

3 AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION MEASURES

3.1 Introduction

This chapter describes existing environmental conditions and the project’s potential impacts on environmental resources within the Palmdale to Burbank Project Section corridor and evaluates impacts of building and operating each of the six Build Alternatives. This chapter examines each resource topic in a separate subsection. Section 3.1 describes the federal and State of California requirements that address environmental impacts, the overall purpose of Chapter 3, the environmental resources considered, and the organization and content of each resource topic subsection. Sections 3.2, Transportation, through 3.18, Regional Growth, of this chapter examine each environmental resource topic, and Section 3.19, Cumulative Impacts, provides an analysis of the Palmdale to Burbank Project Section’s contribution to cumulative impacts.

The analysis developed for the Palmdale to Burbank Project Section assumes connection to stations in Palmdale and Burbank. As such, this Draft EIR/EIS provides a discussion of both the Palmdale Station and the Burbank Airport Station, including their associated station areas and HSR alignment in various sections throughout Chapter 3, Affected Environment, Environmental Consequences, and Mitigation Measures.

The Palmdale Station, including the track alignment north of Spruce Court in Palmdale, were evaluated as part of the Bakersfield to Palmdale Project Section, which was approved by the Authority Board in August 2021. As such, discussion and analysis of the Palmdale Station is included in this Draft EIR/EIS for reference purposes only.

These elements are discussed throughout this Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for context, reference, and to provide additional information.

- Section 3.2, Transportation
- Section 3.3, Air Quality and Global Climate Change
- Section 3.4, Noise and Vibration
- Section 3.5, Electromagnetic Fields and Electromagnetic Interference
- Section 3.6, Public Utilities and Energy
- Section 3.8, Hydrology and Water Resources
- Section 3.9, Geology, Soils, Seismicity and Paleontological Resources
- Section 3.18, Regional Growth
- Section 3.19, Cumulative Impacts
- Chapter 5, Environmental Justice
- Chapter 6, Project Costs and Operations

The Burbank Airport Station, which is located at the southern end of the Palmdale to Burbank Project Section, was evaluated as part of the Burbank to Los Angeles Project Section. The Burbank to Los Angeles Project Section Final EIR/EIS was released on November 5, 2021. The Authority’s Board approved the Burbank to Los Angeles Project Section Preferred Alternative, including the Burbank Airport Station on January 20, 2022.

Figure 2-45 in Chapter 2 of this Draft EIR/EIS depicts the “overlap area” included in both the Palmdale to Burbank and Burbank to Los Angeles Project Sections. The Burbank to Los Angeles Project Section Final EIR/EIS was released on November 5, 2021, and the Authority’s Board approved the Burbank to Los Angeles Project Section Preferred Alternative, including the Burbank Airport Station, on January 20, 2022. The Board’s approval of the Burbank to Los Angeles Project Section Preferred Alternative extends to the southern edge of San Fernando Boulevard (between Lockheed Drive and Hollywood Way). Accordingly, the information and analysis within this Draft EIR/EIS about the Burbank Airport Station overlap area should be understood as informational and for reference only. For the most updated information about the Burbank Airport Station approved by the Authority, please refer to the Burbank to Los Angeles Final EIR/EIS, available on the Authority’s website.

The six Build Alternatives are summarized below. The Build Alternatives presented in this Draft EIR/EIS reflect design refinements and modifications to avoid and minimize impacts on known environmental and community resources. Although the six Build Alternatives propose different routes, all of the Build Alternative footprints lie entirely within Los Angeles County, including the incorporated cities of Palmdale, Santa Clarita, Los Angeles, and Burbank. The Palmdale to Burbank Build Alternative footprints follow California High-Speed Rail (HSR) System alignments within unincorporated portions of Los Angeles County, including limited areas in the communities of Acton and Agua Dulce, as well as portions of the Angeles National Forest (ANF) including the San Gabriel Mountains National Monument (SGMNM). The resource study areas (RSA) for some Build Alternatives also extend into the cities of San Fernando and Lancaster; however, no portions of the Build Alternative footprints lie within those jurisdictions. The analyses in Chapter 3 present information relative to each of these cities and communities, as appropriate.

3.1.1 Federal and State Regulatory Context

This document is a Draft EIR/EIS that has been prepared consistent with federal and state statutes and regulations, including the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The CEQA Guidelines (14 California Code of Regulations Section 15000 et seq.) encourage the preparation of joint CEQA/NEPA documents where possible and appropriate. The NEPA regulations also encourage preparation of a joint NEPA/CEQA document when appropriate (40 Code of Federal Regulations [C.F.R.] 1506.2). The California High-Speed Rail Authority (Authority) has used its best judgment in preparing this combined Draft EIR/EIS to satisfy both NEPA and CEQA requirements.

NEPA requires federal agencies to consider the context and intensity of potential environmental impacts (both adverse and beneficial) in the evaluation of any proposed federal agency actions. NEPA also obligates federal agencies to consider the environmental consequences of their projects and programs as part of the planning process. The Authority has conducted environmental review under NEPA in compliance with Council on Environmental Quality (CEQ) regulations (40 C.F.R. Parts 1500 to 1508) implementing NEPA and the Federal Railroad Administration's (FRA) Procedures for Considering Environmental Impacts (Federal Register Volume 64, Page 28545).^{1,2}

CEQA (California Public Resources Code 21000 et seq.) and the CEQA Guidelines (California Code of Regulations Title 14, Section 15000 et seq.) require state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, when feasible. California Public Resources Code 21100(b)(3) provides that an EIR shall include a statement setting forth the mitigation measures proposed to minimize the significant impacts on the environment.

The requirements of NEPA and CEQA are not necessarily the same; similar requirements found in both statutes may have different performance criteria, and some requirements that appear in one statute may not appear in the other.

In addition to NEPA and CEQA, the proposed project is subject to additional federal and state environmental statutes and regulations, which also require analyses that must be incorporated into the EIR/EIS. For example, construction and operations of the Palmdale to Burbank Project Section would require compliance with both federal and state laws protecting endangered species. In circumstances where more than one statute applies, this joint EIR/EIS has been

¹ While this Draft EIR/EIS was being prepared, FRA adopted New NEPA compliance regulations (23 C.F.R. Part 771). Those regulations only apply to actions initiated after November 28, 2018. See 23 C.F.R. 771.109(a)(4). Because the EIR/EIS was initiated prior to that date, it remains subject to FRA's Environmental Procedures rather than the Part 771 regulations.

² The CEQ issued new regulations, effective September 14, 2020, updating the NEPA implementing procedures at 40 C.F.R. 1500. However, the NEPA process for the project was initiated before the effective date and is not subject to the new regulations, relying on the 1978 regulations as they existed prior to September 14, 2020. All subsequent citations to CEQ regulations in this environmental document refer to the 1978 regulations, pursuant to 40 C.F.R. 1506.13 (2020) and the preamble at 85 Federal Register 43340.

prepared in compliance with the more stringent or inclusive set of requirements, whether federal or state, to ensure that all regulatory objectives are fully satisfied.

The Authority has focused on avoiding and minimizing impacts through rigorous planning and thoughtful design, informed by the decisions made at the conclusion of the first-tier EIR/EIS process, including the adopted mitigation strategies.³ The Build Alternatives described in Chapter 2, Alternatives, and analyzed in this chapter, include project design features to avoid and/or minimize impacts (Volume 2, Appendix 2-E, Project Impact Avoidance and Minimization Features Analysis), and measures to comply with applicable laws and regulations and established industry standards (Appendix 2-D, Design Baseline Report). This chapter also includes consideration of additional measures to avoid, minimize, and mitigate adverse environmental impacts. In balance with other considerations, the Authority has located portions of each of the Build Alternatives along existing transportation corridors and rights-of-way to minimize overall impacts. When necessary, this chapter identifies site-specific mitigation measures for impacts of the Palmdale to Burbank Project Section, including those specific to each of the Build Alternative alignments, the proposed station, and other required facilities.

3.1.2 Chapter 3 Purpose

This chapter describes the five primary categories of environmental information:

- **Regional and Local Policies**—Discussion of the Palmdale to Burbank Project Section with adopted regional and local policies and laws
- **Methods for Evaluating Impacts**—Methods used to analyze potential environmental impacts that would be caused by the Build Alternatives and to determine the significance of those impacts
- **Affected Environment**—Existing environmental conditions in the areas that would be affected by the proposed Palmdale to Burbank Project Section
- **Environmental Consequences**—Potential environmental impacts associated with construction and operation of the Build Alternatives and the No Project Alternative
- **Mitigation Measures**—Site-specific mitigation measures where impacts cannot be otherwise avoided or reduced through design features or best management practices during construction or operations of the Palmdale to Burbank Project Section

The Chapter 3 analyses address the impacts of the Build Alternatives, including the track, station, and other related California HSR System facilities as described in Chapter 2, Alternatives, and identify key differences among the impacts associated with the Build Alternatives. The analyses also evaluate impacts associated with related infrastructure changes required to accommodate the Build Alternatives, such as roadway and interchange modifications, utility relocation, and addition of power substations. The chapter also includes an evaluation of the conditions of a No Project Alternative as a means of comparing each of the six Build Alternatives to future conditions. The chapter analyzes mitigation, impacts resulting from mitigation, and feasibility of mitigation.

Analysts used many sources to prepare this document. Chapter 12, References/Sources Used in Document Preparation, lists these sources.

³ The Authority and FRA's Final Program EIR/EIS for the Proposed California HSR System was published in August 2005. The FRA's program-level commitments are set forth in the November 2005 Record of Decision (FRA 2005) and the Authority's program-level commitments are set forth in November 2005 Authority Resolution 5-01 (Authority 2005). The Authority's program-level commitments are set forth in the CEQA findings for the Partially Revised Final Program EIR and the Mitigation Monitoring and Reporting Program, both published on April 19, 2012. The FRA's program-level commitments are set forth in the December 2, 2008, Record of Decision for the Bay Area to Central Valley High-Speed Train (HST) Final Program EIR/EIS.

3.1.3 Chapter 3 Organization

Chapter 3 presents each environmental resource topic in its own section, as listed below.

- Section 3.2, Transportation*
- Section 3.3, Air Quality and Global Climate Change*
- Section 3.4, Noise and Vibration*
- Section 3.5, Electromagnetic Fields and Electromagnetic Interference
- Section 3.6, Public Utilities and Energy
- Section 3.7, Biological and Aquatic Resources*
- Section 3.8, Hydrology and Water Resources*
- Section 3.9, Geology, Soils, Seismicity, and Paleontological Resources*
- Section 3.10, Hazardous Materials and Wastes*
- Section 3.11, Safety and Security
- Section 3.12, Socioeconomics and Communities*
- Section 3.13, Station Planning, Land Use, and Development
- Section 3.14, Agricultural Farmland and Forest Land
- Section 3.15, Parks, Recreation, and Open Space
- Section 3.16, Aesthetics and Visual Quality*
- Section 3.17, Cultural Resources*
- Section 3.18, Regional Growth*
- Section 3.19, Cumulative Impacts

The asterisks (*) in the above list of Chapter 3 sections indicate environmental resources for which separate technical reports were prepared that provide more detailed technical analyses and data. In addition to the technical reports, Volume 2, Technical Appendices, provides detailed, resource-specific background information, data, and other evidence supporting the analyses and conclusions in this chapter. The Volume 2 technical appendices prepared for this Draft EIR/EIS are available on the Authority's website: www.hsr.ca.gov. Varying aspects of the impacts on community resources can be found in several different sections of Chapter 3. For example, as shown in the text box, *More About Schools*, analyses of schools are presented in several sections in Chapter 3.

3.1.4 Chapter 3 Content

This Draft EIR/EIS divides each of the environmental resource topics in Chapter 3 into the following 10 subsections, which are discussed below:

- Introduction
- Laws, Regulations, and Orders
- Consistency with Plans and Laws
- Methods for Evaluating Impacts
- Affected Environment
- Environmental Consequences
- Mitigation Measures

More About Schools

An analysis of schools in the Palmdale to Burbank Project Section area can be found in the following sections:

- 3.3, Air Quality and Global Climate Change
- 3.4, Noise and Vibration
- 3.5, Electromagnetic Fields and Electromagnetic Interference
- 3.10, Hazardous Materials and Wastes
- 3.11, Safety and Security
- 3.12, Socioeconomics and Communities
- 3.13, Station Planning, Land Use, and Development
- 3.15, Parks, Recreation, and Open Space
- 3.16, Aesthetics and Visual Quality
- Chapter 4, Section 4(f) and Section 6(f) Evaluations
- Chapter 5, Environmental Justice
- Children's Health and Safety Risk Assessment (Technical Appendix 3.12-C in Volume 2)

- NEPA Impacts Summary
- CEQA Significance Conclusions
- United States Forest Service Impact Analysis

3.1.4.1 Introduction

The introduction provides an overview of the topic and critical issues and concerns considered in the analysis. This section also identifies separate technical reports and appendices that support the analysis, as applicable, as well as other related environmental resource sections where the topic is also discussed. Definitions of key resource-specific terms are also provided in the introduction.

3.1.4.2 Laws, Regulations, and Orders

The laws, regulations, and orders discussion identifies the relevant regulatory framework, including topical NEPA and CEQA guidance, as well as other federal, state, regional, and local regulatory agency requirements relevant to approvals or decisions for the resource topic.

3.1.4.3 Consistency with Plans and Laws

This section describes inconsistencies or conflicts between the California HSR System and adopted regional or local plans or laws pertaining to the resource topic. The extent of reconciliation with inconsistencies or conflicts and reasoning behind proceeding without full reconciliation is also discussed. Appendix 2-H contains detailed tables in support of the plan consistency analysis described in Chapter 3.

3.1.4.4 Methods for Evaluating Impacts

This section describes the methods used to collect data and evaluate impacts. This section also defines the RSA for each environmental topic (some topics require more than one RSA), describes the methods used to evaluate the impacts associated with the Build Alternatives and the No Project Alternative, and discusses the thresholds used for determining significance under CEQA for each resource topic. In general, the methods for evaluating impacts apply to the analysis for both NEPA and CEQA unless otherwise indicated within each resource topic section (Sections 3.2, Transportation, through 3.18, Regional Growth).

Definition of Resource Study Area(s)

RSAs are areas in which environmental investigations specific to each Draft EIR/EIS section are conducted to determine the resource characteristics and impacts. RSAs therefore vary in context by resource topic. Figure 3.1-1 illustrates the components of a typical RSA. A resource topic may have more than one RSA depending on the impacts being analyzed. The RSAs contain these components:

- All facilities or features within the Build Alternative footprint, particularly stations, and consequential actions that would affect the environmental resource
- Areas necessary to define characteristics and context of a specific resource within the Build Alternative footprint
- Areas specific to each resource to evaluate the intensity and determine the significance of each of the Build Alternative's direct and indirect impacts, both beneficial and adverse

What is the Palmdale to Bakersfield Project Section Build Alternative footprint?

At the northern end of its alignment, the Palmdale to Burbank Project Section would begin at Spruce Court in Palmdale, and head southwest through the Angeles National Forest, including the San Gabriel Mountains National Monument, and then continue into the San Fernando Valley where it would connect with a proposed HSR station at the Hollywood Burbank Airport.

- Areas needed to implement, operate, or maintain mitigation measures
- Areas needed to identify and analyze the secondary impacts of implementing mitigation measures

The Palmdale to Burbank Build Alternative footprint is a focused area that includes all project components and rights-of-way needed to construct and operate the Palmdale to Burbank Project Section. The Palmdale to Burbank Build Alternative footprint components include the proposed California HSR System rights-of-way and associated facilities, such as train signaling and communication facilities, intrusion protection barriers, traction power substations, wildlife crossings, and switching and paralleling stations. This Build Alternative footprint also includes the shifts in roadway rights-of-way associated with those facilities—including access roads, rerouting, and grade separations—that would be modified or shifted to accommodate the California HSR System, as described in Chapter 2, Alternatives. The Palmdale to Burbank Build Alternative footprint, shown in Appendix 3.1-A, Footprint Mapbook, includes areas of permanent impact (e.g., areas occupied by infrastructure or permanent changes to roadways or freight tracks required for each of the Build Alternatives), as well as areas of temporary impact (e.g., construction staging areas or construction easements).

RSAs encompass the Build Alternative footprint. Each of the Build Alternative footprints includes the following components needed to build and operate the Palmdale to Burbank Project Section:

- **HSR Right-of-Way**—The typical minimum right-of-way width for California HSR System implementation would be 130 feet. This dimension may be expanded in rural areas to accommodate wildlife crossings and, in mountainous areas, to accommodate topography, or the dimension may be reduced to 80 feet in constrained urban areas.
- **HSR Guideway**—The Build Alternatives would use varying track profiles: (1) at grade, (2) at grade covered, (3) cut and cover, (4) retained cut/trench profile, (5) tunnel, and (6) elevated/aerial bridge structure. Types of bridges that might be required include full channel spans, large box culverts, and, for some wider river crossings, limited piers within the ordinary high-water channel. These track profiles would have varying rights-of-way and distances from the Palmdale to Burbank Project Section right-of-way, and they would include new roadway overcrossings over the California HSR System right-of-way.

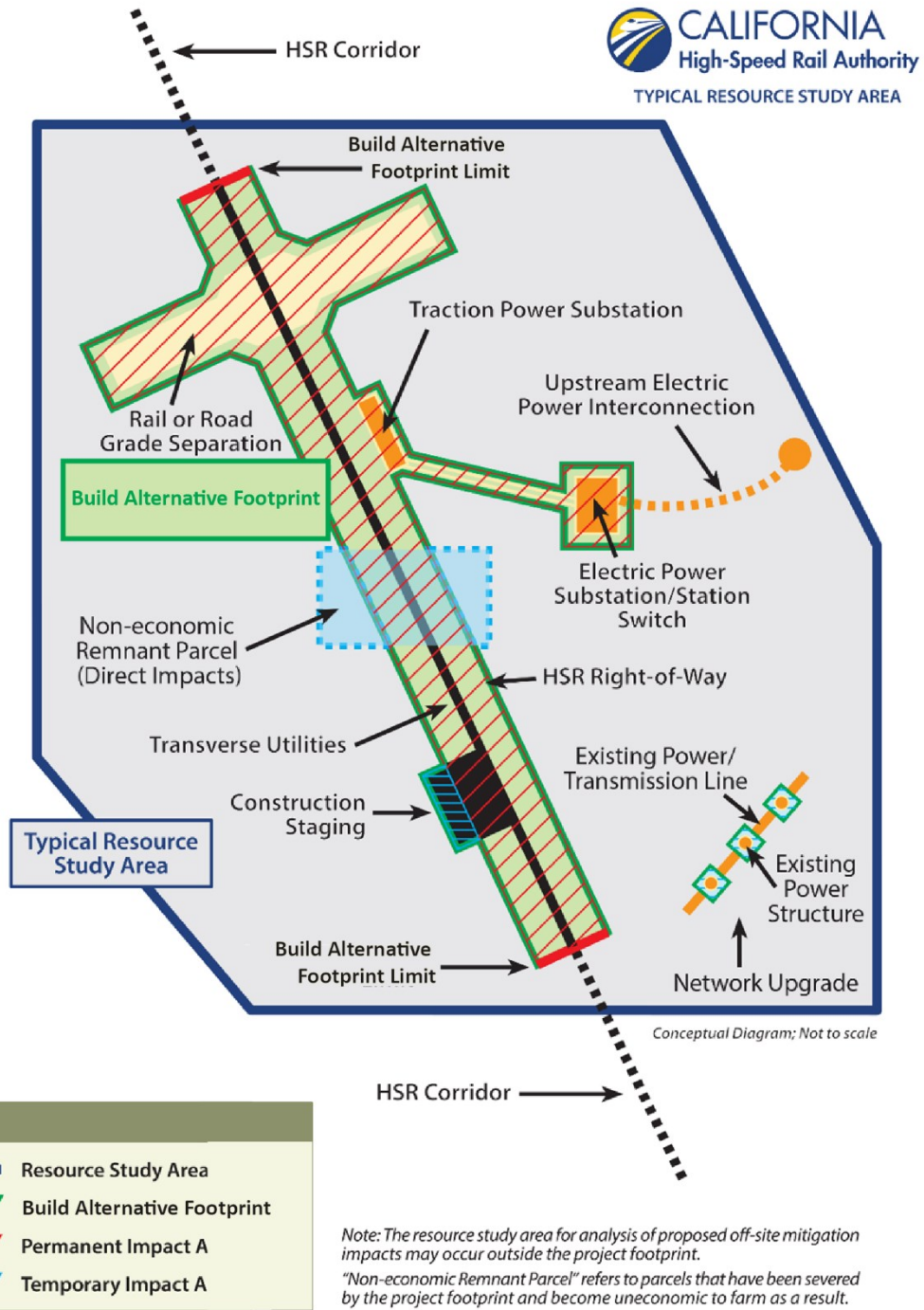


Figure 3.1-1 Resource Study Area and Build Alternative Footprint

- **Grade Separations**— A safely operated California HSR System consists of a fully access-controlled and largely grade-separated guideway. Unlike existing passenger and freight train corridors, the Palmdale to Burbank Project Section would not include at-grade road crossings, nor would the rail alignment and trackway be shared with freight trains.
- **Ancillary Features**—The Build Alternative footprints include ancillary features such as temporary and permanent access roads, traction power substations, switching and paralleling stations, train signaling and communication facilities, temporary and permanent access roads, grade separations (overcrossings and undercrossings), intrusion protection barriers, and wildlife crossing structures. The Build Alternative footprints also include areas for utility relocations, roadway relocations, and electrical power connections.
- **Communications Facilities**—Most communications equipment and 100-foot-tall radio towers would be co-located with traction power, tunnel portal, and train control facilities. Stand-alone communications facilities would be placed where spacing between the co-location sites exceeds 3 miles.
- **Utility Connections**—The rights-of-way required for new power transmission lines to provide utility connections between electrical power substations and station switching facilities is included in the project footprint.
- **Utility Relocations**—The construction of each of the Build Alternatives may require the relocation of existing utility lines. The additional rights-of-way required to accommodate these relocations is included in the project footprint.
- **HSR Station**— The Palmdale Station was evaluated and approved in the Bakersfield to Palmdale Project Section and is incorporated here for reference only. The Burbank Airport Station, which is located at the southern end of the Palmdale to Burbank Project Section, was also evaluated as part of the Burbank to Los Angeles Project Section. See Section 2.5.2.2 in Chapter 2, Alternatives, for a depiction of the Burbank Airport Station area that is an overlap (common element) between the two HSR project sections. The Burbank to Los Angeles Project Section Final EIR/EIS was released on November 5, 2021. The Burbank to Los Angeles Project Section Final EIR/EIS was released on November 5, 2021, and the Authority's Board approved the Burbank to Los Angeles Project Section Preferred Alternative, including the Burbank Airport Station, on January 20, 2022. The information regarding the Burbank Airport Station included in this document is information and for reference only.
- **Maintenance Facilities**—The California HSR System includes four types of maintenance facilities: light maintenance facilities (LMF), maintenance of way facilities (MOWF), maintenance of infrastructure sidings (MOIS), and heavy maintenance facilities (HMF).
- **Traction Power Substations**—Two traction power substations would provide electrical power to the California HSR System. Based on the California HSR System's estimated power needs, traction power substations would each need to be approximately 32,000 square feet (200 feet by 160 feet) and would be located at approximately 30-mile intervals.
- **Switching and Paralleling Stations**—One switching and five paralleling stations work together to balance the electrical load between tracks and to switch power off or on to either track in the event of an emergency. Switching stations would be required at approximately 15-mile intervals, midway between the substations. These stations would need to be approximately 14,400 square feet (160 feet by 90 feet). Paralleling stations would be required at approximately 5-mile intervals between the switching stations and the substations. The paralleling stations would need to be approximately 9,600 square feet (120 feet by 80 feet). These facilities would be constructed underground in the long tunnel segments of the Build Alternatives.
- **Project Roadway Modifications**—These changes would have varying rights-of-way and distances from the California HSR System right-of-way (Figure 3.1-2) and would include access roads, realignment of existing crossings, and new roadway overcrossings and undercrossings over and under the California HSR System right-of-way.

- Temporary Construction Areas**—The Build Alternative footprints would also include areas needed temporarily during construction, such as construction staging and construction easements, as well as the location of areas that may be necessary for relocation of facilities during the construction process, such as shoofly tracks.

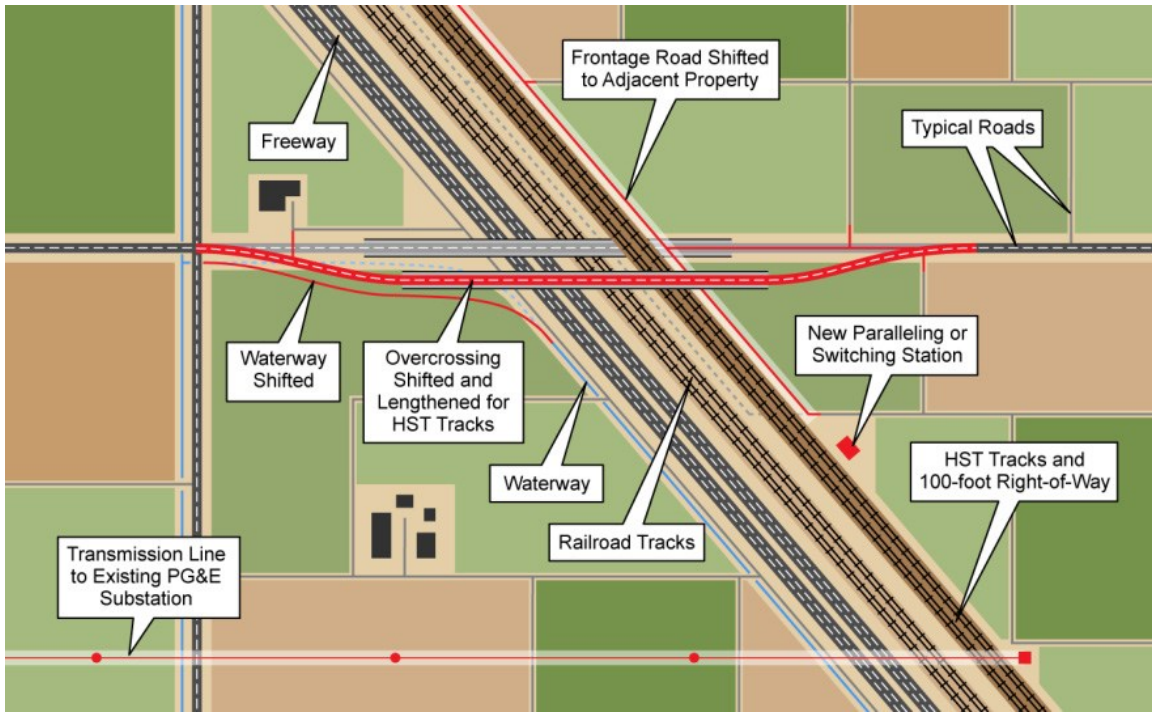


Figure 3.1-2 Typical Shifts of Roadways and Other Infrastructure

The Palmdale to Burbank Project Section would require acquisition of property necessary for operations. Property acquisition can include an entire parcel or a portion of a parcel. When the remnant portion of a partial acquisition beyond the required right-of-way is too small to sustain current use without other modifications, or where access to a property cannot be provided, the entire parcel would be acquired. An example of a remnant portion of a property is shown previously in Figure 3.1-1.

These remnant parcels may be used temporarily for construction and would be considered for sale after construction of the selected Preferred Alternative if the Authority has no long-term need for them. They would not be part of the finished Palmdale to Burbank Project Section, and they would not be within the California HSR System right-of-way. However, the Authority may conduct various management and maintenance activities (e.g., vegetation management, site security) on such parcels. Property management activities would be designed to avoid impacts; if site conditions are identified that may create the potential for impacts, a separate environmental evaluation would be undertaken by the Authority.

The Authority would not acquire temporary construction areas through the right-of-way acquisition process. It would be the responsibility of the design-build contractor to negotiate with property owners to secure access and temporary use of properties for staging or laydown areas. To provide the design-build contractor with sufficient potential staging areas, this Draft EIR/EIS includes an evaluation of the environmental impacts of various parcels located adjacent to or near parts of each of the Build Alternative that would require construction staging and laydown areas. Including the impacts of potential construction staging areas results in a conservative analysis because the limits of impacts for each site are identified by parcel boundaries rather than by the number of acres that may be necessary for staging or materials storage.

Impact Avoidance and Minimization Features

Each of the Build Alternatives incorporate standardized HSR features to avoid and minimize impacts. These features are referred to as impact avoidance and minimization features (IAMF). IAMFs are standard practices and design features that provide specific means to avoid and reduce impacts. IAMFs may involve the development of a plan or program (such as a dust control plan to reduce impacts on air quality) or require or restrict an action (such as limiting construction material delivery hours to minimize impacts on traffic during peak travel times) to achieve a specific outcome. The IAMFs are part of all of the Build Alternatives and will be implemented by the Authority as integral components of any alternative that may be approved during design and construction. As such, the analysis of impacts of the Build Alternatives in each subsection factors in all applicable IAMFs. The IAMFs that will be applied to the Palmdale to Burbank Build Alternatives are abbreviated “IAMF” and numbered in the order identified in the section, e.g., AVQ-IAMF#1. Appendix 2-E, California High-Speed Rail: Impact Avoidance and Minimization Features, provides a detailed description of the IAMFs included as part of the Palmdale to Burbank Build Alternatives’ design.

As described below, mitigation measures will further reduce, compensate for, or offset impacts of the Palmdale to Burbank Project Section Build Alternatives. If adopted at the conclusion of the environmental review process, mitigation measures also will be implemented as part of the Palmdale to Burbank Project Section Build Alternatives (Section 3.1.4.7, Mitigation Measures).

Method for Determining Impacts under NEPA

Each resource section describes the methods and data sources which analysts used to identify impacts on that particular environmental resource. The methods for analysis vary by resource and rely on both quantitative and qualitative techniques. For many resource topics, fieldwork was conducted to collect data to support the impact analysis.

While the terms *context* and *intensity* (including duration) themselves are not used in the analysis, these concepts are employed to fully illustrate the impacts and facilitate comparison between alternatives—the No Project Alternative and each of the Build Alternatives. *Context* refers to the environment in which a proposed project occurs and may include affected interests or resources, the specific locality, the region, or society as a whole, depending on the resource. *Intensity* refers to the severity of the impact; its analysis encompasses the type, quality, and sensitivity of the resource involved; the location and extent of the impact; the duration of the impact; whether the action threatens a violation of federal or state law or requirements imposed for the protection of the environment; and other intensity considerations (40 C.F.R. 1508.27). Under NEPA, once a decision to prepare an EIS is made, the analysis focuses on the magnitude of the impact, and no explicit determination of significance is made for individual impacts. Where varying methods for determining impacts under NEPA and CEQA are employed, these discussions are included under separate analysis sections (described below in the Methods for Determining Impacts under NEPA and Methods for Determining Impacts under CEQA sections, respectively).

Method for Determining Significance under CEQA

In contrast to NEPA, CEQA requires the identification of each “significant effect on the environment” resulting from the project and uses a thresholds-based approach to determine significance (CEQA Guidelines Sections 15064(a) and 15126.4). All significant impacts on the environment must be disclosed and mitigated, if feasible. For each resource, analysts use impact thresholds based predominantly on the CEQA Guidelines to determine whether impacts would be significant (e.g., above the impact threshold). If significant, analysts also use the impact thresholds to determine whether proposed mitigation measures would be capable of reducing the magnitude and severity of significant adverse impacts to a less than significant level (e.g., below the impact threshold). These impact thresholds, also called significance criteria, generally describe whether impacts would be considered significant because there would be a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project. Where possible, significance criteria use state or federal standards. For example, air quality significance criteria follow the state and federal ambient air quality standards;

noise significance criteria use thresholds defined by FRA. In other cases, the significance criteria rely on guidelines and policies, assessment methodologies such as those used by FRA, and standards of professional practice. Because of the difference in the approach to the determinations of significance under NEPA and CEQA, impacts determined to be significant under CEQA will not have a similar label under NEPA.

3.1.4.5 Affected Environment

Both NEPA and CEQA require discussion of the areas affected by the project as well as nearby areas. CEQA requires an EIR to include a description of the existing physical environmental conditions in the vicinity of the project and states that those conditions will “normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant” (CEQA Guidelines Section 15125(a)). Under NEPA, an EIS “shall succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration” (40 C.F.R. 1502.15). The existing conditions baseline year for this Draft EIR/EIS is generally 2015, the year when the environmental analysis for the Palmdale to Burbank Project Section began following issuance of the federal Notice of Intent and the State Notice of Preparation for this project section. The affected environment discussions describe the existing conditions at the time the Draft EIR/EIS was prepared.

3.1.4.6 Environmental Consequences

The environmental consequences discussion describes the reasonably foreseeable environmental impacts of all Build Alternatives on the existing environmental conditions in the RSAs. This Draft EIR/EIS evaluates the construction and operations impacts of each of the Build Alternatives based on the existing environmental conditions in the RSA. For Air Quality and Greenhouse Gas Emissions, Noise and Vibration, Public Utilities and Energy, and Transportation, the Palmdale Station is included in the operations analysis for regional context.⁴ This Draft EIR/EIS also evaluates the impacts of each of the Build Alternatives based on the projected 2040 future environmental conditions without any of the Build Alternatives (No Project Alternative),⁵ which is the horizon year for analysis of California HSR System operations. Projected future environmental conditions without any of the Build Alternatives are described under the No Project Alternative heading in the Environmental Consequences portion of each resource section. Some individual resource sections (Transportation, Air Quality, and Public Utilities and Energy) include additional discussion of the impacts of each of the Build Alternatives in the project opening year or date of implementation of California HSR System operations (2029) and are described more specifically in the individual resource sections.⁶

⁴ The Palmdale Station elements are discussed throughout this Draft EIR/EIS for context, reference, and to provide additional information.

⁵ The CEQA Guidelines also require that an EIR examine “what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community service” (CEQA Guidelines Section 15126.6(e)(2)). Similarly, NEPA requires that the alternatives analysis in an EIS “include the alternative of no action” (CEQ Regulations 1502.14(d)). Accordingly, the No Project Alternative is included in this Draft EIR/EIS to provide a basis for decision-makers and the public to compare the impacts of approving one of the Build Alternatives to the impacts of not approving any of the six Build Alternatives. For a detailed description of the No Project Alternative, refer to Section 2.6.1, No Project Alternative – Planned Improvements.

⁶ For purposes of the analysis provided in the Draft EIR/EIS, assumptions from the 2016 Business Plan (Authority 2016) were used, including an existing conditions baseline of 2015, an opening year for HSR operations of 2029, and a horizon year for HSR operations of 2040.

Construction Impacts

The Environmental Consequences discussion addresses construction impacts for each of the areas identified in the Affected Environment section. Both temporary (short-term) and permanent (long-term) impacts are associated with the construction of each of the six Build Alternatives. Construction impacts that occur for a limited time only are considered temporary (e.g., short-term ground disturbance, construction staging and activities, construction associated with implementing mitigation measures). Construction impacts that continue over the long term are permanent (e.g., land conversion, removal of habitat, elimination of at-grade crossings, and construction of permanent structures). For each alignment alternative, these impacts are discussed in comparison to the other Palmdale to Burbank Project Section Build Alternatives, as well as the existing condition or No Project Alternative.

Operations Impacts

The Environmental Consequences discussion addresses operational impacts for each of the areas identified in the Affected Environment section. Operational impacts are permanent impacts related to operation and maintenance of all the Build Alternative alignments. California HSR System operations and related improvements, such as modified roadway traffic flow and maintenance of power supply components, are included in the operational impacts discussion. For each alignment alternative, these impacts are discussed in comparison to the other Palmdale to Burbank Project Section Build Alternatives, as well as the existing condition or No Project Alternative.

Cumulative Impacts

To fully understand a proposed project's environmental implications, NEPA and CEQA also require that project impacts be examined in conjunction with other past, present, and reasonably foreseeable projects. Section 3.19 discusses these cumulative impacts for each resource and the relative importance of each Build Alternative's contribution to any substantial or significant cumulative impacts.

Ridership Forecasts and Impacts Analysis

The California HSR System ridership forecasts used in this environmental analysis correspond to forecasts in the *Connecting and Transforming California, 2016 Business Plan* (2016 Business Plan) (Authority 2016) and are based on probability of occurrence. The annual medium forecast (42.8 million) is lower than the high forecast but has a higher likelihood of occurrence. For impacts analyses that are related to the level of ridership on the California HSR System, the medium- and high-ridership forecasts provide conservative estimates that have been applied as follows.

The high-ridership forecast (56.8 million) provides for a conservative assessment of adverse impacts in these areas:

- Section 3.2, Transportation—Analysis of transportation effects from increased traffic around station areas
- Section 3.3, Air Quality and Global Climate Change—Analysis of localized air quality effects from increased traffic around station areas
- Section 3.4, Noise and Vibration—Analysis of noise effects from increased traffic around station areas
- Section 3.6, Public Utilities and Energy—Analysis of the electrical demands due to propulsion of the trains, station, and storage depots

The use of the high-ridership forecast for these analyses ensures a conservative disclosure of a higher level of adverse environmental effects that could occur if ridership reaches the 2040 forecast of 56.8 million passengers. If California HSR System ridership proves to be lower than the 56.8 million forecast, adverse environmental impacts would also be lower. However, while a lower level of ridership would reduce adverse environmental impacts, it would also reduce the

environmental benefits of the California HSR System (e.g., reduced vehicle miles traveled, improved air quality, and/or reduced energy for transportation).

The medium-ridership forecast (42.8 million) provides for a conservative assessment of environmental benefits in these areas:

- Section 3.2, Transportation—Analysis of traffic effects (vehicle miles traveled) on the regional highway network from reducing automobile vehicle miles traveled
- Section 3.3, Air Quality and Global Climate Change—Analysis of air quality effects from reducing vehicle miles traveled, air travel and energy use; analysis of effects on greenhouse gas emissions from reducing vehicle miles traveled, air travel, and energy use
- Section 3.6, Public Utilities and Energy—Analysis of energy effects from reducing fossil fuel consumption for automobile, air, and conventional rail travel

The use of the medium-ridership forecast for these analyses ensures a conservative disclosure of a lower level of environmental benefit that could occur if ridership reaches the 2040 forecast of 42.8 million passengers, rather than the higher forecast of 56.8 million riders. If California HSR System ridership proves to be higher than the 42.8 million forecast, environmental benefits would be higher, but this forecast would also bring a higher level of adverse environmental impacts as described above.

Since the 2016 Business Plan forecasts were developed, the Authority adopted the *2018 Business Plan: Connecting California, Expanding Economy, Transforming Travel* (2018 Business Plan), which was accompanied by updated forecasts (Authority 2016, 2018). The 2016 and 2018 Business Plan ridership forecasts were developed using the same travel forecasting model; however, they differ due to changes in the model's inputs, including the California HSR System service plan, demographic forecasts, estimates of automobile operating costs and travel times, and air travel times and airfares. In the 2018 Business Plan, the medium-ridership forecast for 2040 decreased by 6.5 percent from the 2016 forecasts, from 42.8 million to 40 million, and the high-ridership forecast decreased by 10.1 percent from the 2016 forecasts, from 56.8 million to 51.6 million. The 2018 Business Plan also assumes an opening year of 2033 rather than 2029 for the full Phase 1 system (Authority 2018). During Phase 1 projections, the project is assumed to be fully operational.

The Authority released a Draft 2020 Business Plan February 12, 2020, for public review and comment, with an initial 60-day public comment period that was extended due to the COVID-19 pandemic to June 1, 2020. Subsequently, a Revised Draft 2020 Business Plan was issued on February 9, 2021, including an additional 30-day comment period. The 2020 Business Plan was adopted by the Authority Board of Directors on March 25, 2021 and submitted to the state legislature on April 12, 2021. The 2020 Business Plan forecasts were developed using the same travel forecasting model as the 2016 and 2018 Business Plans, updated for population and employment forecasts. The 2020 Business Plan Phase 1 medium-ridership forecast for 2040 is 38.6 million, and the high-ridership forecast is 50.0 million (Authority 2020).

To the extent that the lower ridership levels projected in the 2018 Business Plan or the 2020 Business Plan result in fewer trains operating in 2040, the impacts associated with the train operations in 2040 would be somewhat less than the impacts presented in this Draft EIR/EIS, and the benefits accruing to the Palmdale to Burbank Project Section (e.g., reduced vehicle miles traveled, reduced greenhouse gas emissions, reduced energy consumption) also would be somewhat less than the benefits presented in this Draft EIR/EIS. As with the impacts, the benefits would continue to build and accrue over time and would eventually reach the levels discussed in this Draft EIR/EIS for the Phase 1 system.

3.1.4.7 Mitigation Measures

NEPA requires federal agencies to identify potentially adverse effects and discuss potential measures to mitigate those impacts. Mitigation measures to address certain adverse effects associated with the six Build Alternatives are discussed in the Draft EIR/EIS. CEQA requires that

each significant impact of a project be identified and that feasible mitigation measures be stated and implemented. Mitigation measures are identified for significant construction and operations-related impacts. A list of the standardized mitigation measures can be found in Appendix 3.1-C. In addition, project section mitigation measures have been developed for the Palmdale to Burbank Project Section and will be implemented to avoid, minimize, and reduce significant impacts. Project specific mitigation measures are referenced throughout Chapter 3.

The Mitigation Measures section identifies feasible measures to avoid, minimize, rectify, reduce, eliminate, or compensate for significant adverse effects. If no mitigation measures are required, this section is not included. In contrast to the IAMFs discussed in the Impact Avoidance and Minimization Features section description, mitigation measures are not project design features, but rather are measures to avoid, minimize, and compensate for impacts that would be caused by the project.

A discussion of secondary impacts resulting from the implementation of each mitigation measure follows the discussion of each measure (CEQA Guidelines Section 15126.4[(a)(1)(D)]). If, during the construction and operation of one of the Build Alternatives, changing circumstances render mitigation infeasible, additional environmental review may be required.

The mitigation measures are based on the mitigation strategies presented in the (1) *Final Program EIR/EIS for the Proposed California High-Speed Train System* (Authority and FRA 2005), (2) *Bay Area to Central Valley High-Speed Train Program EIR/EIS* (Authority and FRA 2008), and (3) *Bay Area to Central Valley High-Speed Train Partially Revised Final Program Environmental EIR* (Authority 2012) as they may apply to the Palmdale to Burbank Project Section. The programmatic mitigation strategies in the Program EIR/EISs provided a foundation for crafting mitigation measures, and additional mitigation measures specific to the Palmdale to Burbank Project Section were identified where appropriate. The mitigation measures proposed for the Palmdale to Burbank Project Section are abbreviated “MM” and numbered in the order identified in each resource section. For example, the first mitigation measure for air quality impacts is AQ-MM#1, and the first mitigation measure for aesthetics and visual resources is AVQ-MM#1.

Most mitigation measures identified in Chapter 3 would occur within the six Build Alternative footprints in areas that will be within the Authority’s jurisdiction and control. These measures may include physical actions accomplished within the proposed right-of-way as well as construction methods and techniques. Some of the proposed mitigation measures, however, would occur on property the Authority would not own as part of its rights-of-way acquisition as described in Section 3.1.6.

3.1.4.8 NEPA Impacts Summary

This section, in table format, summarizes the environmental consequences specific to NEPA requirements for each resource. Based on the analysis of the context, intensity, and duration of the impacts before application of mitigation measures, a determination as to whether an impact is adverse or not adverse. If an impact is determined to be adverse, any applicable mitigation measures to reduce or eliminate the impact are listed. A determination is then made as to whether the magnitude of the impact after mitigation measures are applied remains adverse or is reduced to a point where the impact is determined to be minimal and thus no longer considered adverse, or that the mitigation measures completely eliminate the impact. Applicable impacts that would be beneficial are also noted. This section also features a narrative summary that reports impacts under NEPA and describes recommended mitigation measures for each Build Alternative.

3.1.4.9 CEQA Significance Conclusions

This section lists, in table format, the impacts identified in the Environmental Consequences section for each resource, reports the level of significance prior to mitigation (e.g., less than significant or significant), and indicates mitigation measures that are recommended to reduce the level of significance for each impact. If implementing one or more mitigation measures would

reduce the impact below the applicable significance threshold, the impact would be considered less than significant after mitigation. If, however, implementing a mitigation measure cannot reduce the level of impact below the significant threshold, the impact would be considered significant and unavoidable. As such, this section identifies the CEQA level of significance before and after mitigation.

3.1.4.10 United States Forest Service Impact Analysis

This section summarizes the environmental impacts that would occur within the Angeles National Forest including the San Gabriel Mountains National Monument. This Draft EIR/EIS is intended to include a sufficient level of analysis to support the issuance by the U.S. Forest Service of a Special Use Authorization that would allow for construction and operation of the selected Preferred Alternative. Because all Build Alternative footprints would extend beyond the Angeles National Forest, impacts discussed in this section represent a subset of the impact assessment provided in Section 3.1.4.6 and Section 3.1.4.8.

3.1.5 Outreach to Local Agencies

Meetings and other outreach activities were conducted with the staff of local public agencies within the Palmdale to Burbank Project Section project area throughout preparation of this Draft EIR/EIS. These meetings and other outreach activities have helped the Authority discern the on-the-ground conditions and local environmental issues, recognize the concerns of local agencies and the public, facilitate reconciliation of substantive concerns, and design effective and feasible mitigation measures. Chapter 9, Public and Agency Involvement, is an inventory of outreach activities undertaken during preparation of this Draft EIR/EIS. Specific resource-related issues also are discussed in the respective resource sections of the document.

3.1.6 Legal Authority to Implement Off-Site Mitigation

Chapter 3 analyzes the Build Alternatives' physical environmental effects on various resource areas. If a potential significant effect is found, mitigation measures are proposed. Most mitigation measures identified will be within the Authority's jurisdiction and control. Some of the proposed mitigation measures, however, would need to occur on property the Authority would not own as part of its right-of-way acquisitions. These are sometimes referred to as *off-site* mitigation measures. Mitigation that would occur on property not owned by the Authority would require working with the property owners involved or with the jurisdiction that regulates the property in order to accomplish that mitigation.

The Authority has identified off-site mitigation measures in this Draft EIR/EIS that are considered to be feasible. The Authority will continue its current practice of developing memoranda of understanding and funding agreements with local governments to facilitate agreement on implementation of off-site mitigation measures on property owned at the local agency level.

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