quality-of-life issues, including high housing prices. In the metropolitan coastal areas and the Inland Empire, it is becoming increasingly difficult to accommodate new development. Despite economic growth pressure, the combination of rising costs and local opposition is likely to push a substantial number of people to seek housing and employment elsewhere. The Palmdale to Burbank Project Section resource study area (RSA) is located entirely within Los Angeles County and includes the Antelope Valley (cities of Lancaster and Palmdale) and the San Fernando Valley (cities of Los Angeles and Burbank). The RSA for the Palmdale to Burbank Project Section refers to the geographic boundaries in which environmental investigations were conducted. The Antelope Valley and North Los Angeles County areas are likely outlets for this population pressure.

As shown in Table 1-3, population growth in Los Angeles County is expected to be slower than in the state as a whole. Projections anticipate Los Angeles County will grow by 13 percent by 2040, while California as a whole is expected to grow by 21 percent. The cities of Lancaster and Palmdale within the Antelope Valley still have potential for growth and are projected to grow by 30 and 27 percent by 2040, respectively. This anticipated robust population growth in the Antelope Valley is attributable to lower property taxes, lower costs of doing business, and lower housing prices compared to other California regions (Greater Antelope Valley Economic Alliance [GAVEA] 2014). The cities of Burbank and Los Angeles are projected to experience average annual population growth rates similar to Los Angeles County as a whole and less than the rate projected for the state.

Economic Growth

Each of the six Build Alternatives traverse three distinct employment centers: the Antelope Valley, the city of Los Angeles, and the city of Burbank. Each of these is described below.

The largest economic sector in the Antelope Valley (of which Lancaster and Palmdale are the two largest cities) is the aerospace and aviation industry, which accounts for over 27,000 jobs (GAVEA 2016). Other large industries in the Antelope Valley include manufacturing and mining, which collectively account for approximately 4,600 jobs, and the healthcare and healing industry, which provides approximately 6,600 jobs. The Antelope Valley is also a leader in renewable

energy production, with considerable numbers of wind farms and solar facilities, accounting for nearly 800 jobs in the region. In addition to these local enterprises, the nearly 71,000 workers residing in the Antelope Valley have public transportation access to employment opportunities in the Los Angeles basin via Metrolink rail (Antelope Valley corridor) (GAVEA 2014). In 2015, there were 422 average daily weekday boardings of the Metrolink Antelope Valley Line at the Palmdale TC and 385 average daily weekday boardings at the Lancaster Station (GAVEA 2016).

Approximately 30 and 21 percent of working residents in Lancaster and Palmdale, respectively, work locally with one-way commutes of 14 minutes or less. Approximately 28 percent of Palmdale working residents have a commute of 15 to 29 minutes, indicating approximately 49 percent of Palmdale residents work within the Antelope Valley region. In Lancaster, approximately 34 percent of working residents have a commute of 15 to 29 minutes, indicating approximately 65 percent of Lancaster working residents work within the Antelope Valley region (Table 1-4). Of the remaining Antelope Valley workforce that commutes outside of the Antelope Valley (30 minutes or longer), most travel to the following cities (in order from highest percentage to lowest): Los Angeles, Simi Valley, Santa Clarita, Long Beach, Burbank, Pasadena, Glendale, and Bakersfield (GAVEA 2015).

Table 1-4 Travel Time to Work in Cities within the Palmdale to Burbank Project Section Region

Jurisdiction	Less than 10 minutes	10–14 minutes	15–19 minutes	20–24 minutes	25–29 minutes	30–34 minutes	35–44 minutes	45–59 minutes	60 or more minutes
State of California	10.5%	13.4%	15.4%	14.7%	5.8	15.0%	6.6%	8.2%	10.4%
Los Angeles County	7.8%	11.3%	13.8%	14.4%	5.4%	17.7%	7.6%	9.9%	12.1%
City of Lancaster	12.1%	18.2%	21.6%	10.3%	2.4%	5.1%	3.2%	7.9%	19.3%
City of Palmdale	6.7%	14.4%	13.1%	11.0%	3.4%	5.7%	2.5%	11.7%	31.4%
City of Los Angeles	7.1%	10.6%	13.6%	14.9%	5.5%	19.3%	7.7%	9.7%	11.6%
City of Burbank	12.7%	15.4%	14.3%	14.2%	5.0%	15.4%	7.5%	7.3%	8.2%

Source: U.S. Census, 2015b

The *Lancaster General Plan Housing Element (2014–2021)* cites the jobs/housing balance as a critical issue facing the growth of Lancaster (City of Lancaster 2013). In 2009, Lancaster had a jobs-to-housing ratio of 1.13:1, which is slightly below the desired ratio of 1.22:1 noted in the *General Plan Master Environmental Assessment* (City of Lancaster 2009). Similarly, the *Palmdale General Plan* discusses how Palmdale’s current jobs/housing imbalance (which is skewed toward more housing than jobs) places a strain on freeways and regional arterials, due to the large number of commuters using these facilities, and identifies continued improvement in the jobs-to-housing ratio to mitigate commuter impacts on regional roadways and freeways (City of Palmdale 1993). Palmdale’s housing imbalance continues to follow the trends identified in the City’s general plan, with a jobs-to-housing ratio of 0.79:1 as identified by the Southern California Association of Governments (SCAG 2019).

Within the city of Burbank, information jobs account for the largest occupational share of Burbank residents, at 26.6 percent. Professional, scientific, and management occupations, together with educational and health occupations, account for the jobs held by 21.4 percent of Burbank’s residents (City of Burbank 2014). The city of Burbank also hosts an entertainment industry and is home to the Walt Disney Company, Warner Brothers Entertainment, and NBC Universal, along with many other smaller production facilities. Arts, entertainment, recreation, accommodation, and food service occupations account for a total of 12.3 percent of Burbank jobs. Additionally, the

Hollywood Burbank Airport is Los Angeles County's second busiest airport, providing employment in the Burbank area. While most Burbank residents (85 percent) commute to workplaces within 45 minutes of their homes, 16 percent of residents commute long distances to work, as evidenced by commute times in these areas (Table 1-4).

The major industries in the city of Los Angeles are entertainment, aerospace, tourism, and technology (Forbes 2016). Many residents in the city of Los Angeles commute long distances to work. Approximately 27 percent of residents commute for 30 to 44 minutes and approximately 12 percent commute for 60 or more minutes. The percentage of commuters with a 60-minute or longer commute is higher for residents of the city of Los Angeles than for residents of Burbank and the state overall. The substantial number of commuters places a strain on the regional transportation system.

As shown in Table 1-5, Los Angeles County has a higher unemployment rate than the state as a whole, and a slightly lower average per-capita income than the state overall.

Table 1-5 Unemployment and Income in California and within Los Angeles County

Area	Unemployment Rate (2015) (%) ¹	Average Per-Capita Income (2015) ²
State of California	6	\$30,318
Los Angeles County	7	\$28,337

Source: California Employment Development Department, 2017; U.S. Census 2015b

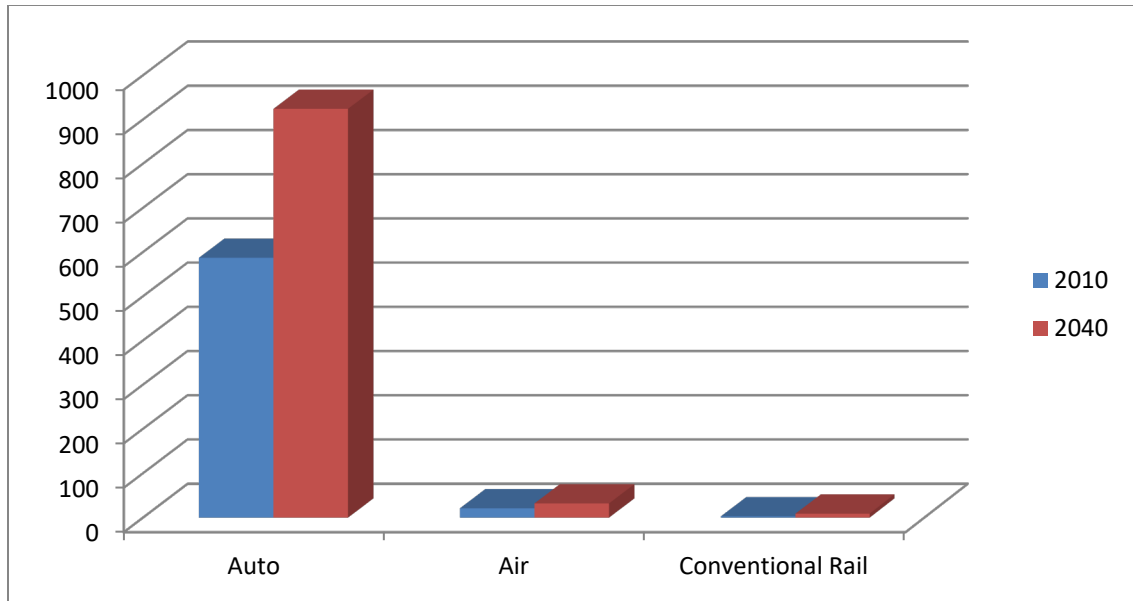
¹ Annual average provided (EDD 2017)

² Five-year estimate provided (U.S. Census 2015b)

EDD = California Employment Development Department

Travel Demand

The steady population and economic growth within Southern California contributes to increasing travel demand, placing pressure on the region's freeways. Overall, within the state, intercity travel is forecast to increase by more than 58 percent between 2010 and 2040, from 610 million trips to approximately 956 million trips (Authority 2016), as illustrated on Figure 1-6. According to the Authority's 2007 ridership and revenue forecast, Californians were estimated to make 610 million trips in 2010 between the state's metropolitan regions in Northern and Southern California, as well as in the regions between (Cambridge Systematics 2007). Approximately 209 million of these trips were forecast to be journeys of at least 100 miles; by 2040, this number is expected to increase to more than 271 million trips per year (Cambridge Systematics 2007).



Source: Authority, 2016

Figure 1-6 Intercity Trips in California (in millions)

The fastest-growing mode of transit for intercity trips is conventional rail, which is expected to almost double between 2010 and 2040. However, without the California HSR System, the automobile will continue to account for the greatest share of long-distance intercity travel, and by 2040 is expected to account for approximately 95 percent of all long-distance intercity travel (Authority 2016). Figure 1-7 illustrates the major routes and airports used for long-distance travel among the markets potentially served by the California HSR System.

Freeway Congestion and Travel Delays

Due to a large dependency on automobile transportation, the greater Los Angeles area experiences some of the worst traffic congestion among the nation’s metropolitan areas. According to SCAG, 85 of the top 100 major road bottlenecks within the six-county SCAG region are within Los Angeles County alone. In order to reduce delays and lessen the loss of lane mile capacity associated with bottlenecks, the *2016–2040 Regional Transportation Plan/Sustainable Communities Strategy* (2016 RTP/SCS) proposes various projects to optimize the transportation system and reduce vehicle delays. While the SCAG region is anticipated to experience improved regional congestion in future years, Los Angeles County is expected to experience the longest delays within the SCAG region (SCAG 2016).

In 2015, a traveler in the greater Los Angeles area experienced an annual travel delay of 80 hours—the second highest travel delay for any metropolitan area within the United States (Texas Transportation Institute 2015). In 2014, freeway travel time during the peak period in the greater



Source: California High-Speed Rail Authority and Federal Railroad Administration, 2018

Figure 1-7 Major Intercity Travel Routes and Airports in California

Los Angeles area was 1.6 times as long as during nonpeak period conditions; this was the worst in the state and the worst nationally (Texas Transportation Institute 2015).

Table 1-6 represents the travel demand forecasted for Los Angeles County by 2040. As shown in the table, the daily VMT are expected to reach over 220 million and the daily vehicle hours traveled are expected to reach 6.8 million by 2040. Delay hours are expected to increase by approximately 22 percent, and speeds are expected to decrease slightly. Roadway expansion beyond existing right-of-way is not a viable option for this region, due to constraints presented by existing development. By 2040, Los Angeles County will only be able to increase roadway capacity by roughly 1 percent (SCAG 2016).

Table 1-6 Current and Projected Vehicle Miles and Hours Traveled (Daily) in Los Angeles County

	2012	2040 (projected)	Percent Change
Vehicle Miles Traveled (thousands)	204,905	222,883	7.8
Vehicle Hours Traveled (thousands)	6,026	6,822	11.6
Delay hours (thousands)	1,603	2,010	22.1
Speed (miles per hour)	34	32.7	-3.4

Source: SCAG, 2016

SCAG = Southern California Association of Governments

Caltrans and the Los Angeles County Metropolitan Transportation Authority (Metro) plan to implement improvements to the major freeways within the Palmdale to Burbank Project Section region by 2040 in order to meet the growing demands of Los Angeles County and adjacent areas. Freeways to be improved include Interstate (I-) 5, I-210, I-405, U.S. Highway (US) 101, SR 14, SR 134, and SR 170. Despite past improvements to these roadways, population growth and travel demand continue to strain local infrastructure. This has consequently resulted in increased congestion and delays, increased fuel consumption, and decreased air quality (SCAG 2016).

Roadway congestion, limited airport capacity, track conflicts between passenger rail and freight rail, and a growing intercity travel market are adversely affecting the travel time reliability of automobile, passenger rail, and air travel. Increased vehicle travel, as well as the growth in goods movement from the ports of Los Angeles and Long Beach, comprises additional sources of disruption and delay that affect transportation reliability. In 2011, each commuter in the greater Los Angeles region incurred congestion costs¹¹ of \$1,300 per vehicle—the second highest congestion cost for any metropolitan area within the U.S. (Texas Transportation Institute 2012). SCAG estimates that additional costs of \$10.5 billion are incurred by Southern California region commuters due to time delays caused by congestion (SCAG 2008). According to the South Coast Air Quality Management District, time delays and congestion also create an estimated \$14.6 billion in air pollution costs (SCAG 2012). Improving transportation infrastructure within the Southern California region could also directly affect economic growth, with every 10 percent decrease in congestion resulting in an employment increase of 132,000 jobs (SCAG 2012).¹²

Intercity travel originating from the Antelope Valley and Los Angeles area in general, and the Palmdale to Burbank Project Section region in particular, largely relies on the SR 14, I-5, and I-210 freeways. As shown on Figure 1-3, SR 14, I-5, and I-210 are three of the principal connectors between the major cities in the RSA.

¹¹ Congestion cost is the value of time delay and excess fuel consumption. The Texas Transportation Institute estimated this cost at \$16.79 per hour of person travel and \$86.81 per hour of truck time. Fuel consumption was estimated using the state average cost per gallon for gasoline and diesel fuel.

¹² The SCAG 2016 RTP/SCS does not contain this analysis. The 2012 SCAG RTP/SCS is the most recent report that contains this analysis.

The Palmdale to Burbank Project Section region is typical of statewide growth patterns and trends, in which much of the intercity travel in California consists of intermediate-distance trips. Table 1-7 shows the statewide forecasting model results for expected growth in traffic volumes on major highways by 2040. Travel growth for all intercity highways is projected to increase between 2010 and 2040 within this corridor. For example, people traveling between Lancaster and Los Angeles along SR 14 will experience travel demand growth, with 27 percent more annual intercity trips.

Table 1-7 Travel Growth for Intercity Highways

Major Highways	Average Daily Volume 2010	Projected Average Daily Volume 2040	Projected Change in Average Daily Volume	Projected Percent Change, 2010–2040	Average Annual Growth Rate (%)
I-5 between San Diego and Los Angeles (Orange County–Los Angeles County line)	229,000	284,000	55,000	24	1.0
I-5 between Los Angeles and Bakersfield (at Santa Clarita)	182,000	271,000	89,000	49	2.0
SR 99 between Bakersfield and Modesto	110,000	174,000	64,000	58	2.3
US 101 between San Jose and Madera	78,000	114,000	36,000	46	1.8
SR 152 between San Jose and Madera	27,000	48,000	21,000	78	3.1
SR 99 between Bakersfield and Merced	24,000	43,000	19,000	79	3.2
I-5 between Bakersfield and Modesto	41,000	60,000	19,000	46	1.9
I-280 between San Jose and San Francisco	87,000	133,000	46,000	53	2.1
I-5 between Modesto and Sacramento	47,000	79,000	32,000	68	2.7
SR 99 between Modesto and Sacramento	57,000	81,000	24,000	42	1.7
SR 14 between Lancaster and Los Angeles	44,000	56,000	12,000	27	1.1
I-5 between Lancaster and Los Angeles	324,000	384,000	60,000	19	0.7
I-5 between Santa Clarita and Orange County Line	294,000	309,000	15,000	5	0.2
US 101 from Ventura County Line to Pasadena	296,000	319,000	23,000	8	0.3
SR 134 from Ventura County Line to Pasadena	254,000	283,000	29,000	11	0.5
SR 170	151,000	180,000	29,000	19	0.8

Major Highways	Average Daily Volume 2010	Projected Average Daily Volume 2040	Projected Change in Average Daily Volume	Projected Percent Change, 2010–2040	Average Annual Growth Rate (%)
I-210 between Sylmar and Pasadena	88,000	112,000	24,000	27	1.1
SR 2 between Glendale and Echo Park	189,000	205,000	16,000	8	0.3
SR 110 between Pasadena and San Pedro	161,000	168,000	7,000	4	0.2
I-110 between Pasadena and San Pedro	142,000	160,000	18,000	13	0.5
I-10 between Santa Monica and Ontario (at Santa Monica)	140,000	150,000	10,000	7	0.3
I-10 between Santa Monica and Ontario (at Ontario)	218,000	245,000	27,000	12	0.5
SR 60 between Los Angeles and Pomona	177,000	201,000	24,000	14	0.5
SR 134 between Studio City and Pasadena	231,000	249,000	18,000	8	0.3
SR 118 between Pacoima and Mission Hills	170,000	197,000	27,000	16	0.6
SR 58 between Bakersfield and Mojave	12,000	26,000	14,000	117	4.7

Source: California Statewide Travel Demand Model – Version 2, 2014
 Average daily volume represents average weekday traffic over a 24-hour period.
 I = Interstate
 SR = State Route
 US = U.S. Route

The SR 14, I-5, and I-210 freeways were built between the late 1950s and late 1960s, intended to accommodate known and projected population and transportation demand of that era. Since that time, population in the Palmdale to Burbank Project Section region has not only increased and is continuing to increase, but the growth has occurred in lower-density land use patterns that place greater reliance on automobile travel. Plans to improve routes within the RSA, including I-5 and SR 14, are currently in various planning stages (SCAG 2016). Nevertheless, these improvements would not be sufficient to substantially reduce delays within the region and would also be insufficient to offset projected population growth (SCAG 2016).

In order to fulfill Caltrans' statutory responsibility as owner/operator of the state highway system to identify deficiencies and propose improvements to the state highway system (Government Code 65086), Caltrans participates in a long-range planning process that comprises multiple planning reports. One of these reports is the Transportation Concept Report (TCR), which is a planning document that identifies the existing and future route conditions as well as future needs for each route on the highway system. The Caltrans' level of service (LOS) goal for state highway facilities is LOS B through LOS D (on a scale of A to F, where A represents unencumbered travel and F represents stop-and-go traffic). According to Caltrans' data shown in Table 1-8 through Table 1-10, LOS is anticipated to degrade to LOS F across the majority of roadways within the RSA by 2035. Table 1-10 refers to map segments outlined in the TCR.

Table 1-8 Level of Service Projections for SR 14 within the Resource Study Area

Map Segment #	Segment of SR 14 Description	LOS 2008	LOS 2035
1	Junction of SR 138 to Avenue I	B	C
2	Ward Road to South Junction of SR 138	D	F
3	San Fernando Road to Ward Road	E	F
4	I-5 to San Fernando Road	F	F

Source: Caltrans, 2014a

I = Interstate

LOS = level of service

SR = State Route

Table 1-9 Level of Service Projections for I-5 within the Resource Study Area

Map Segment #	Segment of I-5 Description	LOS 2008	LOS 2035
5	I-210 to SR 14	F	F
6	I-405 to I-210	F	F
7	SR 118 to I-405	F	F
8	SR 170 to SR 118	F	F
9	SR 134 to SR 170	F	F

Source: Caltrans, 2013a

I = Interstate

LOS = level of service

SR = State Route

Table 1-10 Level of Service Projections for I-210 within the Resource Study Area

Map Segment #	Segment of I-210 Description	LOS 2008	LOS 2035
10	I-5 to SR 118	E	F
11	SR 118 to SR 2	F	F

Source: Caltrans, 2013b

I = Interstate

LOS = level of service

SR = State Route

Over the next 10 to 25 years, depending on available funding, Caltrans would continue to implement elements of the SR 14 and I-5 TCRs, which may be used for improvements such as road widenings, new interchanges, high-occupancy vehicle lanes, and grade separations within the Palmdale to Burbank Project Section region. The 2016 SCAG RTP/SCS plans improvements to these highways, including adding high-occupancy vehicle lanes to I-5 within the Palmdale to Burbank Project Section corridor.

Freight Movement

The regional transportation network includes freight movement by both truck (highway) and rail, with shipments of goods in California occurring primarily by truck (Caltrans 2014b). Freight truck deliveries are an important component of the regional economy. Truck and rail modes serve a variety of customers, including airports (e.g., Los Angeles International Airport [LAX] and Hollywood Burbank Airport [BUR]) and seaports (e.g., the Ports of Los Angeles and Long Beach, which are the two busiest container ports in the U.S.). Figure 1-8 depicts the regional freight network in the Palmdale to Burbank Project Section region.

Freight Trucking

The Surface Transportation Assistance Act of 1982 defined a national system of truck routes. The truck routes within the Palmdale to Burbank Project Section region include both national network (federal highways) and terminal access routes (portions of state routes or local roads that can accommodate freight trucks). The national truck routes and terminal access routes in the RSA include I-5, SR 14, US 101, SR 118, SR 134, and SR 170; SR 138 is also a terminal access route (Figure 1-8).

SR 14 is identified as a major freight network facility in the *Goods Movement Action Plan* (Caltrans 2007) and the *Interregional Transportation Strategic Plan of 2015* (Caltrans 2015)—along with other routes (I-10, I-105, I-110, I-405, I-605, and I-710), seaports, and airports (Caltrans 2015, 2014a). SR 14 serves as an important regional transportation corridor, and the current levels of highway congestion present obstacles to economic activity with projections indicating that congestion will continue to worsen. SR 14 is within Caltrans District 7, where truck VMT is expected to double by 2030 (Caltrans 2014a). Even with significant improvements, such as those planned by Caltrans (discussed in the “Travel Demand” subsection above), heavily congested segments will remain as shown in Table 1-8.

Table 1-11 presents the average daily truck volumes for segments of major highways within the Palmdale to Burbank Project Section region and the percent of total traffic on these segments that is truck traffic.

Table 1-11 Daily Truck Volumes on Segments of Major Highways within the Palmdale to Burbank Project Section Region (2008)

Major Highways	Total Average Annual Daily Truck Traffic	Percent of Total Traffic
SR 14	3,000–7,700	4.5–6.7
I-5	13,100–25,900	6.8–10.7
I-210	8,100–10,400	7.2–8.3

Source: Caltrans, 2013a, 2013b, 2014a

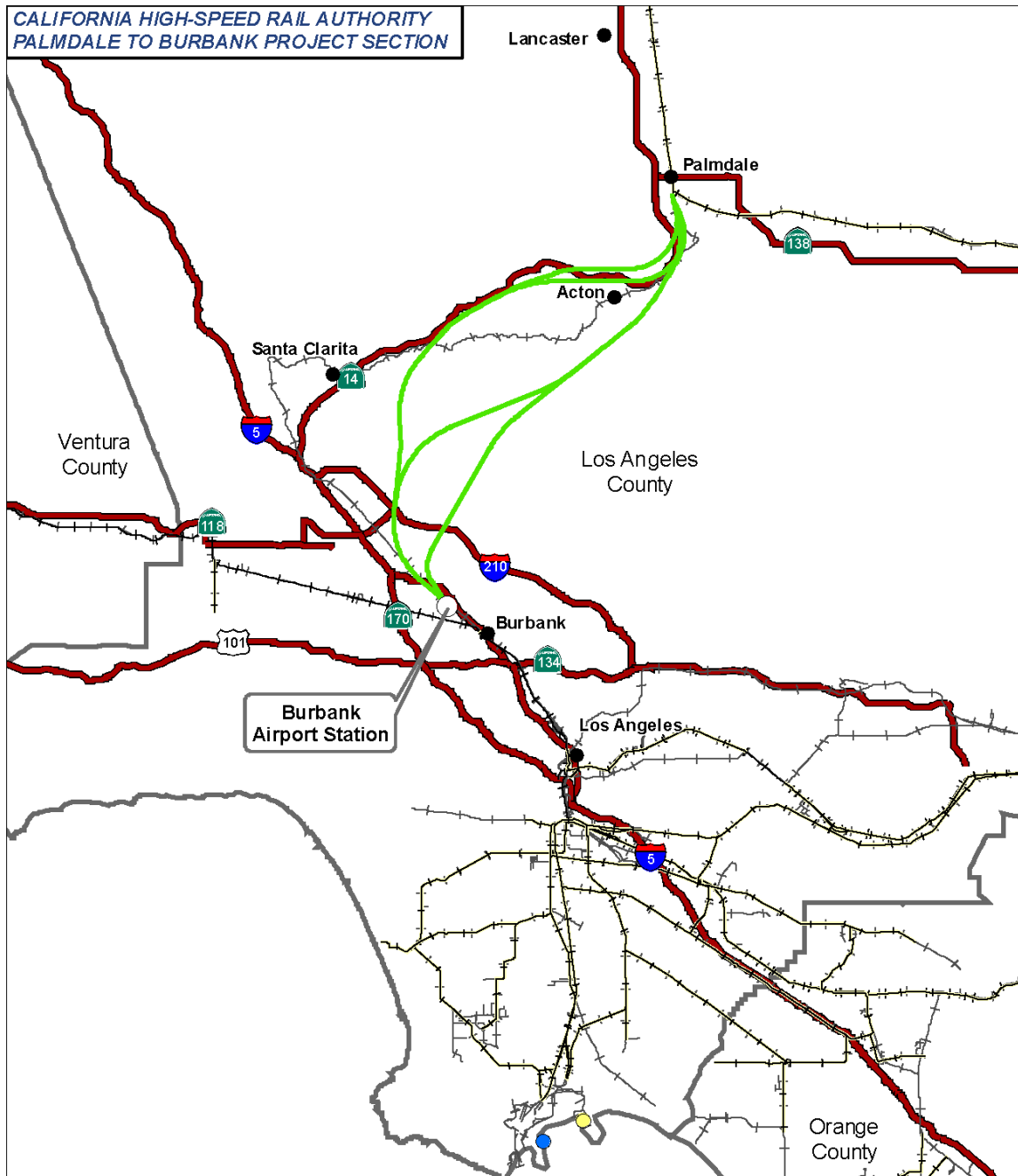
I = Interstate
 LOS = level of service
 SR = State Route

Freight Rail

The BNSF Railway and Union Pacific Railroad (Union Pacific) handle most of the state’s freight rail traffic and own and operate 75 percent of the freight track mileage in California. According to the Caltrans 2018 State Rail Plan, BNSF Railway and Union Pacific each generate more than \$475 million in annual revenue (Caltrans 2018).¹³

North of the Ports of Los Angeles and Long Beach, Union Pacific and BNSF Railway trains operate on the Alameda Corridor, which was completed in 2002. All trains traveling to and from these ports owned by Union Pacific and BNSF Railway use the Alameda Corridor to access the rail mainlines that originate near downtown Los Angeles. East of downtown Los Angeles, freight trains operate on the BNSF Railway San Bernardino Subdivision, the Union Pacific Los Angeles Subdivision, or the Union Pacific Alhambra Subdivision. North and west of Los Angeles, freight trains operate on the Union Pacific Coast Line toward Santa Barbara, the Antelope Valley Line from the San Fernando Valley to Palmdale, or the Union Pacific Mojave Subdivision from West Colton to Palmdale.

¹³ Railroads are typically classified by size and geographic reach. Classifications are developed by the Surface Transportation Board based on operating revenue. They are important not only for identifying the railroad’s significance, but also for financial and statistical reporting.



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
 Source: Authority, 2020; ArcGIS Online, 2021
 August 2, 2021

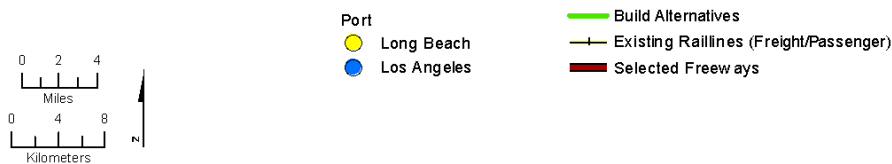


Figure 1-8 Freight Movement in the Palmdale to Burbank Project Section Region

Union Pacific, which provides Class I rail service from the Ports of Los Angeles and Long Beach to the San Joaquin Valley and the Inland Empire and beyond, operates the freight rail system in the Palmdale to Burbank Project Section region. Union Pacific operates two freight routes through the RSA, one within the Burbank Airport Station area and both within the Palmdale Station area (see Figure 1-8).

Conventional Passenger Rail

Within the Palmdale to Burbank Project Section region, conventional rail operators are the Metrolink system and Amtrak. The California HSR System proposes to share an existing corridor with these operators. Figure 1-9 shows the conventional rail routes within the Palmdale to Burbank Project Section region.

Metrolink

Operated by the Southern California Regional Rail Authority (SCRRA), Metrolink offers a large network of commuter rail services between Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura counties, providing intercity rail service along 7 lines and to 61 stations covering over 538 route miles. Metrolink’s Thruway Connecting Service (Antelope Valley Line) between Los Angeles Union Station (LAUS) and Lancaster connects to the Amtrak Pacific Surfliner Route; this line offers 19 daily trips in each direction on weekdays and 12 daily trips on weekends. Travel time on Metrolink’s Antelope Valley Line is 9 minutes between Lancaster and Palmdale, and 106 minutes between Palmdale and LAUS serving approximately 1,118,625 travelers in 2016 (Caltrans 2018).

Amtrak

Amtrak operates intercity passenger rail service, with two lines running to Northern California out of LAUS: the Pacific Surfliner Route from San Luis Obispo to San Diego, and the Coast Starlight Route from Los Angeles to Seattle. The Pacific Surfliner route has 11 northbound trips and 6 southbound trips daily that also serve the Hollywood Burbank Airport Metrolink Station. The Coast Starlight Route has one daily northbound trip and one daily southbound trip, including one northbound and one southbound stop at both the LAUS and the Hollywood Burbank Airport Metrolink Station. Table 1-12 notes the passenger ridership in 2015 and 2019 for the Amtrak routes that serve the RSA, and Figure 1-9 shows the passenger rail network in the RSA.

Table 1-12 Amtrak Ridership in the Resource Study Area (2015 and 2019)

Amtrak Route	Total 2015 Annual Passengers	Total 2019 Annual Passengers	Average Annual Percentage Change 2015–2019
Pacific Surfliner	2,827,134	2,776,654	-0.4
Coast Starlight	455,845	426,029	-1.8

Source: Amtrak, 2017, 2019, 2020

The 2018 California State Rail Plan envisions an increase in service of one train per day and up to 20,000 passengers) between Los Angeles and Santa Barbara to achieve primarily bi-hourly service between these cities, as well as improvements in operations, passenger amenities, and multimodal connectivity (Caltrans 2018). Additional Amtrak service is also proposed from Los Angeles to San Francisco. The proposed Coast Daylight service would run southbound through the study corridor in the morning peak hour and northbound in the evening peak hour, with a proposed stop at the Hollywood Burbank Airport Metrolink Station.¹⁴ The Coast Rail Coordinating Council is working with State and regional transportation agencies as well as Union Pacific (which owns most of the existing rail corridor used by Amtrak) to implement a series of physical

¹⁴ One-way travel time on the Coast Daylight service from Los Angeles to San Francisco is expected to be 11–12 hours.

improvements that would allow for expansion of passenger rail service without significant decline in freight rail service.

North of Burbank and into the Antelope Valley, no Amtrak routes parallel the proposed Palmdale to Burbank Project Section (Figure 1-9).

Local and Commuter Bus Services

Several different service operators provide local and intercity bus service within the Palmdale to Burbank Project Section region. Near the Palmdale TC, Greyhound Bus, Amtrak, and the Los Angeles County Department of Public Works provide bus service. Greyhound Bus serves more than 3,800 stops nationwide, including one at the Palmdale TC. Greyhound provides one daily trip between Palmdale and Los Angeles. The Los Angeles County Department of Public Works runs a seasonal bus service (Los Angeles County Beach Bus) from the Palmdale TC to the Santa Monica Pier from late May through early September. Also, Amtrak provides a thruway bus service from the Palmdale TC (Authority 2020e).

In the Burbank area, Burbank Bus and Metro provide bus service. Burbank Bus offers four bus services, including the Empire/Downtown Route, the Noho/Airport Route, the Noho/Media District Route, and the Metrolink/Media District Route. These routes service the northwestern, western, and southwestern portions of the city of Burbank. Primary roadways along which these bus services travel include, but are not limited to, Glenoaks Boulevard, Hollywood Way, Empire Avenue, North Victory Place, Buena Vista Street, Burbank Boulevard, Magnolia Boulevard, Olive Avenue, and Alameda Avenue. Bus services provided by Metro feature a variety of options, including express, rapid, and local/limited bus routes, including but not limited to Routes 794, 92, 94, 22, and 169 (Authority 2020e). Interfacing with California HSR System service at the Palmdale and Hollywood Burbank Airport Stations would provide greater multimodal connectivity to these local and commuter bus services.

Air Travel Growth and Capacity Constraints at Airports

Air travel demand has been growing steadily in California and nationwide; federal, state, and regional transportation plans forecast continued growth in air travel over the coming decades. The FAA projects that between 2019 and 2039, U.S. domestic passenger growth will increase by 1.8 percent per year (FAA 2019). According to the California Energy Commission's analysis of jet fuel demand, air travel has been increasing steadily in California since 2009 and is projected to continue to grow at a rate of approximately 2 percent between 2015 and 2025 (California Energy Commission 2015).

The Southern California region contains the nation's largest and most complex regional airport system, consisting of seven commercial airports with scheduled passenger service, five additional airports with infrastructure to accommodate scheduled service, seven active military fields, and over 40 general aviation airports (SCAG 2016).

Intercity travel, including travel outside of the state, comprises approximately 28 percent of all passenger miles traveled in California, including air travel (California Energy Commission 2013). Without an HSR system, more than 3 percent of all intercity travel statewide and approximately 10 percent of longer intercity trips (those in excess of 100 miles) are forecast to be via air travel. LAX is a major hub for both international and intercity commercial air travel, serving eight commercial service in-state airports (see Table 1-13). LAX is located in the southwest Los Angeles area, approximately 18 miles from downtown Los Angeles and 29 miles from downtown Burbank. LAX is the third busiest airport in the country and the seventh busiest in the world, based on passengers served (Los Angeles World Airports 2016). With a 3,500-acre area, LAX is less than half the size of Chicago's O'Hare Airport and less than one-tenth of Denver International Airport (SCAG 2012). In 2015, the intercity route of LAX to San Francisco International Airport (SFO) was the second busiest air travel route in the U.S., with over 3.5 million passengers between October 2015 and September 2016 (U.S. Department of Transportation [USDOT] 2016).

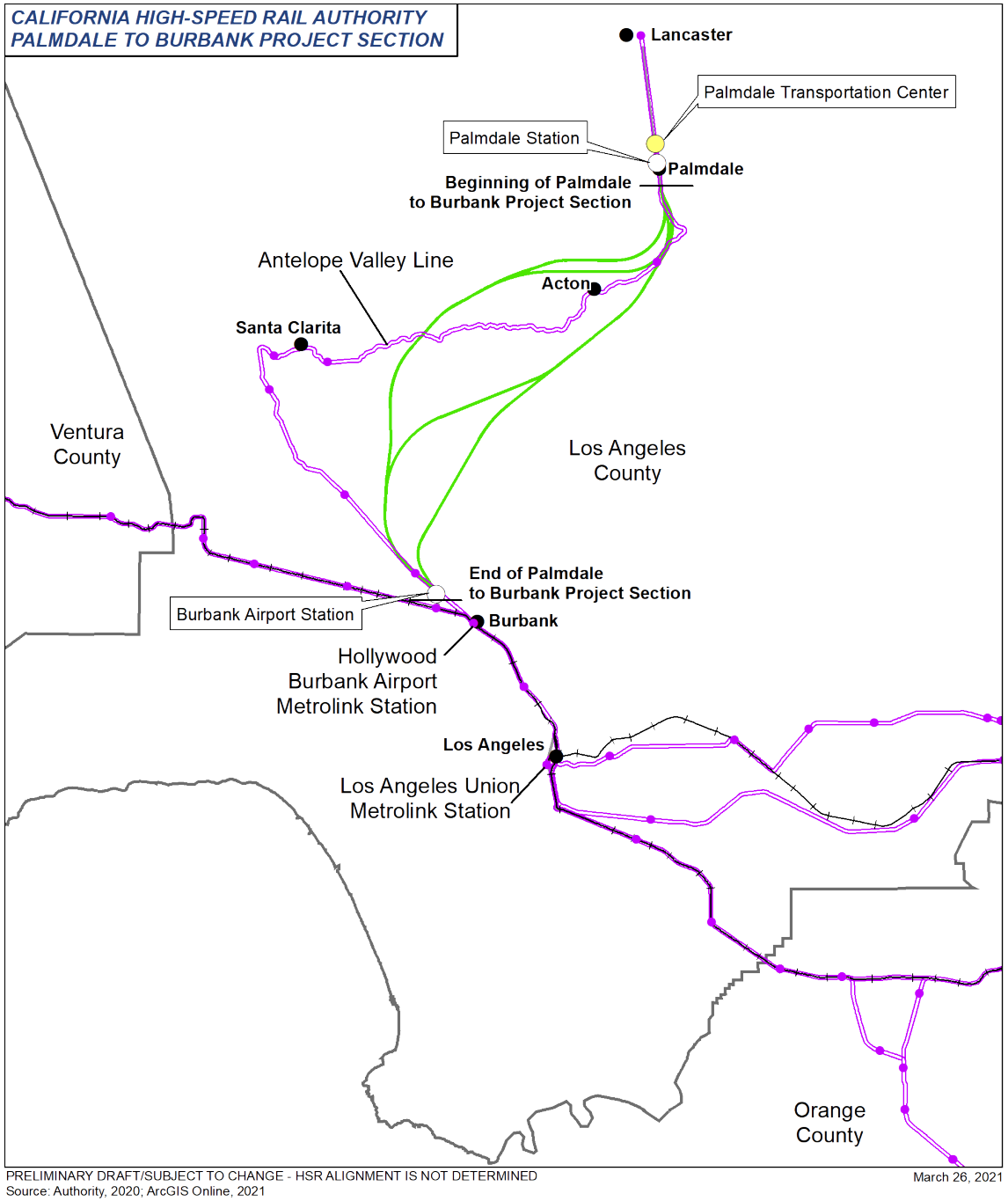


Figure 1-9 Passenger Rail Network in Palmdale to Burbank Project Section Region

Hollywood Burbank Airport is in Burbank and serves the San Fernando Valley, the San Gabriel Valley, and the northern Los Angeles County area. The Hollywood Burbank Airport is owned and operated by the Burbank-Glendale-Pasadena Airport Authority; a separate government agency created under a joint powers agreement between the three cities. Hollywood Burbank Airport serves six in-state commercial service airports (see Table 1-13). In 2015, Hollywood Burbank Airport had over 1.8 million enplanements (defined as passenger boardings), which was an increase of over 2 percent from the previous year (FAA 2016).

In addition to the Hollywood Burbank Airport and LAX, the Palmdale Regional Airport is located within the RSA, immediately northeast of Palmdale. The two main runways, built for military jets, are each over 2 miles long. From 1970 to 1983, the Los Angeles Department of Airports, now called Los Angeles World Airports, acquired about 17,750 acres of land east and south of U.S. Air Force Plant 42 in unincorporated Los Angeles County to be developed into a future “Palmdale Intercontinental Airport,” an alternative to LAX. Los Angeles World Airports did not develop Palmdale Regional Airport beyond a 9,000-square-foot airport terminal. The airport attracted intermittent commercial service from the late 1970s until 2008, when the last regularly scheduled commercial service operations ceased. However, the City of Palmdale established the Palmdale Airport Authority in 2013 to manage the airport, overseeing all of its functions (GAVEA 2020). The potential remains for commercial service to resume in the future (Gatlin 2019). The Palmdale Regional Airport could serve as a convenient airport option for residents of the Antelope Valley, Apple Valley, Santa Clarita, and San Fernando Valley communities, as well as for residents of the southern Central Valley. Additionally, the Palmdale Regional Airport could benefit from planned regional connectivity improvements in the future, including an improved Metrolink Antelope Valley Line within 3 miles of the current airport terminal, the High Desert Corridor project (described in Section 1.4.2) (Metro 2013).

Table 1-13 Commercial Air Traffic and Airports Serving the Palmdale to Burbank Project Section Region

Airport	Total 2015 Annual Passengers	Estimated 2040 Annual Passengers	In-State Commercial Airports Served
Hollywood Burbank Airport	1,973,897	7,300,000	<ul style="list-style-type: none"> ▪ Oakland International Airport ▪ San Francisco International Airport ▪ San José International Airport ▪ Sacramento International Airport
Los Angeles International Airport	36,351,272	82,900,000–96,600,000	<ul style="list-style-type: none"> ▪ Mammoth Yosemite Airport ▪ Monterey Regional Airport ▪ Oakland International Airport ▪ San Diego International Airport ▪ San Francisco International Airport ▪ San Jose International Airport ▪ Sacramento International Airport ▪ Charles M. Schulz-Sonoma County Airport

Source: Federal Aviation Administration, 2016a; Burbank-Glendale-Pasadena Airport Authority, 2019; Los Angeles World Airports, 2019; SCAG, 2016

SCAG = Southern California Association of Governments

As shown Table 1-13, populations in the Palmdale to Burbank Project Section region can fly to other cities within the state using the two major airports offering commercial service. However, access to these airports is limited. The Hollywood Burbank Airport offers service to fewer destinations than LAX, but travel to LAX from Burbank, Glendale, and the northern part of Los Angeles County is constrained, with an automobile travel time of an hour or more and no direct

rail-to-airport connections. The SCAG 2012 RTP/SCS identified ground access improvements to relieve bottlenecks, provide improvements to intersections and interchanges, and improve transit access. Other regional agencies have also taken initiatives in improving airport ground access. Metro studied transit connections to the regional airports through the *Regional Airport Connectivity Plan* (Metro 2013). The Burbank-Glendale-Pasadena Airport Authority and Los Angeles World Airports have also conducted studies in improving and developing transportation options in areas in and near the airports (SCAG 2016). Despite these efforts and accessibility improvements such as LAX/FlyAway airport shuttles, access to the region's airports will continue to be a challenge. The Palmdale to Burbank Project Section would improve access to LAX and the Hollywood Burbank Airport for residents of the Antelope Valley and Southern Central Valley. Additionally, the Palmdale to Burbank Project Section would give residents of Burbank and Los Angeles access to the Palmdale Regional Airport if commercial service were to resume at this airport.

The Palmdale to Burbank Project Section also would address the issue of limited airport capacity and growing demand for air travel. During calendar year 2015, LAX enplaned and deplaned over 36 million domestic passengers, while the Hollywood Burbank Airport enplaned and deplaned approximately 2 million domestic passengers. As shown in Table 1-13, the Hollywood Burbank Airport offers a fraction of the flights offered by LAX; however, by 2040, both the Hollywood Burbank Airport and LAX are projected to reach capacity service levels. The Hollywood Burbank Airport and LAX will have estimated capacities to annually enplane and deplane approximately 7.3 million and 82.9 to 96.6 million passengers, respectively, in 2040 (SCAG 2016).

The Hollywood Burbank Airport is in a highly urbanized area, with developed land uses immediately surrounding the airport. Accordingly, the ability to expand airport facilities is limited to the existing airport property without closing roadways and acquiring properties. The Burbank Airport Replacement Terminal Project (approved by voters in 2016) will construct a new passenger terminal within the existing airport site that would increase seismic safety and comply with FAA standards with a location farther from airport runways (City of Burbank 2020). This replacement terminal will not expand airport service capacity, as it retains the same number of passenger gates (14) as the existing terminal.

The SCAG 2016–2040 RTP/SCS (SCAG 2016) provides a range of forecasts describing how an anticipated 136.2 million annual passengers in the Southern California region will be distributed throughout the regional airports based on airport constraints and levels of regionalization of the regions' airports to accommodate passenger demand. If growth in air travel continues to follow current trends and improvements at LAX (described in Chapter 2, Alternatives) do not face any obstacles, LAX would exceed its capacity in 2040 at 100.7 million annual passengers. The SCAG 2016–2040 RTP/SCS discusses the need to shift air traffic from existing constrained airports like LAX and the Hollywood Burbank Airport to the outlying suburban or exurban airports that have the capacity to accommodate forecasted growth to provide a more regionalized aviation network. As identified by SCAG, the California HSR System, including the Palmdale to Burbank Project Section, would help to alleviate these capacity constraints at LAX and the Hollywood Burbank Airport by providing a new intercity transportation mode and improving the transportation accessibility of the RSA.

Travel Time

Intercity travel demand and capacity constraints on transportation infrastructure are projected to increase along with population growth, which will increase travel times and demand on statewide and regional automobile, air, and rail systems. This will result in increased automobile travel times statewide, including within the Palmdale to Burbank Project Section region. Air and rail travel times will remain roughly the same due to fixed schedules and technologies, but they will experience increased demand. Table 1-14 shows the approximate total travel time in 2010 and the projected total travel time in 2040 for automobile, air, and rail travel between various pairs of cities. These data are based on the 2018 Business Plan ridership analysis completed for the HSR forecasting model using information from regional transportation planning agencies, Caltrans, and current air and conventional rail schedules.

Table 1-14 Estimated Total Travel Times (Door-to-Door in Hours and Minutes) between City Pairs by Auto, Air, and Conventional Rail – Peak Conditions

City Pair	Auto ¹		Air ^{2,3}		Conventional Rail ³	
	2010	2040	2010	2040	2010 ⁴	2040 ⁵
Los Angeles downtown to San Francisco downtown	6:27	6:53	4:37	4:32	11:40	11:29
Fresno downtown to Los Angeles downtown	3:37	3:51	4:03	4:23	5:49	5:55
Los Angeles downtown to San Diego downtown	2:24	2:28	4:11	3:55	3:02	3:24
Hollywood Burbank Airport to San Jose downtown	5:22	5:43	3:43	3:43	10:31	10:40
Sacramento downtown to San Jose downtown	2:22	2:18	4:12	4:25	4:04	3:32

Source: Authority, 2016

¹ Travel times come from the May 2014 California Statewide Travel Demand Model, Version 2.0.

² Main-mode level of service assumptions are the same for 2010 and 2040 and are based on 2009 level of service conditions from U.S. Department of Transportation 10% Origin and Destination Survey airline data from the Bureau of Transportation Statistics. Total travel time differences are based on changes in access/egress over time.

³ Air and conventional rail times include access to main mode via transit, egress to main mode via transit, and terminal and wait time at station/airport. When transit is unavailable, auto is used for access/egress.

⁴ Developed from online published San Joaquin schedule

⁵ Year 2040 San Joaquin operating plan developed from the 2013 State Rail Plan

Additionally, in 2016, approximately 13 percent of all flights in the U.S. were delayed (SCAG 2016). While in-flight air travel time is not expected to substantially change, the number of desired flights to a given destination may be limited by factors such as runway capacity, gates, and terminal facilities, thus reducing flexibility in travel dates. Projected increases in automobile travel time are expected to be caused largely by growing travel demand and resulting congestion on highways used for intercity travel. While some roadway capacity improvements have been funded in Southern California, which would help mitigate congestion, travel time delays are still expected to result from the increased demand (SCAG 2016).

The California State Rail Plan includes a list of capital projects to upgrade rail operations to improve future passenger service levels and operational speeds within the Palmdale to Burbank Project Section region. These improvements would provide some benefit to travel times but would not increase speed of service to levels achieved by HSR systems (Caltrans 2018).

Continuing increases in population and tourism in California will place severe demands on the already congested transportation system serving the state's major metropolitan areas. As described in the regional transportation plans for areas to be served by the proposed California HSR System, the highways serving key cities are operating at capacity, and plans for expansion will not keep pace with projected growth over the next 20–40 years (SCAG 2016).

1.2.4.2 Safety and Reliability

Projected growth in the movement of California's population and goods by automobile, air, and rail over the next two decades underscores the need for improved travel safety. With more vehicles on intercity highways, the potential for accidents increases. Travel demand will continue to outpace future highway capacity, resulting in increased travel delays. Roadway congestion, limited airport capacity, passenger train delays from freight train traffic, and a growing intercity travel market adversely affect the travel time reliability of air, conventional passenger rail, and automobile travel. Weather-related events are an additional source of disruption and delay that affect transportation reliability and safety. As noted previously under "Travel Demand," Caltrans expects that the freeways within the Palmdale to Burbank Project Section region will continue to

operate at a poor LOS. Many causes of increased highway congestion rates exist in California. For example, an accident, road work, a car stranded along the roadside, or routine traffic violation stops create bottlenecks, potentially delaying commuters for miles. As delays on the freeways increase, the overall reliability of the system tends to decrease (Cambridge Systematics 2007).

The California Highway Patrol publishes an annual summary of accident data for state highways. According to those statistics, 3,904 fatalities and 277,160 nonfatal injuries occurred in 2017 on California roadways (excluding private roadways), which correspond to a fatality rate of 1.13 per 100 million VMT (California Highway Patrol 2018). In 2017, 721 fatalities and 62,723 nonfatal injury collisions occurred on roadways (excluding private roadways) within Los Angeles County (California Highway Patrol 2017).

Poor weather conditions also adversely affect the reliability of highway travel times. In the Antelope Valley, periodic snowfall during the winter months occasionally presents a hazard for motorists traveling along SR 14 and Sierra Highway. Because snowfall is rare in the Antelope Valley, when it does occur, motorists are often not prepared, thereby creating a safety hazard. Additionally, Los Angeles County occasionally experiences heavy rainfall. Rain and wind can make the roads dangerously slick, increasing accidents or result in lane reductions due to flooding or landslides. Fog, haze, and glare at times can also distract drivers or cause them to slow. Heavy truck volumes along major freeway corridors, including growing truck traffic in Los Angeles and Orange counties, contribute to congestion and delays and to truck-passenger car conflicts.

Airport delays are a function of capacity, weather conditions, and safety conditions. Some airlines adjust their schedules to achieve on-time arrivals even if departures are delayed; some airlines have increased their scheduled flight times between high-demand city pairs, such as Los Angeles and San Francisco, to maintain their on-time arrival statistics in the face of delays. Weather also results in flight cancellations. Aircraft delays cost the airlines and the traveling public time and money, and the FAA has identified the reduction of airport delays nationwide as one of its highest priorities. Data from the U.S. Department of Transportation Air Travel Consumer Report show significant delays at LAX and SFO, with roughly 15 percent of departures and arrivals at SFO and LAX being delayed. In 2019, approximately 17 and 15 percent of arrivals and departures at the Hollywood Burbank Airport were delayed (USDOT 2019). Airport delays are a function of capacity, weather conditions, and safety conditions. When demand at an airport exceeds airfield capacity, flights are delayed until they can be safely accommodated. Delayed flights sometimes compound problems for other flights and can result in cancelled flights. Because the FAA Ground Delay Program holds flights at their point of departure until the destination airport can accept the demand, and because short flights (e.g., Oakland to Burbank) are more easily adjusted than longer flights (e.g., the East Coast or Midwest to the West Coast), short flights are more likely to experience holding delays. Consequently, intercity air travel within California can experience major delays because of the total airport demand.

1.2.4.3 Modal Connections

The Palmdale to Burbank Project Section would enhance mobility through its integration with existing intermodal connections. Figure 1-8 and Figure 1-9 show the existing rail and highway connections in the Palmdale to Burbank Project Section region. The major transportation facilities for passenger travel within the Palmdale to Burbank Project Section region include highways, major roadways, transit services, aviation, and conventional rail. Within the Palmdale to Burbank Project Section, the Hollywood Burbank Airport provides intermodal connectivity between air, rail, and highways as the Metrolink and Amtrak rail services both serve the area. Additionally, the I-5 freeway exits to the airport area, where there are parking garages for motorists to transition between transport modes. To the north, the existing Palmdale TC provides intermodal connectivity between highway (SR 14), rail (Metrolink), and buses.

The California HSR System would increase intermodal connectivity to the region in both the Palmdale and Burbank areas. Each of the six Build Alternatives would connect the Palmdale TC to the Burbank Airport Station, providing added connectivity to passenger air travel. Further, intermodal connections at the Palmdale TC are being planned for connection with the High

Desert Corridor and further east the Brightline West project, resulting in increased connectivity between HSR, highway, bus, and air modes of travel. These projects, further described in Chapter 2, Alternatives, would provide HSR feeder service from the Palmdale TC to Las Vegas.

The Burbank Airport Station would increase intermodal connectivity by creating a new transportation station that inclusively provides HSR platforms, bus terminals, parking, connection to the Hollywood Burbank Airport terminals, and access to planned Metrolink platforms. This would provide connectivity between rail, highway, and air travel. Each of the six Build Alternatives would also connect passengers to Los Angeles to the south.

Added connectivity to passenger air and interregional rail services would increase the connection of Palmdale and Burbank to the larger Los Angeles metropolitan area and to the major metropolitan area of the San Francisco Bay Area.

1.2.4.4 Air Quality and Greenhouse Gas Emissions

Metropolitan areas will continue to be challenged to reduce emissions to acceptable levels from a growing number of vehicles and to maintain air quality standards by encouraging more efficient use of land resources, improving mobility, and providing alternative transportation facilities and services. Policies aimed at reducing the demand for trips in single-occupant vehicles are integral to all transportation plans and programs to help areas currently in nonattainment status to conform to federal air quality standards.

The Palmdale to Burbank Project Section would support state and local goals of improving air quality and reducing GHG emissions. The USEPA implements the Clean Air Act (42 U.S.C. 7401), as amended. Under the authority of the Clean Air Act, the USEPA established nationwide air quality standards to protect public health and welfare with an adequate margin of safety. The federal standards (i.e., the National Ambient Air Quality Standards) represent the maximum allowable atmospheric concentrations for ozone, particulate matter (both respirable [10 microns or less in diameter] and fine [2.5 microns or less in diameter]), carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead. The Clean Air Act defines nonattainment areas as geographic regions designated as not meeting one or more of the National Ambient Air Quality Standards. The Clean Air Act requires that a State Implementation Plan be prepared for each nonattainment area and a maintenance plan be prepared for each former nonattainment area that subsequently demonstrates compliance with the standards. A State Implementation Plan is a compilation of a state's air quality control plans and rules that the USEPA has approved.

Nonattainment Areas

The U.S. Environmental Protection Agency designates metropolitan areas and counties in rural areas as "nonattainment" if the area does not meet or contribute to ambient air quality standards as defined in the Clean Air Act.

California has multiple air basins designated as nonattainment areas (see Section 3.3, Air Quality and Global Climate Change), ranging in status from severe to serious. These include the Sacramento Valley Air Basin, the San Joaquin Valley Air Basin, the South Coast Air Basin, and the Southeast Desert Air Basin (Coachella Valley). Of these air basins, each of the six Build Alternative alignments would only traverse the South Coast Air Basin.

One statewide strategy adopted in the State Implementation Plan is the development of multi-use transportation corridors. These include designated lanes for high-occupancy vehicles, the addition of more transit, and rail modal options. Meeting federal and state air quality standards over the next 20 to 40 years will also require reductions in VMT, integration of land use and transportation planning and development, development of transportation demand strategies, implementation of operational improvements, and use of new technologies that improve transportation efficiencies and increase transportation alternatives to single-occupancy automobiles. Automobile trips are expected to account for more than 95 percent of all intercity travel and close to 90 percent of longer intercity trips in California by 2035 (Cambridge Systematics 2007).

In 2005, California set statewide targets for reducing GHG emissions. Executive Order S-3-05 requires that state agencies reduce their GHG emissions to 2000 levels by 2010, to 1990 levels

by 2020, and to 80 percent below 1990 levels by 2050. Shortly after the issuance of Executive Order S-3-05, the California State Legislature adopted AB 32, the Global Warming Solutions Act of 2006. AB 32 recognizes that California is the source of substantial amounts of GHG emissions. Legislative findings in the law state the following:

The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to the marine ecosystems and that natural environment, and an increase in the incidences of infectious diseases, asthma, and other health-related problems (California Health and Safety Code Section 38500-38599 [2006]).

To avoid these consequences, AB 32 requires CARB, the state agency charged with regulating air quality, to create a plan and implement rules to achieve real, quantifiable, cost-effective reductions of GHGs in California. AB 32 requires CARB to design and implement emissions limits, regulations, and other measures to reduce statewide GHG emissions to 1990 levels by 2020. CARB developed the plan in 2008 as the Climate Change Scoping Plan (CARB 2008), the State's road map to reaching the GHG reduction goals required by AB 32. The plan includes implementation of an HSR system to provide more mobility choice and reduce GHG emissions. CARB approved the first *Climate Change Scoping Plan* on December 11, 2008, and the *First Update to the Scoping Plan* on May 22, 2014.

In 2015, Executive Order B-30-15 set an interim GHG emissions reduction goal for California to reduce GHG emissions to 40 percent below 1990 levels by 2030. Executive Order B-30-15 was written to help make it possible for California to reach the ultimate goal of reducing GHG emissions to 80 percent below 1990 levels by 2050 set forth under Executive Order S-3-05.

SB 32, which became law in September 2016, codifies Executive Order B-30-15 and extends the GHG emissions reduction goals of the California Global Warming Solutions Act of 2006. SB 32 requires CARB to ensure statewide GHG emissions reductions of at least 40 percent below 1990 levels by 2030. CARB's *2017 Climate Change Scoping Plan Update*, adopted in December 2017, includes plans to achieve goals set forth by SB 32 (CARB 2017). The California HSR System is a component of the statewide approach to GHG reductions from California's transportation system.

SB 375, which became law in September 2008, provides a new planning process to coordinate the community development and land use planning process with regional transportation plans. SB 375 sets priorities to help California meet GHG reduction goals and requires the regional transportation plans prepared by metropolitan planning organizations (including the Council of Governments for Los Angeles County) to include a sustainable communities strategy or, if infeasible, an "alternative planning strategy" that would support the GHG emission reduction targets for automobiles and light trucks set by CARB. The current GHG reduction targets for the SCAG region are a 19-percent-per-capita reduction of emissions by 2035, relative to 2005 levels (CARB 2018a).

SB 100, the 100 Percent Clean Energy Act of 2018, makes it a policy of the State that eligible renewable energy resources and zero carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045.

The transportation sector is responsible for about 41 percent of California's GHG emissions (CARB 2018b). Emissions of criteria pollutants (carbon monoxide, lead, nitrogen dioxide, particulate matter, ozone, and sulfur dioxide) and GHG emissions from motor vehicles are directly proportional to the amount of fuel burned. Two air quality management districts encompass the RSA: the Antelope Valley Air Quality Management District (responsible for a portion of the Mojave Desert Air Basin) and the South Coast Air Quality Management District (responsible for the South Coast Air Basin). Table 1-15 shows the 2014 monitored air quality levels in the RSA. The Antelope Valley Air Quality Management District exceeded standards for all criteria pollutants except carbon monoxide and respirable particulate matter (PM₁₀ national standard). The South

Coast Air Quality Management District exceeded standards for all criteria pollutants except carbon monoxide and sulfur dioxide.¹⁵

Table 1-15 Monitored Air Quality in the Resource Study Area (2014)

Project Section Air Districts	CO State	CO Federal	O ₃ 8-Hour State	O ₃ 8-Hour Federal	PM ₁₀ State	PM ₁₀ National	PM _{2.5} National	SO ₂
Antelope Valley Air Quality Management District	Standard not exceeded	Standard not exceeded	Standard exceeded	Standard exceeded	Standard exceeded	Standard not exceeded	Standard exceeded	Not monitored
South Coast Air Quality Management District	Standard not exceeded	Standard not exceeded	Standard exceeded	Standard exceeded	Standard exceeded	Standard exceeded	Standard exceeded	Standard not exceeded

Source: CARB, 2016

CO = carbon monoxide; O₃ = ozone; PM₁₀ = particulate matter less than or equal to 10 microns in diameter; PM_{2.5} = particulate matter less than or equal to 2.5 microns in diameter; SO₂ = sulfur dioxide

The statewide system would result in overall reductions in single-occupancy vehicle trips and aircraft activity to achieve emissions benefits; with a greater number of people traveling on the California HSR System, VMT and airplane miles would be reduced. The project is predicted to have a beneficial effect on (i.e., reduce) statewide GHG emissions when compared with the existing and 2040 future No Project baselines. In the opening year of the California HSR System operations, GHG emissions reductions would be less than in 2040, but still beneficial. These emissions benefits would begin accumulating after construction emissions are offset, which as discussed in Section 3.3, Air Quality and Global Climate Change, would occur within 4 to 7 months after operation of the Palmdale to Burbank Project Section begins.

As the California HSR System expands to the full Phase 1 system, it would contribute substantially to reducing GHG emissions. The average annual savings of the Phase 1 system through 2040 is projected to be just over 1 million metric tons of carbon dioxide equivalents and, through 2075, is projected to be 1.35 million metric tons of carbon dioxide equivalents. This is equivalent to taking 285,000 passenger vehicles off the road every year (Authority 2016).

1.2.4.5 Protect and Preserve Natural Resources and Agricultural Lands

California's agricultural lands and natural resources—including wetlands and waterways, habitat areas for sensitive species of plants and animals, and wildlife migration corridors—have been subject to direct and indirect impacts as the state's population has increased and as growth has occurred in less developed areas of the state. Transportation systems, including the California HSR System, play a role in reducing population growth's impacts on natural resources and agricultural lands.

In California, new development has consumed 1 acre of land for every 9.4 people statewide (Thompson 2009). Between 2008 and 2010, 4.7 percent of farmland was converted to another use (California Department of Conservation 2014). Most of the general plans in the RSA prioritize preserving open spaces and natural areas while constraining development to urban infill. By reducing the need for expanding airports and freeways, the California HSR System would further the goals of local general plans in protecting existing open space areas and agricultural lands, and consequently natural resources. A new transportation option would provide an opportunity to

¹⁵ Within the RSA, communities in the Antelope Valley Air Quality Management District jurisdiction include those located between Lancaster and Acton; communities south of Acton are located within the South Coast Air Quality Management District jurisdiction.

create and support transit centers in the central business districts, where mixed land uses (residential, commercial, and business uses) and urban densities are best suited.

1.2.5 Project Benefits

The Palmdale to Burbank Project Section is being proposed, despite these significant and unavoidable impacts, based on the benefits listed below and identified in Chapter 1, Project Purpose, Need, and Objectives, and in Chapter 3, Affected Environment, Environmental Consequences, and Mitigation Measures.

1.2.5.1 Transportation Benefits

- This project section is an essential building block to establish high-speed passenger rail service as part of Phase 1 of the California HSR System to meet the state's growing demands on its transportation system.
- Adds capacity to the state's transportation infrastructure via the new HSR transportation mode to reduce pressure on the existing transportation infrastructure, including highways and airports. It also maximizes intermodal transportation opportunities by locating stations to connect with local transit, airports, and highways.
- Meets future intercity travel demand that would not be met by current transportation systems, increasing capacity for intercity mobility. This would help to increase overall efficiency of California's intercity transportation system, as it would provide a sustainable reduction in travel time between major urban centers. HSR travel would be faster than conventional rail and competitive with air travel when considering added time needed for airport access and waiting times.
- Improves the intercity travel experience for passengers by providing comfortable, safe, frequent, and reliable high-speed travel, helping resolve transportation safety and reliability issues of intercity travel due to traffic congestion, weather conditions, and motor accidents.

1.2.5.2 Environmental Benefits

- Supports the State's transportation goals reflected in Senate Bill 743 by reducing VMT and VMT per capita, promoting transit-oriented development, and promoting the reduction of GHG emissions. Projected population growth within Los Angeles County would otherwise cause regional VMT to increase.
- Supports the State's GHG reduction goals as described in Assembly Bill 32, Senate Bill 32, and the CARB's Scoping Plan (CARB 2017). The HSR has become a key component of the State's strategy for reducing GHG emissions.
- Provides long-term improvements in regional air quality by reducing criteria pollutants and GHGs generated by automobiles, conventional rail, and aircraft. As of 2010, California's transportation sector has been responsible for 40 percent of its GHG emissions and 60 to 80 percent of its particulate emissions from mobile sources (CARB 2010).
- Provides long-term reduction in transportation-related energy requirements. The California HSR System would provide a more energy-efficient mode of travel, using one-third the energy of the equivalent trip by air, and one-fifth the energy of a trip by automobile (California Office of the Governor 2007).

1.2.5.3 Economic and Employment Benefits

- Increases sales tax revenue for counties and the state through taxable purchases made during the Burbank to Palmdale Project Section's construction. Cumulative sales tax would be generated based on preliminary capital cost estimates, and would total between \$92,000,000 and \$97,000,000, depending on the Build Alternative selected (United States Bureau of Labor Statistics 2016).

- Offers employment benefits from construction, for an estimated 55,000 to 62,000 job years in terms of direct, indirect, and induced jobs. During the peak of construction, each Build Alternative would support approximately 5,000 to 6,000 jobs in Los Angeles County (U.S. Census Bureau 2010).¹⁶
- Offers new long-term jobs, creating approximately 500 permanent direct, indirect, and induced jobs associated with the operations and maintenance of the Palmdale to Burbank Project Section. Increased accessibility to Los Angeles County would also create another 5,000 jobs in Los Angeles County, contributing to overall growth in the region's economy (U.S. Census Bureau 2010).

1.3 Relationship to Other Agency Plans, Policies, and Programs

The objectives of the California HSR System include providing an interface with major commercial airports, mass transit, and the highway network. Plans and programs that have been considered in the development of the Palmdale to Burbank Project Section alignment and station location options, or that already include recommendations for an HSR project, are discussed below.

In addition to the SCAG 2016–2040 RTP/SCS, city and county general plans were reviewed for information about local growth and transportation policies in the RSA, as discussed in Section 3.18, Regional Growth. The key general plans consulted include those for Los Angeles County and the Cities of Lancaster, Palmdale, Burbank, and Los Angeles. While the newest of these plans (*Draft Los Angeles County General Plan 2035* and *2014 Burbank 2035 General Plan*) support HSR, older general plans in the area (with the exception of the City of Palmdale) do not mention HSR. Although adopted in 1993, the *Palmdale General Plan* contains an objective (C.4.2) to “encourage extension of passenger rail service to the City of Palmdale,” and a policy (C4.2.1) supporting connecting Palmdale Regional Airport with LAX via HSR (City of Palmdale 1993). Table 1-16 lists other plans, policies, and programs that are relevant to the Palmdale to Burbank Project Section.

Table 1-16 Other Agency Plans, Policies, and Programs in the Resource Study Area

Plan Title	Summary
California Transportation Plan 2040 (CTP 2040) (Caltrans)	<p>The CTP 2040 provides a long-range policy framework for guiding transportation decisions and investments by all levels of government and the private sector. CTP 2040 defines goals, performance-based policies, and strategies to achieve the collective vision for California's statewide, integrated, multimodal transportation system, envisioning a sustainable system that improves mobility and enhances quality of life. Federal and state laws require developing and preparing a State Transportation Plan and an update every 5 years (Caltrans 2016).</p> <p>The CTP 2040 was initiated in early 2010 with the development of the 2012 California Interregional Blueprint in response to SB 391. The California Interregional Blueprint is a state-level transportation blueprint that articulates the State's vision for an integrated multimodal transportation system that complements regional transportation plans and land use visions and provides the foundation for the CTP 2040, which will conclude with the plan's approval by the Secretary of the California State Transportation Agency.</p> <p>The CTP 2040 update will focus on meeting new trends and challenges, such as economic and job growth, climate change, freight movement, and public health. The California HSR System would support CTP 2040 goals, policies, and strategies by providing an efficient and reliable means of transportation that facilitates economic and job growth, by providing electric-powered transportation that reduces GHG emissions and air pollutants that contribute to climate change and by providing some relief to California's strained highway and rail systems.</p>

¹⁶ Refer to Section 3.18, Regional Growth, for further information on employment benefits through construction.

Plan Title	Summary
<p>Southern California Association of Governments 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy (SCAG 2016–2040 RTP/SCS)</p>	<p>The 2016 SCAG RTP/SCS revised the 2012 RTP/SCS. The plan provides a vision for transportation investments throughout the region. As part of these goals, SCAG is collaborating with various state and regional stakeholders to plan intercity and interregional mobility improvements. This work currently includes partnering with the Los Angeles-San Diego-San Luis Obispo Rail Corridor Agency, Metrolink, and the Authority to plan and coordinate the development of higher-speed passenger rail service in the SCAG region and beyond.</p> <p>In February 2012, SCAG approved a memorandum of understanding with the Authority, various Southern California transportation agencies, the San Diego Association of Governments, and Metrolink for a proposed \$1 billion investment from Proposition 1A bonds approved by voters in November 2008 for investment in HSR.</p> <p>Major goals of the SCAG RTP/SCS include improving regional economic development, maximizing mobility and accessibility for the region, ensuring travel safety and reliability, protecting the environment, maximizing the productivity of the regional transit system, and encouraging land use and growth patterns that facilitate transit and nonmotorized transportation (SCAG 2016).</p>
<p>I-5 Transportation Concept Report (I-5 TCR) (Caltrans)</p>	<p>The I-5 TCR is a long-range planning document that describes the current characteristics of the I-5 transportation corridor and establishes a 20-year planning concept. The TCR defines the goals for the development of a corridor in terms of facility type and LOS while broadly identifying the improvements needed to reach those goals. The main purpose of this TCR is to evaluate current and projected conditions along the route and suggest a configuration for I-5 that will meet projected demand. The I-5 TCR is an important planning document that will be used to identify and address transportation needs in the Palmdale to Burbank Project Section region in relation to the demand served by the California HSR System.</p>
<p>SR 14 Transportation Concept Report (SR 14 TCR) (Caltrans)</p>	<p>The SR 14 TCR is a long-range planning document that describes the current characteristics of the SR 14 transportation corridor and establishes a 20-year planning concept. A TCR has been prepared for the portions of SR 14 within Caltrans Districts 7 (2014) and 9 (2012). The TCR defines the goals for the development of a corridor in terms of facility type and LOS while broadly identifying the improvements needed to reach those goals. The main purpose of this TCR is to evaluate current and projected conditions along the route and suggest a configuration for SR 14 that will meet projected demand. The SR 14 TCR is an important planning document that will be used to identify and address transportation needs in the Palmdale to Burbank Project Section region in relation to the demand served by the California HSR System.</p>
<p>I-210 Transportation Concept Report (I-210 TCR) (Caltrans)</p>	<p>The I-210 TCR is a long-range planning document that describes the current characteristics of the I-210 transportation corridor and establishes a 20-year planning concept. The TCR defines the goals for the development of a corridor in terms of facility type and LOS while broadly identifying the improvements needed to reach those goals. The main purpose of this TCR is to evaluate current and projected conditions along the route and suggest a configuration for I-210 that will meet projected demand. The I-210 TCR is an important planning document that will be used to identify and address transportation needs in the Palmdale to Burbank Project Section region in relation to the demand served by the California HSR System.</p>
<p>Measure R (Metro)</p>	<p>Measure R is a 30-year, \$40 billion state tax-funded transportation investment plan program. Measure R was approved by Los Angeles County voters in November 2008 and the tax took effect in July 2009. Funds received from the tax will be used for developing new rail and bus systems; enhancing existing rail and bus systems; accelerating existing transportation projects; improving highways, carpool lanes, goods movement, grade separations, and noise barriers; suspending scheduled fare increases for one year and freezing all Metro student, senior, disabled, and Medicare</p>

Plan Title	Summary
	fares (was effective through 2013); resurfacing, rehabilitating, and reconstructing streets; improving and/or adding left-turn signals, bicycle and pedestrian facilities, streetscapes, and signal synchronization; repairing potholes; and making rail and bus system and yard improvements.
Measure M (Metro)	<p>In November 2016, Los Angeles County voters approved another sales tax ballot initiative titled the Los Angeles County Traffic Improvement Plan or Measure M. Like the previous sales tax measures, Measure M is a new half-cent sales tax beginning in 2017 that will increase to a one-cent sales tax in 2039 when the Measure R sales tax is set to expire. The measure is expected to generate \$860 million per year for transportation-related improvements throughout Los Angeles County. The measure funds several new projects throughout Los Angeles County and expedites projects previously approved under Measure R.</p> <p>Specific improvements funded through Measure M over the next 10 years include:</p> <ul style="list-style-type: none"> ▪ Airport Metro Connector 96th Street Station/Green Line Extension LAX: Interface station to LAX-sponsored automated people mover, includes consolidated bus interface for Metro and municipal bus lines ▪ Westside Purple Line Extension – Phase 3: Project acceleration to Department of Veterans Affairs Health Campus in West Los Angeles ▪ Metro Gold Line Foothill Extension: 11-mile extension of Metro Gold Line current terminus in the city of Azusa to the city of Claremont ▪ West Santa Ana Transit Corridor: Approximately 20-mile light rail line connecting southeast Los Angeles County to downtown Los Angeles ▪ LA River Waterway & System Bikepath/Complete LA River Bikepath
Metro 2009 Long Range Transportation Plan	The Metro 2009 Long Range Transportation Plan is a countywide transportation program that aims to enhance public transit programs by investing in the bus system while expanding the rail system by building 15 major transit corridor projects. The plan looks toward highway investments that will untie gridlock, such as new carpool lanes and other improvements that ease both auto and truck traffic. In addition, the plan invests in many other programs, including arterial capacity and speed improvements, transit operations, highway maintenance, bicycle and pedestrian improvements, carpool programs, and transit services for the disabled.
Metrolink 5-Year Short-Range Transit Plan	The Metrolink 5-Year Short-Range Transit Plan assesses the current Metrolink system based on projected growth and proposed improvements between 2015 and 2020. The analysis contained in this plan is based on many elements, including an assessment of the current Metrolink system and plans for growth and improvements between 2015 and 2020. The Short-Range Transit Plan advances the SCRRA toward achieving its long-term goals identified in its 10-Year Strategic Plan. The Short-Range Transit Plan analyzes financial resources, proposes action plans for commuter rail, and includes other project and program initiatives. It also addresses future funding strategies and includes measures to evaluate the plan's performance.

Plan Title	Summary
<p>Metrolink 10-Year Strategic Plan</p>	<p>In 2015, the SCRRA adopted the SCRRA Strategic Plan, a conceptual planning document aimed at aiding Metrolink in meeting ridership demands through 2025. The Strategic Plan forecasts that Metrolink will grow from 165 daily trains currently to 240 trains by 2025. The plan aims to:</p> <ul style="list-style-type: none"> ▪ Provide strength core institutional functions, focused on fiscal sustainability, system reliability, and customer communications and responsiveness ▪ Focus initial investment in the rehabilitation of the system (vehicles and infrastructure) to ensure a state of good repair that can provide a base for supporting the growth scenarios identified in the Strategic Plan ▪ Evaluate the potential for additional reverse commute trips to address the growth and changing travel patterns in the region ▪ Initiate discussions with host railroads of the potential for reverse-peak services on corridors that are governed by shared-use agreements ▪ Establish strategic partnerships to tap new sources of funds, encourage rail-friendly development, and enable Metrolink to better serve markets within its existing network
<p>Metro Antelope Valley Line Infrastructure Improvement Strategy</p>	<p>In April 2011, Metro initiated a feasibility study to enhance the Antelope Valley Line corridor and to identify infrastructure improvements that would enable Metrolink service to operate faster, more safely, and more reliably between LAUS and Lancaster. A major study objective was to identify necessary infrastructure improvements to reduce travel time by 50 percent in the corridor. Another key objective was to identify safety improvements for pedestrian and vehicular traffic at existing at-grade crossings. The study also included a cost-benefit analysis for capital projects. The initial phase of the study was completed in March 2012 and concluded that some infrastructure and grade crossing safety improvement projects should be pursued. The study recommends continued coordination with the Authority for the portions of the corridor that may be shared with the HSR system.</p>
<p>LAX Master Plan</p>	<p>The 2004 LAX Master Plan includes projects to allow for greater flexibility in scheduling facility improvements without disrupting day-to-day airline operations, and to reduce reliance on remote gates. Only relocating gate locations, the following projects would not increase the total number of passengers or aircraft at LAX but would ensure uninterrupted operations and schedules during construction at other terminals: Together, these projects would contribute to reduction in air travel delays in the Palmdale to Burbank Project Section region.</p> <ul style="list-style-type: none"> ▪ The LAX Landside Access Modernization Program is anticipated to be completed in 2023 and would involve the construction of a new facility in the central area of the airfield, west of Tom Bradley International Terminal. ▪ The Midfield Satellite Concourse North Project is anticipated to be completed in 2020 and would also be constructed in the central area of the airfield, west of Tom Bradley International Terminal.
<p>Final Angeles National Forest Land Management Plan (USFS)</p>	<p>The 2005 Final Angeles National Forest Land Management Plan guides the USFS in site-specific planning and decision-making for the Angeles National Forest. This plan is divided into three parts. Parts 1 and 2 consist of planning documents applicable to national forests in Southern California as a whole, while Part 2 applies only to the Angeles National Forest:</p> <ul style="list-style-type: none"> ▪ Part 1: Southern California National Forest Vision directs the long-term vision and strategic management of the Angeles National Forest ▪ Part 2: Angeles National Forest Strategy describes the implementing objectives to achieve the vision described in Part 1

Plan Title	Summary
San Gabriel Mountains National Monument Management Plan (USFS)	<ul style="list-style-type: none"> ▪ Part 3: Design Criteria for the Southern California National Forests contain the guiding laws and standards during project planning and implementation <p>In 2016, the USFS proposed to amend the 2006 Angeles National Forest Land Management Plan with a specific management plan to provide for the protection of the objects of interest identified in the Presidential Proclamation establishing the 346,000-acre San Gabriel Mountains National Monument. The Presidential Proclamation directs the amendment to protect identified monument objects and public access when consistent with natural resource protection. The draft environmental assessment associated with the draft San Gabriel Mountains National Monument Plan Amendment was published in August 2016 for public review and finalized in May 2019.</p>

Source: Caltrans, 2013a, 2013b, 2014a; Metro, 2019a, 2019b; SCAG, 2012, 2016; SCRRA, 2015a, 2015b; USFS, 2005

Authority = California High-Speed Rail Authority
 Caltrans = California Department of Transportation
 CTP 2040 = California Transportation Plan 2040
 GHG = greenhouse gas
 HSR = high-speed rail
 I = Interstate
 LAUS = Los Angeles Union Station
 LAX = Los Angeles International Airport
 LOS = level-of-service

Metro = Los Angeles County Metropolitan Transportation Authority
 RTP/SCS = Regional Transportation Plan/Sustainable Communities Strategy
 SB = Senate Bill
 SCAG = Southern California Association of Governments
 SCRRA = Southern California Regional Rail Authority
 SR = State Route
 TCR = Transportation Concept Report
 USFS = United States Forest Service

1.4 Relationship to Other Transportation Projects in the Study Area

One of the objectives of the proposed HSR system is to connect to major commercial airports, mass transit and the highway network. The sections below describe other key transportation projects within the project vicinity that offer intercity travel benefits and that would enhance intermodal connections to the proposed HSR System. The planning and development of the Palmdale to Burbank Project Section and station location options considered these projects. Figure 1-10 shows the related transportation projects discussed below.

1.4.1 Brightline West Project

Brightline West is a proposed privately funded HSR passenger train that would connect Victorville, California, to Las Vegas, Nevada. The train is proposed as an alternative to automotive and airline travel between the two cities. A future extension to the line of approximately 45 miles could include a connection between Victorville and a future HSR station in Palmdale at the Palmdale TC. The FRA issued a Record of Decision for the Brightline West project in 2011 and performed a reevaluation in 2020 to address project changes introduced in 2019 and 2020 (FRA 2020). Brightline, the project proponent, anticipates beginning construction in 2021 (Brightline 2020).

1.4.2 High Desert Corridor Project

The High Desert Corridor project would involve the construction of a new multimodal link between SR 14 in Los Angeles County and SR 18 in San Bernardino County. This project would connect some of the fastest-growing residential, commercial, and industrial areas in Southern California, including the cities of Palmdale, Lancaster, Adelanto, and Victorville, and the town of Apple Valley. Projections show that there will be significant growth in the High Desert Corridor area in the future.

In 2012, the project was amended to include a multipurpose corridor to accommodate a highway, energy production and/or transmission facilities, and an HSR feeder service line. The *Final Environmental Impact Report/ Environmental Impact Statement and Section 4(f) (De Minimis Findings)* considered the HSR feeder service options and identified feasible rail connections to the Palmdale TC and the proposed Brightline West station in Victorville (Caltrans 2016). This project would create the potential to connect the San Francisco, Central Valley, Los Angeles, Las Vegas, and San Diego regions through an HSR system. The HSR feeder service may be

interoperable between Brightline West and the California HSR System (potentially offering a one-seat HSR trip between Las Vegas and Los Angeles). The High Desert Corridor Joint Powers Authority is currently working with FRA and Caltrans on completing a Record of Decision for the HSR feeder service component of the project.

1.4.3 Burbank Airport Replacement Terminal Project

The Burbank Airport Replacement Terminal Project is planned to replace the existing 14-gate, 232,000-square-foot passenger terminal at the Hollywood Burbank Airport with a 14-gate terminal that meets current California seismic design and FAA airport design standards. The replacement passenger terminal would be developed in accordance with modern design standards to provide enhanced passenger amenities, security screening facilities that meet the latest Transportation Security Administration requirements, and other airport facilities (including hold rooms, baggage claim areas, and public areas) that are designed and sized for the types of aircraft the airlines routinely operate. A final EIR for the project was approved in June 2016. Measure B, which allows the Burbank-Glendale-Pasadena Airport Authority to build the project, was approved by City of Burbank voters in November 2016. The FAA released a Final EIS for the project in May 2021. If built, the project would afford Palmdale to Burbank Project Section passengers greater access to air travel (City of Burbank 2020).

1.4.4 Avenue S Railroad Grade Separation

This project would construct an overpass/underpass grade separation of Metrolink railroad tracks, west of Sierra Highway. The project would include grade separation of Sierra Highway and applicable ramping and would extend from 5th Street East to Windy Creek Street in Palmdale. The City of Palmdale proposed this project in the 2018 Ten-Year Capital Improvement Plan.



HSR Alignment Profile

- At Grade
- At Grade Covered
- Cut and Cover
- Elevated / Aerial Structure
- Retained Cut / Trench
- Tunnel

— Transportation Project

1 XpressWest Project / High Desert Corridor Project
2 Avenue S Railroad Grade Separation
3 Burbank Airport Replacement Terminal Project

0 1 2 Miles
0 2 4 Kilometers

Figure 1-10 Related Transportation Projects