

## 8 PREFERRED ALTERNATIVE AND STATION SITES

### 8.1 Introduction

This chapter identifies the Preferred Alternative for the Palmdale to Burbank Project Section of the California High-Speed Rail (HSR) System. The Preferred Alternative is the SR14A Build Alternative, which includes the Burbank Airport Station. Figure 8-1 shows the Preferred Alternative. Identification of the Preferred Alternative is based on the data and analysis presented in this Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) and supporting technical reports. The identification of the Preferred Alternative is also based on comments provided by local communities and stakeholders in meetings held during project scoping and during ongoing public outreach conducted by the California HSR Authority (Authority) since that time. Section 8.4 provides additional context about the factors that influenced the selection process whereby the Authority identified SR14A as the Preferred Alternative.

#### 8.1.1 Project Characteristics

This Draft EIR/EIS provides information on the relative differences among physical and operational characteristics and the potential environmental consequences associated with the Build Alternatives and station location option, including the following:

- **Physical/Operational Characteristics:**
  - Alignment
  - Length
  - Capital cost
  - Travel time
  - Ridership
  - Constructability
- **Community and Environmental Impacts:**
  - Transportation-related topics (air quality, noise and vibration, and energy)
  - Human environment (land use and community impacts, farmlands and agriculture, aesthetics and visual resources, socioeconomic, environmental justice populations, utilities and public services, and hazardous materials and wastes)
  - Cultural resources (archaeological resources, Native American sites, and historic properties)
  - Natural environment (geology and seismic hazards, hydrology and water resources, and biological and aquatic resources)
  - Section 4(f) properties (certain types of publicly owned parklands, recreation areas, or wildlife/waterfowl refuges, and significant historical sites regardless of ownership)

In identifying a Preferred Alternative, the Authority was guided by the project Purpose and Need and project objectives described in Chapter 1, Project Purpose, Need, and Objectives; the HSR Performance Criteria identified in Chapter 2, Alternatives; and the prior evaluation of the Palmdale to Burbank corridor as recorded in the following documents:

- *Final Program EIR/EIS for the Proposed California High-Speed Train System (2005 Statewide Final Program EIR/EIS)* (Authority and Federal Railroad Administration [FRA] 2005)
- *Preliminary Palmdale to Los Angeles Alternatives Analysis Report* (Authority and FRA 2010)

- *Supplemental Palmdale to Los Angeles Alternatives Analysis Report* (Authority and FRA 2012a) Palmdale to Los Angeles Supplemental Alternatives Analysis Report (Authority and FRA 2012b)
- Palmdale to Los Angeles Supplemental Alternatives Analysis Report (Authority and FRA 2014a)
- Palmdale to Burbank Project Section Supplemental Alternatives Analysis Report (Authority and FRA 2016)
- Checkpoint B Summary Report<sup>1</sup> (Authority 2019a)
- Connecting and Transforming California: 2016 Business Plan (Authority 2016)
- Connecting California, Expanding Economy, Transforming Travel: 2018 Business Plan (Authority 2018)

The 2018 and 2020 Business Plans are available at [www.hsr.ca.gov](http://www.hsr.ca.gov). The other documents are available for review at the Authority's offices in Sacramento and Los Angeles, or copies may be requested from the Authority.

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<sup>1</sup>The *Checkpoint B Summary Report* (Authority 2019a) document identifies reasonable and potentially practicable alternatives to be evaluated in the EIS for the Palmdale to Burbank Project Section (see Section 8.2.3.4).



**Figure 8-1 Palmdale to Burbank Project Section Preferred Alternative and Station**

## 8.2 Summary of Public Comments

Since publication of the Preliminary Alternatives Analysis document (Authority 2010), public engagement for key environmental stakeholders has occurred, with outreach meetings and events held in communities along the proposed HSR alignments. The Authority has held and participated in meetings with many individuals, local governments, tribes, public agencies, and organizations to share information and obtain feedback. Meeting formats included open houses, formal presentations, and question-and-comment sessions and were used to present information and provide opportunities for input by participants.

The Authority issued a NOP on July 24, 2014, initiating public scoping for the Palmdale to Burbank Project Section Draft EIR/EIS. The FRA published the NOI in the Federal Register on July 24, 2014. Since publication of the 2014 Publication/Notice of Intent, the Authority has held more than 240 individual and group meetings in the Palmdale to Burbank area. Frequently asked questions received via email, phone calls, public information meetings, and one-on-one discussions with stakeholders pertained to the following:

- Sensitive plant and animal habitat
- Water and groundwater
- Community character
- Air quality
- Noise and vibration
- Traffic circulation

Other commonly asked questions included concerns about alternative alignments, station locations, environmental justice, and impacts on communities.

Table 8-1 identifies the key issues identified during planning and alternatives development since 2014.

**Table 8-1 Key Issues Considered during Development of Alternatives and Draft EIR/EIS**

Topic	Key Issues
Protection of communities and the environment	<ul style="list-style-type: none"> <li>▪ Air quality and global climate change impacts</li> <li>▪ Use of clean, renewable electricity</li> <li>▪ Impacts on domestic and wild animals</li> <li>▪ Impacts on the Angeles National Forest and San Gabriel Mountains National Monument</li> <li>▪ Impacts on parks and other open space</li> <li>▪ Potential negative effects on archaeological sites</li> <li>▪ Impacts on growth and communities</li> <li>▪ Impacts on community character</li> <li>▪ Impacts of electromagnetic and interference/fields</li> <li>▪ Impacts on biological resources and wetlands</li> <li>▪ Impacts of tunneling on hydrology</li> <li>▪ Impacts on oil fields and wells</li> <li>▪ Negative visual impacts</li> <li>▪ Noise and vibration evaluations</li> </ul>

Topic	Key Issues
Safety	<ul style="list-style-type: none"> <li>▪ General safety and security</li> <li>▪ Risk of seismic activities</li> </ul>
Transportation	<ul style="list-style-type: none"> <li>▪ Station area access</li> <li>▪ Station relocation</li> <li>▪ Impacts on existing travel routes</li> </ul>

See Chapter 9, Public and Agency Involvement, for a detailed summary of all public and agency involvement during development of this EIS/EIR document.

### 8.3 Alternatives Considered

In 2010, the Authority and FRA prepared the Preliminary Alternatives Analysis Report that outlined the initial range of alternatives between Palmdale and Burbank. The 2012 SAA Report refined this range of alternatives, and the 2016 Alternatives Analysis included a 2015 Alternatives Screening Memorandum that consolidated subsection options into six Build Alternatives.

The six Build Alternatives studied in this Draft EIR/EIS have evolved through a comprehensive effort by the Authority to find ways to implement the California HSR System between the Antelope Valley and the Los Angeles Basin, considering community input, the engineering challenges of crossing the San Gabriel Mountains, and the evolution of tunnel experience in other transportation systems worldwide. The six Build Alternatives differ in linear mileage, location, and extent of tunnel, at-grade, and elevated sections of alignment, and present tradeoffs as discussed in Section 8.4. Please refer to Chapter 2, Alternatives, for a more detailed discussion of the development of the six Build Alternatives, including the options previously considered for the Burbank Airport Station.

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. The southern terminus of the six Build Alternatives is the Burbank Airport Station. South of the Burbank Airport Station, the HSR alignment would continue towards Los Angeles, which is the Burbank to Los Angeles Project Section.

The Refined SR14 alignment between Palmdale and the Santa Clara River crossing (just outside the city of Santa Clarita) would follow the SR 14 freeway corridor. After crossing the Santa Clara River near Lang Station Road, the Refined SR14 Build Alternative would turn southerly and enter a 13-mile-long tunnel beneath portions of the ANF, including the SGMNM. The Refined SR14 Build Alternative would emerge from the tunnel and transition to an at-grade alignment near Branford Street in the Pacoima neighborhood of the city of Los Angeles.

The 2015 SAA Report introduced several East Corridor alignments that to make a more direct connection between Palmdale and Burbank than previous options, by incorporating long tunnels beneath portions of the ANF, including the SGMNM. The E1 Build Alternative was one of several options introduced in the 2015 SAA Report, substantially refined in the 2016 SAA Report, and recommended in the Checkpoint B Summary Report for further analysis in this Draft EIR/EIS. The E1 Build Alternative was intended to provide a shorter, faster, less disruptive route to connect Palmdale and Burbank compared to a corridor along the SR 14 freeway.

The Authority developed the E1A Build Alternative to reduce impacts on aquatic resources south of the city of Palmdale. As the E1A Build Alternative was developed based on the E1 Build Alternative, the above description of the E1 Build Alternative applies to the E1A Build Alternative.

The E2 alignment was one of several options introduced in the 2015 SAA Report, substantially refined in the 2016 SAA Report, and recommended in the Checkpoint B Summary Report for further analysis in this Draft EIR/EIS. E2 is intended to provide a shorter, faster, and potentially less disruptive route to connect Palmdale and Burbank than alignments more strictly following the SR 14 freeway corridor.

Through consultation with resource agencies, the Authority developed the E2A Build Alternative to reduce impacts on aquatic resources south of the city of Palmdale. As the E2A Build Alternative was developed based on the E2 Build Alternative, the above description of the E2 Build Alternative applies to the E2A Build Alternative, unless otherwise noted.

### **8.3.1 Burbank Airport Station Options Considered**

The Palmdale to Burbank Project Section considered several Burbank Airport Station options, which were analyzed in the 2016 SAA Report. The 2016 SAA Report evaluated three station options in Burbank: Option A, which featured mostly at-grade and above-grade facilities within the city of Burbank and the Sun Valley community; Option B, which featured both at-grade and underground facilities within the city of Burbank; and Option C, which featured both at-grade and underground facilities aligned in a north-south orientation parallel to North Hollywood Way, within the city of Burbank. Upon further evaluation of the three Burbank Airport Station options, the 2016 Palmdale to Burbank SAA carried forward Option A and Option B due to corresponding Palmdale to Burbank alignment alternatives carried forward, while Option C was withdrawn, as the associated Palmdale to Burbank alignment alternative was also withdrawn in this SAA. The engineering within the Palmdale to Burbank Project Section was advanced sufficiently to make it practical for the proposed Palmdale to Burbank alignment alternatives to connect to either Burbank Airport Station Platform Configuration Option A or Option B. Therefore, in 2018, the Authority withdrew Option A based on the Burbank Airport Station Option Screening Report (Authority 2018), primarily due to community and potential environmental justice concerns. Option A had the greatest amount of residential and business displacements and noise/vibration and visual impacts, and it also had the worst intermodal connections. Station Option B was carried forward as part of the HSR Build Alternatives, and then further refined to minimize impacts. Option B Refined was designed to locate the platforms closer to the future location of the Hollywood Burbank Airport terminal, reduce the station depth, improve constructability, reduce commercial and industrial property takes, and eliminate the tunnel length underneath residential neighborhoods to the south. Option B Refined Burbank Airport Station option was carried forward for the Preferred Alternative.

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. The Burbank Airport Station area is an overlap area (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 Authority is anticipated to consider approval of the Burbank to Los Angeles Project section, including the Burbank Airport Station, in January 2022.

## **8.4 Preferred Alternative**

This section describes how the Authority identified the Preferred Alternative the agency believes would fulfill its statutory mission and responsibilities by giving consideration to economic, environmental, technical, and other factors. The Authority has identified the SR14A Build Alternative as the Preferred Alternative for the Palmdale to Burbank Project Section, with the Burbank Airport Station. The Burbank Airport Station would have both underground and aboveground facilities and would include train boarding platforms, a station building (which would house ticketing areas, passenger waiting areas, restrooms, and related facilities), pickup/drop-off facilities for private automobiles, a transit center for buses and shuttles, surface parking areas, and stormwater capture/drainage facilities. The Burbank Airport Station would begin near Kenwood Street and extend to just north of Winona Drive and the Burbank Airport east/west runway. The SR14A Build Alternative would include 38.38 miles of alignment with six different track profiles: at grade, at grade covered, cut-and-cover, retained cut/trench profile, tunnel, and

elevated/aerial structure in a variety of land uses and ecoregions, including urban, rural, and mountainous terrain in Southern California. From the north, the SR14A Build Alternative would begin at Spruce Court in Palmdale<sup>2</sup>, continue south and turn west to cross under the community of Acton, continue southwest and turn south to travel beneath the Angeles National Forest (ANF), including the San Gabriel Mountains National Monument (SGMNM), and then enter the San Fernando Valley where it would connect with the Burbank Airport Station.

The Authority identified the Preferred Alternative by balancing the adverse and beneficial impacts of the project on the human and natural environment. There was no single determining factor in identifying the Preferred Alternative because of the multitude of issues considered and the varied input received from stakeholders on each of the six Build Alternatives. Furthermore, many impacts on the natural environment and community resources would be the same, or very similar, across each of six Build Alternatives and, therefore, do not always provide enough meaningful information to distinguish between the relative merits of the alternatives. Due to the similarity of each of the six Build Alternatives, to identify a Preferred Alternative, various differentiators were determined based on stakeholder, agency, and community input.

The Authority weighed a variety of issues, including natural resource and community impacts, the input of the communities along the route, the views of federal and state resource agencies, project costs, constructability, and other differentiators to identify what the Authority believes is the best Build Alternative to achieve the project’s Purpose and Need. Table 8-2 compares the various environmental resource impacts evaluated in this Draft EIR/EIS for the Refined SR14, SR14A, E1, E1A, E2, and E2A Build Alternatives. Figure 8-2 depicts the Build Alternatives evaluated in this Draft EIR/EIS and the accompanying station.

A portion of each of the six Build Alternatives evaluated in this Draft EIR/EIS would cross under the ANF, including the SGMNM. Minimizing the potential for adverse effects on the natural resources in ANF including SGMNM, particularly potential effects on groundwater and surface water, was key in evaluating and determining a Preferred Alternative. In addition, the six Build Alternatives would include long deep bored tunnels under the ANF, including the SGMNM. Constructability issues such as rock quality and potential effects associated with squeezing ground, in-situ stresses, and groundwater pressures on the tunnel lining system, were key factors in evaluating and identifying a Preferred Alternative for the Palmdale to Burbank Project Section.

The Preferred Alternative also integrates the Authority’s evaluation under Section 4(f) of the Department of Transportation Act (U.S.C. Title 49, Section 303) (Section 4(f)), which provides special protection to publicly owned public parks; recreational areas of national, state, or local significance; wildlife or waterfowl refuges; and lands of a historic site of national, state, or local significance. As described in Chapter 4, Draft Section 4(f) and 6(f) Evaluations, Section 4(f) properties can only be used by federally funded transportation projects if there is no feasible and prudent Build Alternative, and planning has been undertaken to minimize harm to 4(f) property used by the project. For more information on the Authority’s evaluation under Section 4(f), see Chapter 4, Draft Section 4(f) and Section 6(f) Evaluations.

**8.4.1 Environmental Factors Influencing Selection of a Preferred Alternative**

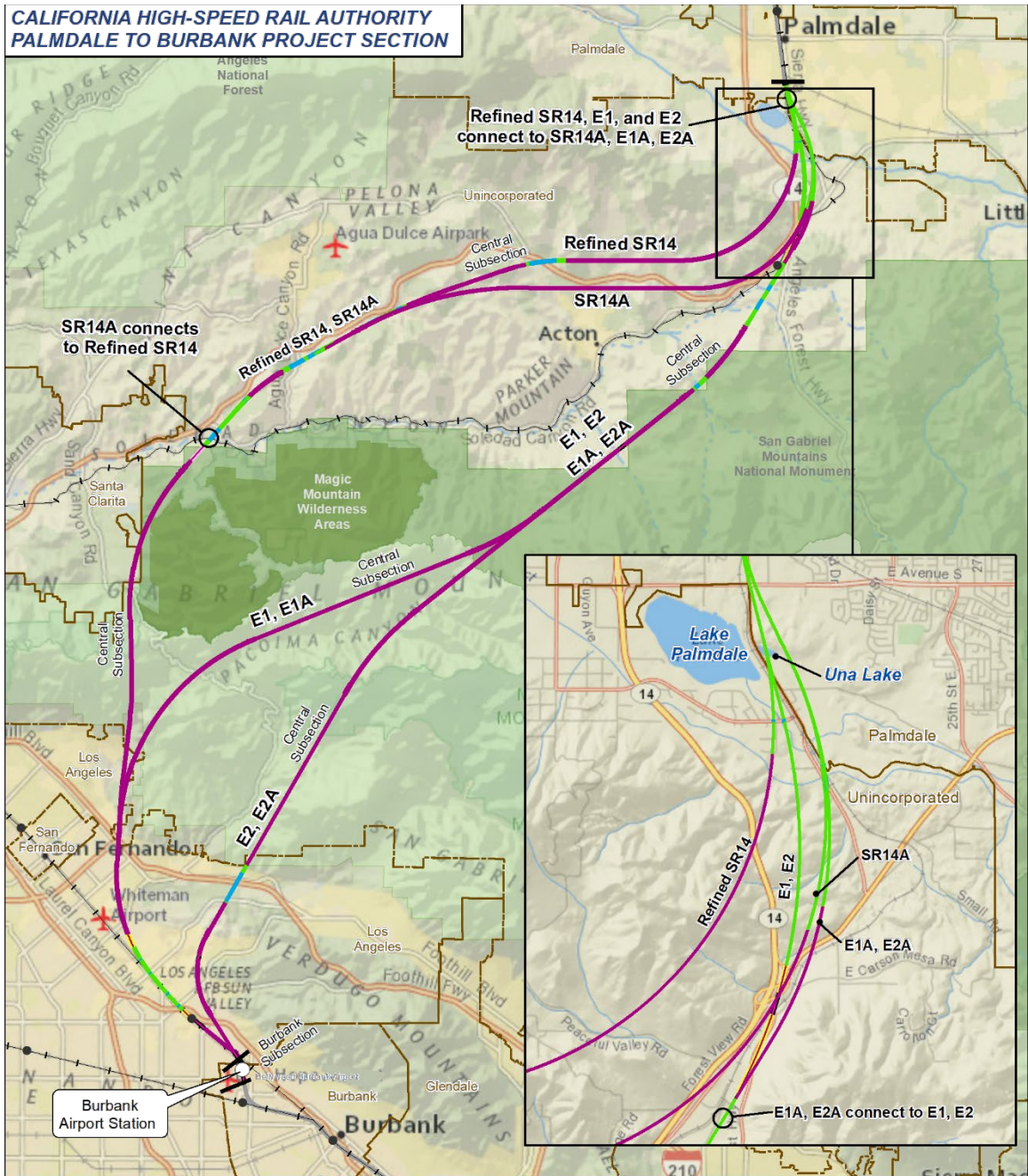
The comparative evaluation presented in Table 8-2 provides information on the environmental topics for which the Build Alternatives are substantively different and does not focus on resource topics for which the impacts of the Build Alternatives would be similar or would not be significant. The table summarizes the key differentiating impacts on natural resources (e.g., impacts on aquatic resources and special-status species), as well as impacts of the Build Alternatives on community-based resources. Where applicable, cells below are labeled with an asterisk to denote the least impactful Build Alternative; if all six Build Alternatives would have equal impacts, no asterisk is noted. Determination of least impactful alternative reflects a combination of

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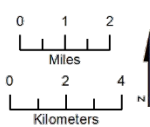
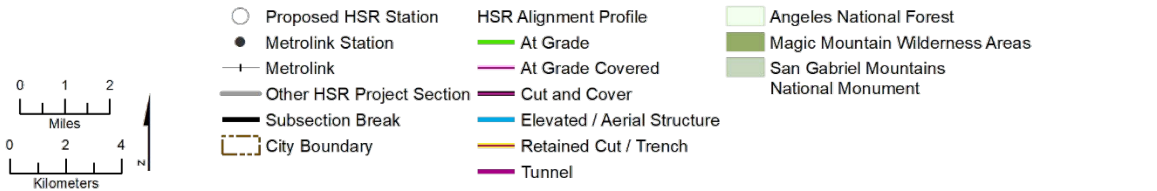
<sup>2</sup> The SR14A Build Alternative connects to the Bakersfield to Palmdale Project Section approved by the Board on June 25, 2021.

professional, qualitative judgment with the quantitative measure of impacts. For instance, when the affected resources varied more by habitat value than by acreage, the determination reflects the value of impacts based on professional judgment in addition to quantity.





PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED  
 Source: Authority, 2020; National Geographic, 2021  
 March 26, 2021



**Figure 8-2 Palmdale to Burbank Project Section Build Alternatives and Station**

**Table 8-2 Comparison of High-Speed Rail Build Alternatives**

Impact	HSR Build Alternative					
	Refined SR14	SR14A	E1	E1A	E2	E2A
<b>Transportation</b>						
<b>Construction Impacts</b>						
Number of roadway segments where the LOS would degrade to an unacceptable level during northbound spoils hauling	<b>*AM peak hour: 2 roadway segments</b> <b>PM peak hour: 1 roadway segments</b>	AM peak hour: 2 roadway segments PM peak hour: 2 roadway segments	AM peak hour: 4 roadway segments PM peak hour: 4 roadway segments	AM peak hour: 4 roadway segments PM peak hour: 5 roadway segments	AM peak hour: 3 roadway segments PM peak hour: 4 roadway segments	AM peak hour: 3 roadway segments PM peak hour: 5 roadway segments
Number of roadway segments where the LOS would degrade to an unacceptable level during southbound spoils hauling	<b>*AM peak hour: 2 roadway segments</b> <b>PM peak hour: 2 roadway segments</b>	AM peak hour: 2 roadway segments PM peak hour: 3 roadway segments	AM peak hour: 4 roadway segments PM peak hour: 4 roadway segments	AM peak hour: 5 roadway segments PM peak hour: 5 roadway segments	AM peak hour: 2 roadway segments PM peak hour: 3 roadway segments	AM peak hour: 3 roadway segments PM peak hour: 4 roadway segments
Number of intersections (including new intersections) where the LOS would degrade to an unacceptable level during northbound spoils hauling	AM peak hour: 4 intersections PM peak hour: 5 intersections	AM peak hour: 5 intersections PM peak hour: 7 intersections	AM peak hour: 6 intersections PM peak hour: 7 intersections	AM peak hour: 5 intersections PM peak hour: 7 intersections	AM peak hour: 4 intersections PM peak hour: 3 intersections	<b>*AM peak hour: 3 intersections</b> <b>PM peak hour: 3 intersections.</b>
Number of intersections (including new intersections) where the LOS would degrade to an unacceptable level during southbound spoils hauling	AM peak hour: 6 intersections PM peak hour: 6 intersections	AM peak hour: 7 intersections PM peak hour: 8 intersections	AM peak hour: 6 intersections PM peak hour: 7 intersections	AM peak hour: 6 intersections PM peak hour: 7 intersections	<b>*AM peak hour: 3 intersections</b> <b>PM peak hour: 3 intersections</b>	<b>*AM peak hour: 3 intersections</b> <b>PM peak hour: 3 intersections</b>

Impact	HSR Build Alternative					
	Refined SR14	SR14A	E1	E1A	E2	E2A
Number of freeway segments where the LOS would degrade to an unacceptable level during southbound spoils hauling	AM peak hour: 2 freeway segments PM peak hour: 2 freeway segments	AM peak hour: 2 freeway segments PM peak hour: 2 freeway segments	<b>*AM peak hour: 1 freeway segment</b> <b>PM peak hour: 2 freeway segments</b>	<b>*AM peak hour: 1 freeway segment</b> <b>PM peak hour: 2 freeway segments</b>	<b>*AM peak hour: 1 freeway segment</b> <b>PM peak hour: 2 freeway segments</b>	<b>*AM peak hour: 1 freeway segment</b> <b>PM peak hour: 2 freeway segments</b>
Number of roadway segments where the LOS would degrade to an unacceptable level during project construction	AM peak hour: 1 roadway segments PM peak hour: 1 roadway segments	AM peak hour: 1 roadway segments PM peak hour: 1 roadway segments	AM peak hour: 1 roadway segments PM peak hour: 1 roadway segments	AM peak hour: 1 roadway segments PM peak hour: 1 roadway segments	AM peak hour: 1 roadway segments PM peak hour: 1 roadway segments	AM peak hour: 1 roadway segments PM peak hour: 1 roadway segments
Number of intersections (including new intersections) where the LOS would degrade to an unacceptable level during project construction	AM peak hour: 3 intersections PM peak hour: 4 intersections	AM peak hour: 3 intersections PM peak hour: 4 intersections	AM peak hour: 1 intersection PM peak hour: 2 intersections	<b>*AM peak hour: 1 intersection</b> <b>PM peak hour: 1 intersection</b>	AM peak hour: 1 intersection PM peak hour: 2 intersections.	<b>*AM peak hour: 1 intersection</b> <b>PM peak hour: 1 intersection</b>
<b>Operations Impacts - No key differentiating effects among HSR Build Alternatives</b>						
<b>Air Quality and Global Climate Change</b>						
<b>Construction Impacts</b>						
Criteria pollutant emissions during project construction would exceed general conformity de minimis thresholds		The Build Alternatives would exceed general conformity de minimis thresholds. The following cells list years where exceedances would occur for each criteria pollutant listed below.				
Criteria pollutant	Air Quality Management District	Exceedance Years	Exceedance Years	Exceedance Years	Exceedance Years	Exceedance Years
VOCs	SCAQMD	None	None	None	None	None
	AVAQMD	None	None	None	None	None

Impact		HSR Build Alternative					
		Refined SR14	SR14A	E1	E1A	E2	E2A
NO <sub>x</sub>	SCAQMD	<b>*2021 - 2025</b>	2020 - 2026	2021 - 2026	2021 - 2026	2021 - 2026	2021 - 2026
	AVAQMD	<b>*None</b>	<b>*None</b>	<b>*None</b>	<b>*None</b>	<b>*None</b>	2023
CO	SCAQMD	2023	2022 - 2023	<b>*None</b>	<b>*None</b>	<b>*None</b>	2022, 2024 - 2025
	AVAQMD	None	None	None	None	None	None
SO <sub>2</sub>	SCAQMD	None	None	None	None	None	None
	AVAQMD	None	None	None	None	None	None
PM <sub>10</sub>	SCAQMD	None	None	None	None	None	None
	AVAQMD	None	None	None	None	None	None
PM <sub>2.5</sub>	SCAQMD	None	None	None	None	None	None
	AVAQMD	None	None	None	None	None	None
Criteria pollutant emissions during project construction would exceed CEQA thresholds		The Build Alternatives would exceed CEQA thresholds. Exceedances would occur for each criteria pollutant as listed below (yearly unless otherwise noted).					
Criteria pollutant	Air Quality Management District	Exceedance Years	Exceedance Years	Exceedance Years	Exceedance Years	Exceedance Years	Exceedance Years
VOCs	SCAQMD (daily)	None	None	None	None	None	None
	AVAQMD	None	None	None	None	None	None
NO <sub>x</sub>	SCAQMD (daily)	2020 - 2025	2020 - 2027	<b>*2021 - 2025</b>	<b>*2021 - 2025</b>	2021-2026, 2028	<b>*2021 - 2025</b>
	AVAQMD	<b>*None</b>	<b>*None</b>	<b>*None</b>	<b>*None</b>	<b>*None</b>	2023
CO	SCAQMD (daily)	<b>*2021 - 2023</b>	2020 - 2024	<b>*2023</b>	<b>*2023</b>	2021 - 2025	<b>*2023</b>
	SCAQMD (daily)	None	None	None	None	None	None
SO <sub>2</sub>	SCAQMD (daily)	None	None	None	None	None	None
	AVAQMD	None	None	None	None	None	None
PM <sub>10</sub>	SCAQMD (daily)	None	None	None	None	None	None

Impact		HSR Build Alternative					
		Refined SR14	SR14A	E1	E1A	E2	E2A
PM <sub>10</sub>	AVAQMD	None	None	None	None	None	None
PM <sub>2.5</sub>	SCAQMD (daily)	None	None	None	None	None	None
	AVAQMD	None	None	None	None	None	None
Health risks from construction emissions		None of the six Build Alternatives would result in exceedance of applicable thresholds for cancer risk or for chronic and acute noncancer health impacts.					
Increased cancer risk exceeding thresholds for residential sensitive receptors		No	No	No	No	No	No
Increased noncancer health risk (chronic and acute) exceeding thresholds for residential sensitive receptors		No	No	No	No	No	No
Total construction GHG emissions (metric tons CO <sub>2</sub> e)		<b>*134,297</b>	170,986	141,741	154,217	139,929	179,164
<b>Operations Impacts - No key differentiating effects among HSR Build Alternatives</b>							

Impact	HSR Build Alternative					
	Refined SR14	SR14A	E1	E1A	E2	E2A
<b>Noise and Vibration</b>						
<b>Construction Impacts</b>						
Noise-sensitive areas affected by traffic noise from truck trips hauling construction spoils	Big Springs Road northwest of Acton	<b>*No severe construction noise impacts from spoils hauling are anticipated for this Build Alternative</b>	Portals: Aliso Canyon Road, Soledad Canyon Road, and Crown Valley Road south of Palmdale  Adit: Sand Canyon Road and Placerita Canyon Road in ANF	Portals: Aliso Canyon Road, Soledad Canyon Road, and Crown Valley Road south of Palmdale  Adit: Sand Canyon Road and Placerita Canyon Road in ANF	Wheatland Avenue in the Shadow Hills neighborhood; Foothill Boulevard in the Lake View Terrace neighborhood; Aliso Canyon Road, Soledad Canyon Road, and Crown Valley Road south of Palmdale	Wheatland Avenue in the Shadow Hills neighborhood; Foothill Boulevard in the Lake View Terrace neighborhood; Aliso Canyon Road, Soledad Canyon Road, and Crown Valley Road south of Palmdale
<b>Operations Impacts</b>						
Number of sensitive receivers affected by noise effects and vibration and groundborne noise effects.	Noise Effects					
	Moderate: 129	<b>*Moderate: 99</b>	Moderate: 143	Moderate: 173	Moderate: 141	Moderate: 168
	Severe: 55	<b>*Severe: 19</b>	Severe: 108	Severe: 44	Severe: 164	Severe: 102
	Vibration and Ground-Borne Noise Effects					
	Residential: 27	Residential: 27	Residential: 20	Residential: 20	<b>*Residential: 0</b>	<b>*Residential: 0</b>
Institutional: 1	Institutional: 1	Institutional: 1	Institutional: 1	<b>*Institutional: 0</b>	<b>*Institutional: 0</b>	

Impact	HSR Build Alternative					
	Refined SR14	SR14A	E1	E1A	E2	E2A
Locations where domestic animals would experience noise effects.	Pacific Crest Trail, Vasquez Rocks Natural Area Park	Pacific Crest Trail, Vasquez Rocks Natural Area Park	<b>*None</b>	<b>*None</b>	Hansen Dam Recreation Area, and Stonehurst Park and Recreation Area	Hansen Dam Recreation Area, and Stonehurst Park and Recreation Area
<b>Electromagnetic Fields and Electromagnetic Interference - No key differentiating effects among HSR Build Alternatives during construction or operation</b>						
<b>Public Utilities and Energy</b>						
<b>Construction Impacts</b>						
Total temporary construction interruption of utility services	461	410	400	345	278	<b>*264</b>
Total construction water demand (acre-feet per year)	1,033 <sup>1</sup>	1,371	848	1,169	<b>*603</b>	945
<b>Operations Impacts - No key differentiating effects among HSR Build Alternatives</b>						
<b>Biological and Aquatic Resources</b>						
<b>Construction and Operations Impacts</b>						
Number of affected special-status plant species	No differentiating effects among the Build Alternatives. The six Build Alternatives would affect the same 3 FESA-listed special-status plant species and 41 non-FESA-listed special-status plant species					
Acreage of affected wetland waters of the U.S.	8	<b>*1</b>	8 – 9 <sup>1</sup>	1 – 3 <sup>1</sup>	15	8
Acreage of affected nonwetland waters of the U.S.	40 – 41 <sup>1</sup>	29 – 30 <sup>1</sup>	33 – 34 <sup>1</sup>	20 – 21 <sup>1</sup>	27 – 28 <sup>1</sup>	<b>*14 – 15<sup>1</sup></b>
Acreage of affected additional waters of the State	6	<b>*2</b>	7	<b>*2</b>	7	<b>*2</b>
Acreage of affected CDFW riparian habitat	47 – 53 <sup>1</sup>	41 – 47 <sup>1</sup>	31 – 36 <sup>1</sup>	25 – 30 <sup>1</sup>	24 – 25 <sup>1</sup>	<b>*18 – 20<sup>1</sup></b>
Acreage of affected CDFW lakes and streambeds	52 – 53 <sup>1</sup>	32 – 33 <sup>1</sup>	44 – 46 <sup>1</sup>	<b>*28 – 30<sup>1</sup></b>	53 <sup>1</sup>	38 <sup>1</sup>

Impact	HSR Build Alternative					
	Refined SR14	SR14A	E1	E1A	E2	E2A
High risk of impacts on aquatic resource subject to Section 1600 et. seq. regulation from groundwater depletion in ANF (linear miles)	<b>*3.2</b>	<b>*3.2</b>	5.5	5.5	9.9	9.9
Risk of Secondary Effects from Tunnel Construction <sup>3</sup>	<b>*Lowest Risk</b>	<b>*Lowest Risk</b>	High Risk	High Risk	Highest Risk	Highest Risk
<b>Hydrology and Water Resources</b>						
<b>Construction Impacts</b>						
Acres of construction-period ground disturbance within special flood hazard areas	294 – 295 <sup>1</sup>	<b>*280 – 281</b>	306	306	422	421
Acres of permanent footprint within floodplains	292 – 293	<b>*280 – 281</b>	306	306	422	421
Number of groundwater basins crossed by construction footprint	4	3	3	1	2	<b>*0</b>
Number of viaduct waterbody crossings	12	<b>*3</b>	7	3	8	<b>*3</b>
Length of tunnels (miles) beneath ANF	<b>*7.28</b>	<b>*7.28</b>	17.86	17.86	17.90	17.90
Width (feet) of gouge, crushed, and sheared rock fault zones	1,180	1,180	<b>*860</b>	<b>*860</b>	2,820	2,820
Streams in ANF within 1 mile of Build Alternative alignment	<b>*11</b>	<b>*11</b>	22	22	39	39
Length (miles) of tunnels in Groundwater Pressure above 25 bar	<b>*1.6</b>	<b>*1.6</b>	6.9	6.9	6.6	6.6
Private wells within or near ANF, including SGMNM	<b>*14</b>	<b>*14</b>	38	38	25	25
<b>Operations Impacts - No key differentiating effects among HSR Build Alternatives</b>						



Impact	HSR Build Alternative					
	Refined SR14	SR14A	E1	E1A	E2	E2A
<b>Geology, Soils, Seismicity, and Paleontological Resources</b>						
<b>Construction Impacts</b>						
Acres of permanent subsurface footprint within high subsidence potential zones	30	95	*16	35	*16	35
Acres of temporary and permanent surface footprint in areas of known karst terrain	302	209	*0	*0	*0	*0
Acres of temporary footprint within dam inundation zones	475–517	538 - 590	480–496	551 - 570	*173	331
Linear miles of bored tunnel through geologic units with high paleontological sensitivity	7.80	9.54	*4.76	6.06	4.77	6.07
<b>Operations Impacts - No key differentiating effects among HSR Build Alternatives</b>						
<b>Hazardous Materials and Wastes</b>						
<b>Construction Impacts</b>						
Estimated hazardous spoils (million cubic yards)	9.2	9.2	*3.0	*3.0	3.8	3.8
Number of schools within 0.25 mile of construction footprint	18–23 <sup>1</sup>	21–26 <sup>1</sup>	10	10	*6	*6
<b>Operations Impacts</b>						
Number of schools within 0.25 mile of construction footprint	18–23 <sup>1</sup>	21–26 <sup>1</sup>	10	10	*6	*6
<b>Safety and Security - No key differentiating effects among HSR Build Alternatives during construction or operation</b>						

Impact	HSR Build Alternative					
	Refined SR14	SR14A	E1	E1A	E2	E2A
<b>Socioeconomics and Communities</b>						
<b>Construction Impacts</b>						
Total single-family residential units displaced	38–41 <sup>1</sup>	*8–11 <sup>1</sup>	13–18 <sup>1</sup>	12–17 <sup>1</sup>	38	37
Total multifamily residential units displaced	13	29	*11	27	*11	27
Total businesses displaced	161–178 <sup>1</sup>	160–177 <sup>1</sup>	160–177 <sup>1</sup>	162–179 <sup>1</sup>	*68	70
<b>Operations Impacts - No key differentiating effects among HSR Build Alternatives</b>						
<b>Station Planning, Land Use, and Development - No key differentiating effects among HSR Build Alternatives</b>						
<b>Agricultural Farmland and Forest Land - No key differentiating effects among HSR Build Alternatives</b>						
<b>Parks, Recreation, and Open Space - No key differentiating effects among HSR Build Alternatives</b>						
<b>Aesthetics and Visual Quality</b>						
<b>Construction Impacts</b>						
Number of KVPs with decreased visual quality	6	*2	*2	*2	4	4
<b>Operations Impacts - No key differentiating effects among HSR Build Alternatives</b>						
<b>Cultural Resources</b>						
<b>Construction Impacts</b>						
Number of known archaeological resources adversely affected <sup>2</sup>	20	12	15	*10	14	*10
Number of historic built resources adversely affected	*2	*2	5	5	5	5

Impact	HSR Build Alternative					
	Refined SR14	SR14A	E1	E1A	E2	E2A
<b>Operations Impacts – No key differentiating effects among HSR Build Alternatives</b>						
<b>Regional Growth - No key differentiating effects among HSR Build Alternatives during construction or operations</b>						
<b>Section 4(f) - No key differentiating effects among HSR Build Alternatives during construction or operations</b>						
Disproportionately high and adverse effects findings are described in Chapter 5, Environmental Justice.						
<b>Environmental Justice - No key differentiating effects among HSR Build Alternatives during construction or operations</b>						

\* = least impactful alternative(s)

<sup>1</sup> The Build Alternatives would require adits and intermediate windows for construction access to tunneled portions of the alignment. This table includes ranges of quantifiable impacts that would result from the selection of each adit and intermediate window combination.

<sup>2</sup> Per the Section 106 Programmatic Agreement (Authority and FRA 2011), the recorded archaeological sites in the project area of potential effect that have not been evaluated for National Register of Historic Places eligibility will be revisited and will undergo a phased evaluation.

ANF = Authority = California High-Speed Rail Authority; AVAQMD = Antelope Valley Air Quality Management District; CDFW = California Department of Fish and Wildlife; CEQA = California Environmental Quality Act; CO = carbon monoxide; CO<sub>2</sub>e = carbon dioxide equivalent; FESA = federal Endangered Species Act; FRA = Federal Railroad Administration; GHG = greenhouse gas; HSR = high-speed rail; KVP = key viewpoint; LOS = level of service; NO<sub>x</sub> = nitrogen oxides; PM<sub>10</sub> – particulate matter 10 microns or smaller in diameter; PM<sub>2.5</sub> = particulate matter 2.5 microns or smaller in diameter; SCAQMD = South Coast Air Quality Management District; SGMNM = San Gabriel Mountains National Monument; SO<sub>2</sub> – sulfur dioxide; VOC = volatile organic compound

## **8.4.2 Key Differential Factors Influencing Identification of a Preferred Alternative**

Based on the public and agency outreach information outlined in Section 8.2, along with the impact analysis presented in this Draft EIR/EIS, the SR14A Build Alternative was selected as the Preferred Alternative. The alternative balances functional, technical, economic, and constructability factors with minimized impacts on natural resources and human communities.

The following resources were not considered differentiators in the evaluation and selection of a Preferred Alternative in this project section because the impacts were of similar magnitude or did not vary widely:

- Electromagnetic fields/electromagnetic interference
- Safety and security
- Station planning, land use, and development
- Agricultural farmland and forest land
- Regional growth
- Environmental justice
- Section 4(f)

A description of the key resource factors used to identify the Preferred Alternative are provided below.

### **8.4.2.1 Transportation**

Construction traffic would result in impacts on roadway segments and intersections. With implementation of mitigation measures, construction-period traffic impacts would be reduced to less than significant levels except for impacts during spoils hauling,<sup>3</sup> which would remain significant and unavoidable after mitigation. Overall, the E2A Build Alternative would result in the fewest traffic impacts from spoils hauling. However, it should be noted that automobile delay is not considered a significant impact under the California Environmental Quality Act (CEQA).

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

The Build Alternatives would result in exceedances of general thresholds for pollutant emissions resulting from construction activities, spoils hauling, and traffic delays. The Refined SR14 Build Alternative would result in the fewest amount of greenhouse gas emissions during construction. The E2A Build Alternative would result in the most greenhouse gas emissions during construction.

### **8.4.2.3 Noise and Vibration**

Construction of each of the six Build Alternatives would result in similar magnitudes of noise effects because most of the sensitive receivers in the Palmdale to Burbank Project Section are in the Antelope Valley (Palmdale) and San Fernando Valley (Los Angeles neighborhoods, Burbank) where the Build Alternatives would share identical alignments and footprints. However, operational noise impacts would mostly occur around station areas, whereas operational vibration impacts would mostly occur along the alignment. Overall, the SR14A Build Alternative would result in the fewest number of sensitive residential receivers that would experience operational noise impacts. The E2 and E2A Build Alternatives would result in the fewest number of sensitive residential receivers that would experience operational ground-borne noise impacts.

### **8.4.2.4 Public Utilities and Energy**

Project construction would use water to increase the water content of soil to optimize tunneling and compaction for dust control, to prepare concrete, and to re-seed disturbed areas. Wastewater

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<sup>3</sup> This construction activity would entail trucks hauling the spoils generated by project construction (especially tunnel boring) to disposal sites.

would be generated as a byproduct of these construction activities. Vegetation clearing, removal of existing paved/impervious surfaces, and demolition of existing structures during construction would generate solid waste. The difference in construction-period utility demands among the Build Alternatives is a function of the total trackway length and tunneling, with the SR14A Build Alternative having the highest demands overall because it would have the most tunnel boring machines operating at the same time. The E2 Build Alternative would have the fewest water demands during construction.

#### **8.4.2.5 Biological and Aquatic Resources**

Each of the Build Alternatives would have the potential to affect biological resources, including plant species and habitat, wildlife species and habitat, and wetlands. The degree to which the Build Alternatives could affect each biological resource varies, as do the specific resources that each Build Alternative could affect. For example, only the Refined SR14 and SR14A Build Alternatives would require spanning the Santa Clara River to avoid affecting habitat for the unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*), which is a fully protected species under state law.<sup>4</sup> The SR14A Build Alternative would have the least effect on wildlife movement because of the total distance of tunnels and viaducts in critical wildlife movement areas. The E2 and E2A Build Alternatives would cross the Big Tujunga Wash, which is habitat for many special-status plant and wildlife species and could result in greater impacts.

The SR14A Build Alternative would have the least impact on wetland waters of the U.S. The E2A Build Alternative would have the least impact on nonwetland waters of the U.S. The surface footprint of the Refined SR14 and SR14A Build Alternatives would have the greatest impacts on federal Endangered Species Act listed plant and wildlife species compared to the E1, E1A, E2, and E2A Build Alternatives. The E1, E1A, E2, and E2A Build Alternatives would have footprint impacts within the Critical Biological Land Use Zone in the ANF, including the SGMNM, whereas the Refined SR14 and SR14A Build Alternatives would avoid this impact.

Changes in groundwater contribution to surface-water resources resulting from tunneling activities could adversely affect aquatic habitat, altering the amount and quality of aquatic habitats for associated biological resources. The Refined SR14 and SR14A Build Alternatives would have the least potential effects on groundwater that supports habitat for plant species and communities as well as habitat for wildlife. The Refined SR14 and SR14A Build Alternatives would have the least number of impacts from groundwater depletion on state and federally protected aquatic resources and on aquatic resources subject to Section 1600 et. seq. Regulation.

#### **8.4.2.6 Hydrogeology**

The risk of water inflow into the tunnels during and after construction of the Palmdale to Burbank Project Section has been identified. This risk could lower groundwater levels in proximity to the selected Preferred Alternative tunnel alignment, which could adversely affect hydrologic conditions for seeps, springs, streams, and wells. As such, this risk has triggered that appropriate mitigation measures be implemented during design and construction, in order to minimize the chances of this undesirable situation, while also minimizing the consequences by reducing the possible water inflow as much as possible. There is a possibility tunnel construction could impact groundwater levels. The impact on groundwater levels from tunnel construction could potentially persist in some areas for several years, however, such conditions would be expected to return to normal over time. Although the Authority would adopt design features and construction methods that would avoid and minimize the potential for groundwater to seep into the tunnel during construction, it is expected that groundwater inflow would occur under certain circumstances, most likely in areas of the six Build Alternatives identified as “High Risk” within the ANF, including the SGMNM. These areas were identified as High Risk because of the presence of faults and high groundwater pressures at the intersection with the Build Alternative tunnel alignments.

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<sup>4</sup> This designation limits (even more than other protected species) the types of activities that can take place in areas where such species or habitat is located.

Each of the six Build Alternatives has the potential to adversely affect surface water features that are connected to groundwater resources (i.e., seeps, springs, intermittent and perennial streams) as a result of tunnel construction. Although impacts may potentially occur under any of the Build Alternatives, the level of risk and impact potential varies. The Refined SR14 and SR14A Build Alternatives, as compared to E1, E1A, E2, and E2A, would have the lowest potential risk and least potential impacts on surface water resources because the alignment traverses areas with lower groundwater pressures and no known groundwater dependent resources with the identified High and Moderate Risk Areas. The E2 and E2A Build Alternatives would have the highest risk and highest potential impacts on surface water resources when compared to Refined SR14, SR14A, E1, and E1A because of the comparatively higher groundwater pressures and greater prevalence of springs and streams with the identified High and Moderate Risk Areas.

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

Each of the Build Alternatives would cross several fault zones and would therefore be subject to seismic concerns. Because the Build Alternatives would encounter a similar number of fault zones, this would not be a key differentiating factor. Each of the Build Alternatives would require construction of deep, bored tunnels, resulting in the potential for disturbing previously undisturbed soils with high paleontological sensitivity. The E1 Build Alternative would have the fewest linear miles of bored tunnel through geologic units with high paleontological sensitivity.

#### **8.4.2.8 Hazardous Materials and Wastes**

Potential environmental concern sites, with a possibility of existing, past, or potential hazardous materials release into soil, groundwater, or surface water, would be present within each of the Build Alternatives' footprints. The E2A Build Alternative would encounter a slightly fewer number of high-priority potential environmental concern sites than would the Refined SR14, SR14A, E1, E1A, and E2 Build Alternatives. Each Build Alternative would generate substantial spoils from major earthwork activities, including cuts, tunneling, adits/intermediate windows, trenches, and other features. Overall, the Refined SR14 and SR14A Build Alternatives would generate the largest volume of potentially contaminated spoils.

As noted in Appendix 2-I, Potential Disposal Plan for Spoils Generated during Construction Activities, three existing mine sites are identified as initial deposition locations for the Palmdale to Burbank Project Section and have been incorporated into the footprint:

- The Vulcan Mine site located south of Lang Station Road within the ANF, would serve as a deposition site for some of the spoils generated by the Refined SR14 and SR14A Build Alternatives. Portions of the Vulcan Mine site located within the ANF, including areas within the SGMNM, would also be used for the deposition all spoils extracted from beneath the SGMNM (which would only occur in the Refined SR14 Build Alternative).
- Excess dirt from tunnel portal 1A and portal 1 would be off-hauled by truck, using existing roadways, to potential disposal sites southeast of Palmdale.
- The Boulevard Mine, located southwest of San Fernando Road in Burbank, would serve as a disposal site for some of the spoils generated by both the Refined SR14 Build Alternative, SR14A Build Alternative, E1 Build Alternative, and the E1A Build Alternative.
- The CalMat Mine, located northwest of Peoria Street in the Sun Valley neighborhood of Los Angeles, would serve as a disposal site for some of the spoils generated by the E2 Build Alternative and the E2A Build Alternative.

#### **8.4.2.9 Socioeconomics and Communities**

The Build Alternatives would result in residential and business displacements as a result of the right-of-way acquisition requirements. The SR14A Build Alternative would entail the fewest single-family residential displacements, the E1 Build Alternative would entail the fewest multifamily residential unit displacements, and the E2 Build Alternative would result in the fewest business displacements. However, there is substantial community opposition to the E2 Build Alternative, particularly in the Shadow Hills and Lake View Terrace communities where the E2 Build

Alternative would emerge from tunneling at the southern end of the ANF and span Big Tujunga Wash on an elevated structure. Among other issues, these communities have expressed concerns about noise impacts, residential displacements, and impacts on equestrians resulting from the project. There has also been community opposition to the Refined SR14 Build Alternative in the unincorporated communities of Acton and Agua Dulce where there is concern about residential displacements and noise and vibration impacts. Unlike the Refined SR14 Build Alternatives, the SR14A Build Alternative would not require the construction of at-grade and elevated alignment in the unincorporated community of Acton and would avoid displacing residents. Additionally, in the San Fernando Valley, communities are concerned about residential and business displacements that could take place with construction of either the Refined SR14, SR14A, E1, or E1A Build Alternatives.

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

The E2A Build Alternative would include HSR infrastructure close to the most parks, recreational areas, and open space resources compared to the other Build Alternatives. The E1 Build Alternative would be built near to the fewest parks, recreational areas, and open space resources. Although the total number of resources potentially affected (within 1,000 feet of proposed HSR infrastructure) would differ among the Build Alternatives, the most significant impacts (i.e., direct acquisition of parkland and/or realignments of trails) would occur as a result of the E2A Build Alternative. All six Build Alternatives would affect the following park, recreational, and open space resources:

- Palmdale Hills Trail (proposed extension)
- Littlerock Trail (proposed extension)

In addition to the resources common to all six Build Alternatives, one or both of the Refined SR14 and SR14A Build Alternatives would have a direct impact on the following resources:

- PCT (Pacific Crest Trail) (Refined SR14 Build Alternative only)
- Santa Clara River Trail (proposed extension) (Refined SR14 and SR14A Build Alternatives)
- Rim of the Valley Trail (proposed extension) (Refined SR14 and SR14A Build Alternatives)

The E1, E1A, E2, and E2A Build Alternatives would result in direct impacts on Vasquez Loop Trail (proposed extension) and Acton Community Trail (proposed extension). The E2 and E2A Build Alternatives would result in direct impacts on the Hansen Dam Open Space.

The direct and indirect impacts on the Hansen Dam Open Space under the E2 and E2A Build Alternatives would represent the largest direct and indirect impacts of the Build Alternatives. The construction of an elevated railway within this open space area would take place only under the E2 and E2A Build Alternative, which makes the Refined SR14, SR14A, E1, and E1A Build Alternatives less impactful with regards to parks, recreational areas, and open space resources.

#### **8.4.2.11 Aesthetics and Visual Quality**

In general, during construction a greater and wider variety of visual impacts would occur under the Refined SR14, E2, and E2A Build Alternatives than under the SR14A, E1, and E1A Build Alternatives. The SR14A, E1, and E1A Build Alternatives would include the greatest extent of tunnels in terms of distance and would thus result in the least visual impact on its surroundings. The Refined SR14, E2, and E2A Build Alternatives, although they too include substantial below-grade portions, would cross various waterways and other scenic natural resources above grade, thereby causing greater changes in visual quality. Although the Refined SR14 Build Alternative would generally be either near existing transportation infrastructure or below ground between Palmdale and Burbank, large-scale overcrossing structures would block views in some relatively rural areas, such as on Red Rover Mine Road (Key Viewpoint [KVP] 1.8) and the PCT (KVP 1.14). Although the project components for the E2 and E2A Build Alternatives would mostly be not visible below ground in tunnels between Palmdale and Burbank, project features near the tunnel portals would contrast with the natural harmony of some views, such as near Lake View Terrace (KVP 1.22) and Big Tujunga Wash (KVP 1.23). Refer to Section 3.16, Aesthetics and Visual Quality for figures depicting the locations of KVPs associated with the Build Alternatives.

#### 8.4.2.12 Cultural Resources

As shown in Table 8-2, the SR14A Build Alternative would impact 12 known archaeological resources, the least following the E1A and E2A Build Alternatives at 10 and 11 respectively. Based on the number of historic properties within the built historic resource study area and the extent of construction and operations impacts, the Refined SR14 and SR14A Build Alternatives would have the least potential for direct and indirect effects on built historic cultural resources compared to the other Build Alternatives, with two built historic resources being affected.

#### 8.4.2.13 Section 4(f) Resources

The Authority anticipates that each of the HSR Build Alternatives would result in *de minimis* impacts<sup>5</sup> on Section 4(f) resources. Most notably, the Refined SR14 Build Alternative would realign a portion of the PCT, and the E1, E1A, E2, and E2A Build Alternatives would include elevated track structures near the historic Blum Ranch and near the Blum Ranch Farmhouse. The E1, E1A, E2, and E2A Build Alternatives would also entail the placement of a construction staging area just east of the Eagle and Last Chance Mine Road and would require the laying of asphalt over the historic dirt wagon road and could involve temporary (and potentially permanent) utility easements within the road's right-of-way.

The Refined SR14 Build Alternative would require an approximately 400-foot segment of the PCT be used as a construction staging area. Ultimately, the Refined SR14 Build Alternative would impact an approximately 0.7-mile portion of the current alignment of the PCT. This would require the realignment of the PCT prior to construction. The Authority has consulted with the PCT Association, the Bureau of Land Management, and the U.S. Forest Service regarding trail realignment options and has developed a preliminary PCT realignment that would be part of the Refined SR14 Build Alternative. The trail would be realigned and would cross under the HSR alignment perpendicularly to move trail users through this area as expeditiously as possible. This realignment has been designed to minimize air quality, visual, and noise impacts on PCT users, including effects associated with the PCT's current alignment, which is near the State Route 14 freeway for more than 0.5 mile. The PCT would not require realignment for construction of the SR14A Build Alternative because the SR14A Build Alternative alignment would pass underneath the resource in a bored tunnel. The E1, E1A, E2, and E2A Build Alternative alignments would also pass beneath the trail in a bored tunnel, over three miles southeast of where the Refined SR14 and SR14A Build Alternative alignments would cross the PCT.

With implementation of the E1, E1A, E2, and E2A Build Alternatives, the HSR alignment would be visible from the Blum Ranch. The rail viaduct structure would be approximately 1,000 feet south of the historic property. Although the introduction of a new, noticeable visual element would change some views from this historic resource, the resource would retain its ability to convey its historical significance. Given the distance of the HSR alignment from the historic property and the fact that the integrity of the contributing features would not be diminished, the attributes and features that qualify this historic property for protection under Section 4(f) would not be diminished by views of the E1, E1A, E2, and E2A Build Alternatives from this historic property. Therefore, the Authority has preliminarily concluded that views of the HSR elevated rail structure from the historic Blum Ranch would not constitute a use under Section 4(f).<sup>6</sup> The Refined SR14 and SR14A Build Alternatives would have no effect on the Blum Ranch because the resource is outside of their respective resource study areas.

The E1, E1A, E2, and E2A Build Alternatives would include construction and operation of an aerial structure (viaduct) south of the Blum Ranch Farmhouse. Although the farmhouse itself is

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<sup>5</sup> *De minimis* impacts result in no adverse effect after taking into account avoidance, minimization, mitigation, and enhancement measures.

<sup>6</sup> This initial finding was made in the Preliminary Finding of Effect (PFOE). The PFOE document is an internal report that analyzes the potential effects of the Palmdale to Burbank Project Section on historic properties and facilitates the preparation of a finding of effect (FOE) to be submitted to the State Historic Preservation Officer (Authority 2019b).



surrounded by tall mature trees, and views from and toward the proposed HSR viaduct and portal location would likely be partly obstructed, the proximity of the aerial structure would substantially detract from the setting of the historic site. These changes would result in an indirect adverse effect as a result of the introduction of visual elements, as documented in the Preliminary Finding of Effect document. However, the E1, E1A, E2, and E2A Build Alternatives would not result in the removal of, the physical destruction of, or damage to the contributing elements to the historic property. The Refined SR14 and SR14A Build Alternatives would have no effect on the Blum Ranch Farmhouse because the resource is outside of their respective resource study areas.

Implementation of the E1, E1A, E2, and E2A Build Alternatives would entail the placement of a construction staging area east of the Eagle and Last Chance Mine Road. In addition, construction of the E1, E1A, E2, and E2A Build Alternatives would require the laying of asphalt over the historic dirt wagon road and could involve temporary (and potentially permanent) utility easements within the road right-of-way. Assuming that permanent utility easements are required by the E1, E1A, E2, and E2A Build Alternatives, such activities would not diminish the resource's ability to continue to operate as a road. Accordingly, the laying of asphalt and the establishment of a construction staging area would be only temporary activities that would not diminish the resource's character-defining features, including its alignment, width, grade, and surface. Protective measures, such as the placement of geo-fabric prior to laying asphalt, would allow the road to be restored to preconstruction conditions following construction activities. This would avoid adverse effects on this resource. The Refined SR14 and SR14A Build Alternatives would have no effect on the Eagle and Last Chance Mine Road because the resource is outside of their respective resource study areas.

## **8.5 Environmentally Superior Alternative**

CEQA Guidelines Section (§ 15126.6(e)(2)) states that if the environmentally superior alternative is the No Project Alternative, then the EIR must also identify an environmentally superior alternative among the other alternatives. For the reasons described in this EIR/EIS, the environmentally superior alternative is not the No Project Alternative. The Build Alternatives would provide benefits, including reducing vehicle trips on freeways and reducing regional air pollutants, which would not be realized under the No Project Alternative. The Preferred Alternative for the Palmdale to Burbank Project Section is the environmentally superior alternative under CEQA. Implementing the HSR project between Palmdale and Burbank would have adverse environmental impacts regardless of which alternative is selected; overall, however, the Preferred Alternative provides the environmentally superior alternative by best meeting environmental regulatory requirements and best minimizing impacts on the natural environment, farmland, and communities.

## **8.6 Environmentally Preferable Alternative**

The environmentally preferable alternative is a National Environmental Policy Act (NEPA) term for the alternative that will promote the national environmental policy as expressed in NEPA Section 101 (42 U.S.C. 4331). Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative that best protects, preserves, and enhances historical, cultural, and natural resources. As required by the regulations implementing NEPA, the Authority will identify the environmentally preferable alternative in its Record of Decision for the Bakersfield to Palmdale Project Section.

## **8.7 Least Environmentally Damaging Practicable Alternative**

The Authority has worked closely with federal, state, and regional agencies to meet regulatory requirements by refining alternatives to avoid and minimize impacts and, where necessary, to reach agreement on mitigation measures for impacts that cannot be avoided. Among the federal requirements that must be met are those under Section 404 of the Clean Water Act.

To coordinate decision-making, the Authority and FRA entered into a NEPA/Section 404/Section 408 Integration Process Memorandum of Understanding with the United States Army Corps of Engineers (USACE) and the United States Environmental Protection Agency (USEPA) (Authority

et al. 2010). The Memorandum of Understanding outlines three major checkpoints in the integration of the NEPA, Section 404 and Section 14 of the Rivers and Harbors Act (“Section 408”) processes. Each checkpoint consists of the submittal of a report, including technical data and studies, by the Authority to the USACE and the USEPA for review and consideration prior to issuing a formal written agency response:

- The first of these submittals is Checkpoint A, which sets out the purpose and need for the project. USACE concurred on the purpose and need on December 18, 2014, to satisfy Checkpoint A. USEPA concurred on the Palmdale to Burbank Project Section purpose and need on December 29, 2014.
- The second submittal is Checkpoint B, which is required to screen and reduce the potential project alternatives to an appropriate range of “reasonable” and “potentially practicable”<sup>7</sup> alternatives using the best available information. On December 16 and 17, 2020, the USEPA and the USACE, respectively, provided letters on the alternatives that the Authority proposed to carry through the Draft EIR/EIS. Both agencies concurred on the range of alternatives to be carried forward in the Palmdale to Burbank Project Section Draft EIR/EIS.
- Finally, Checkpoint C consists of the assembly and assessment of information contained in the Draft EIR/EIS and associated technical studies for consideration by the USACE and the USEPA in determining the preliminary Least Environmentally Damaging Practicable Alternative and providing a formal agency response. The documentation will include those analyses completed to meet requirements of the Section 404(b)(1) Guidelines. Checkpoint C will be completed prior to issuance of the Final EIR/EIS. Should the Preferred Alternative identified in the Draft EIR/EIS be modified based on the outcome of agency coordination in Checkpoint C, the alternative including the impacts resulting from the modification would be presented in the Final EIR/EIS.

Materials prepared for the Checkpoint submittals are available for review at the Authority office in Sacramento and Los Angeles and may be requested from the Authority. The Preferred Alternative was determined as the preliminary Least Environmentally Damaging Practicable Alternative.

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<sup>7</sup> “Practicability” is defined as available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project purposes (40 C.F.R. 230.10(a)(2)).