

7 OTHER CEQA/NEPA CONSIDERATIONS

Since publication of the Draft Environmental Impact Report (EIR)/Environmental Impact Statement (EIS), the following substantive changes have been made to this chapter:

- Section 7.1.1, Adverse Effects that Cannot Be Avoided under NEPA, was updated to reflect site-specific traffic mitigation measures, to reflect revisions to noise impacts under Alternative A, to add a discussion of differences in land use impacts at the Millbrae Station with the RSP Design Variant, and to correct the number of adversely affected historic built resources.
- Section 7.1.2, Significant and Unavoidable Impacts under CEQA, was updated to reflect revisions to noise impacts under Alternative A, to reflect that only Alternative B would require temporary road closures resulting in delays in emergency vehicle access and response time, to add a discussion of differences in land use impacts at the Millbrae Station with the RSP Design Variant, and to add significant cumulative impacts.

This chapter describes the National Environmental Policy Act (NEPA) unavoidable adverse effects and California Environmental Quality Act (CEQA) significant and unavoidable impacts that would result from implementing the California High-Speed Rail (HSR) System San Francisco to San Jose Project Section (Project Section, or project). It also describes the relationship between short-term uses of the environment and long-term productivity. Finally, this chapter discusses significant irreversible or irretrievable commitments of resources or foreclosures of future options that construction of the project would create. This chapter is based on the detailed analysis of environmental resources presented in Chapter 3, Affected Environment, Environmental Consequences, and Mitigation Measures. A discussion of the environmentally superior alternative, environmentally preferable alternative, and the least environmentally damaging practicable alternative is provided in Chapter 8, Preferred Alternative.

7.1 Unavoidable Adverse Effects and Significant and Unavoidable Impacts

Chapter 3 describes the potential environmental consequences of implementing either project alternative. The following sections describe adverse effects under NEPA and significant and unavoidable impacts under CEQA that cannot be reduced by mitigation proposed in the resource sections in Chapter 3. Except where otherwise specified, the impacts listed in Section 7.1.1 and Section 7.1.2 pertain to both of the project alternatives.

7.1.1 Adverse Effects that Cannot Be Avoided under NEPA

Section 2.3, Background, and Section 2.5, Alternatives Considered during Alternatives Screening Process, explain how the California High-Speed Rail Authority (Authority) used the tiered project development and environmental review process to design the HSR system and the project alternatives in a manner that avoids and minimizes adverse effects. Under NEPA, mitigation is prescribed for effects that are identified, but in some cases the mitigation will not reduce the effect's severity enough to avoid the adverse effect. The NEPA regulations require that the discussion of environmental consequences include "any adverse environmental effects which cannot be avoided should the proposal be implemented" (40 Code of Federal Regulations [C.F.R.] § 1502.16). The following list describes adverse effects under NEPA that cannot be reduced by mitigation identified in the resource sections in Chapter 3. Detailed discussion of these impacts, and the applicable mitigation measures as available, are provided for each resource in Chapter 3:

- **Transportation**—Construction and operation of the project alternatives would result in temporary direct and indirect effects on transportation. After mitigation, the following would remain unavoidable adverse effects under NEPA:
 - Construction of the project under either alternative would require temporary roadway closures or modifications, lane closures, and underground utility work, as well as construction-related vehicle trips that would lead to changes in vehicle circulation and increases in travel times. Effects would be greater under Alternative B than Alternative A

because more construction-related traffic, materials transport, and movement of heavy construction equipment would be required to build the passing track.

- Construction-related traffic and construction staging would result in effects on bus transit under either alternative, including the temporary closure of parking areas, bus stops, transit stations, and roadway travel lanes, which would decrease the performance of bus transit facilities.
- Operation of the project in 2029 would result in adverse effects at nine intersections near the 4th and King Street Station under either alternative from increased project-related traffic. Operation of the project in 2040 would result in adverse effects at 86 intersections along the Caltrain corridor between San Francisco and San Jose under Alternative A and 91 intersections under Alternative B from increased project-related traffic and increased gate-down time at at-grade crossings to accommodate added HSR trains. Mitigation is available to minimize some of these adverse effects on traffic congestion and will address adverse effects at 15 intersections under Alternative A and 17 intersections under Alternative B.
- Operations under both project alternatives would add traffic at the 4th and King Street Station and increase gate-down events at the 16th Street at-grade crossing in San Francisco to accommodate added HSR trains, decreasing the performance of three high-frequency bus routes (San Francisco Municipal Railway Route 55 at the 16th Street at-grade crossing, and San Francisco Municipal Railway Routes 30 and 45 near the 4th and King Street Station).
- Relocation of the San Carlos Station under Alternative B would reduce Caltrain's accessibility to downtown San Carlos, putting most of the downtown area more than a quarter-mile walk from the station. The station relocation would also lengthen San Mateo County Transit District Route 260 (which currently terminates at San Carlos Station) and increase bus travel times from Redwood Shores.
- **Air quality and greenhouse gases (GHG)**—Construction of the project alternatives would result in temporary direct and indirect effects on air quality. Despite mitigation measures to lessen the effects, the following would remain unavoidable adverse effects under NEPA:
 - Construction-related criteria pollutant emissions under Alternative B would result in temporary exceedances of the General Conformity threshold for nitrogen oxide in the San Francisco Bay Area Air Basin and would affect implementation of the applicable air quality plan.
 - Construction-related criteria pollutant emissions under either alternative would result in temporary exceedances of the short-term and annual California ambient air quality standards (CAAQS) for particulate matter smaller than or equal to 10 microns in diameter (PM₁₀). These emissions would contribute to existing exceedances of the PM₁₀ standard and lead to new exceedances of the CAAQS and national ambient air quality standards for particulate matter smaller than or equal to 2.5 microns in diameter (PM_{2.5}).
- **Noise and vibration**—Construction and operation of the project alternatives would generate noise levels above impact thresholds, resulting in noise impacts on sensitive receptors. Despite mitigation measures to lessen the effects, the following would remain unavoidable adverse effects under NEPA:
 - Construction under either alternative would require the use of mechanical equipment that would generate temporary increases in noise at noise-sensitive locations exceeding the residential nighttime Federal Railroad Administration (FRA) standard, even with mitigation measures.
 - Operations-related noise would permanently increase noise levels at sensitive receptors under either alternative from 2040 Plus Project conditions as a result of the number of train passby events per day (more than double existing train volumes), increased speeds

- of both Caltrain and HSR trains, and horn sounding at at-grade crossings. With the installation of noise barriers, 495 severe noise impacts on sensitive receptors would remain under Alternative A, 455 severe noise impacts on sensitive receptors would remain under Alternative B (Viaduct to Interstate [-] 880), and 452 severe noise impacts on sensitive receptors would remain under Alternative B (Viaduct to Scott Boulevard).
- Operations of both project alternatives would result in permanent exposure of sensitive receptors to increased traffic noise along two segments near the 4th and King Street Station in San Francisco from 2029 Plus Project conditions, and four or five segments near San Jose Diridon Station from 2040 Plus Project conditions.
 - Operation of the project would cause permanent ground-borne vibration impacts at 2,493 sensitive receptors under Alternative A, 2,307 sensitive receptors under Alternative B (Viaduct to I-880), and 2,366 sensitive receptors under Alternative B (Viaduct to Scott Boulevard). Operation of the project would also cause permanent ground-borne noise impacts at 18 sensitive receptors under both alternatives.
 - **Safety and security**—Construction and operation of the project alternatives would result in the following effects on safety and security. Despite mitigation measures to lessen the effects, the following would remain unavoidable adverse effects under NEPA:
 - Construction of the passing track under Alternative B would result in temporary road closures and relocation, resulting in delays in emergency vehicle access and response times.
 - Project operations under both project alternatives would generate additional traffic at stations and increases in gate-down times to accommodate the HSR trains, as well as potential delays in emergency vehicle access and response times for fire stations.
 - **Station planning, land use, and development**—Construction of the project alternatives would result in the following effects on station planning and land use. Despite mitigation measures to lessen the effects, the following would remain unavoidable adverse effects under NEPA:
 - Construction of the Millbrae Station modifications as part of the Millbrae Station Design under Alternatives A and B would substantially change existing land uses by converting commercial buildings to transportation uses, whereas construction of the RSP Design Variant would not substantially change existing land use patterns. Construction of the Millbrae Station modifications as part of the Millbrae Station Design and the RSP Design Variant would substantially change planned land use patterns by conflicting with the approved Millbrae Serra Station Development project, although these impacts would be lessened with the RSP Design Variant.
 - Construction of the East Brisbane Light Maintenance Facility (LMF) under Alternative A or the West Brisbane LMF under Alternative B would permanently acquire land designated as planned development (residential prohibited). Construction of the West Brisbane LMF (Alternative B) would also permanently acquire land designated as planned development (residential permitted) for the placement of new tracks. In addition, construction of the West Brisbane LMF (Alternative B) would require the permanent acquisition and grading of Icehouse Hill, which is an area protected by the Brisbane General Plan for habitat (City of Brisbane 2018). These permanent acquisitions would substantially change planned land use patterns.
 - **Aesthetics and visual quality**—Construction of the project alternatives would result in effects on visual quality. Despite mitigation measures to lessen the effects, the following would remain unavoidable adverse effects under NEPA:

- Temporary construction activities and equipment to build the passing track under Alternative B would substantially degrade the existing visual character or quality of multiple sites and their surroundings where there are highly sensitive viewers.
- Construction of the passing track and the associated expansion of the right-of-way under Alternative B would substantially degrade the existing visual character or quality of a residential area in San Mateo and at the historic San Carlos Depot and their surroundings.
- **Cultural resources**—Construction of the project alternatives would result in effects on cultural resources. Despite mitigation measures to lessen the effects, the following would remain unavoidable adverse effects under NEPA:
 - Construction of the project would adversely affect one (Alternative A), 3 (Alternative B [Viaduct to I-880]), or 4 (Alternative B [Viaduct to Scott Boulevard]) historic built resources through the upgrade of rail in the existing Caltrain right-of-way and the addition of new rail-related infrastructure.

7.1.2 Significant and Unavoidable Impacts under CEQA

Under CEQA, mitigation is prescribed for significant impacts, but in some cases the mitigation will not reduce the impact to a less-than-significant level. The following impacts cannot be mitigated to less-than-significant levels and therefore remain significant and unavoidable under CEQA:

- **Transportation**
 - Construction-related traffic and construction staging would affect bus transit under either alternative, through the temporary closure of parking areas, bus stops, transit stations, or roadway travel lanes, which would decrease the performance of bus transit facilities.
 - Operation of either project alternative would lead to delays that cannot be mitigated to a less-than-significant level for three high-frequency bus routes near the 4th and King Street Station and the 16th Street at-grade crossing.
 - Operation of Alternative B would relocate the San Carlos Station, reducing accessibility to Caltrain from downtown San Carlos due to the additional walking distance from the relocated station, and decreasing the performance of transit services at the station.
 - Both alternatives would contribute considerably to significant cumulative delays to bus transit services during operations.
- **Air quality and GHGs**
 - Construction-related criteria pollutant emissions under either alternative would result in temporary exceedances of the annual CAAQS for PM_{2.5}, the short-term national ambient air quality standards for PM_{2.5}, and the short-term CAAQS for PM₁₀, and emissions would contribute to existing exceedances of the PM₁₀ standard.
 - Both alternatives would contribute considerably to significant cumulative impacts with respect to localized PM_{2.5} and PM₁₀ concentrations during construction and PM_{2.5} concentrations at sensitive receptors in the BAAQMD during construction and operation.
- **Noise and vibration**
 - Construction-related noise would temporarily and periodically exceed FRA standards at sensitive receptors under either alternative. The Authority would implement NV-MM#1: Construction Noise Mitigation Measures, which will reduce construction noise levels, but not always below the FRA noise standards.
 - Operations-related noise would exceed FRA standards at sensitive receptors under both alternatives. With the installation of noise barriers, 495 severe noise impacts on sensitive receptors would remain under Alternative A, 455 severe noise impacts on sensitive receptors would remain under Alternative B (Viaduct to I-880), and 452 severe noise

impacts on sensitive receptors would remain under Alternative B (Viaduct to Scott Boulevard).

- Operation of either alternative would generate additional vehicular traffic near the 4th and King Street Station, which would increase ambient noise levels in the project vicinity above levels existing without the project.
 - Operation of either alternative would generate excessive ground-borne noise impacts at sensitive receptors.
 - Both alternatives would contribute considerably to cumulative significant noise and vibration impacts due to operational rail noise, station traffic noise, and operational vibration in combination with past, present, and future projects.
- **Safety and security**
 - Temporary road closures, relocations, and modifications during construction of the passing track under Alternative B would result in delays in emergency vehicle access and response time.
 - Operation of the project would cause delays in emergency response times under either alternative due to added traffic at the 4th and King Street Station, at the Millbrae Station, and at at-grade crossings because of increases in gate-down time from added HSR trains. With mitigation measures, impacts on emergency response times would remain for fire stations in Burlingame, Redwood City, Menlo Park, Palo Alto, and Mountain View under both alternatives.
 - Both alternatives would contribute considerably to cumulative significant emergency vehicle response delays in Burlingame, Redwood City, Menlo Park, Palo Alto, and Mountain View due to increased gate-down times in combination with past, present, and future projects.
 - **Station planning, land use, and development**
 - Construction of the Millbrae Station HSR modifications as part of either the Millbrae Station Design or the RSP Design Variant would result in conversion of commercial buildings to transportation uses and would also result in land use patterns that conflict with the approved Millbrae Serra Station Development project. The degree of impact would be slightly lessened with the RSP Design Variant.
 - Construction of the East Brisbane LMF under Alternative A or the West Brisbane LMF under Alternative B would result in the permanent acquisition of land designated as planned development (residential prohibited). Construction of the West Brisbane LMF (Alternative B) would also result in the permanent acquisition of land designated as planned development (residential permitted) for the placement of new tracks. In addition, construction of the West Brisbane LMF (Alternative B) would require the permanent acquisition and grading of Icehouse Hill, which is an area protected by the Brisbane General Plan Amendment for habitat (City of Brisbane 2018). These permanent acquisitions would result in a permanent alteration of planned land use patterns.
 - **Cultural resources**
 - Construction of the project would materially impair historic built resources or their setting through the upgrade of rail in the existing Caltrain right-of-way and addition of new rail-related infrastructure for both alternatives.
 - Both alternatives would contribute considerably to cumulative significant demolition, destruction, relocation of historic resources or their settings due to construction in combination with past, present, and future projects.

7.2 Project Benefits

The San Francisco to San Jose Project Section is being proposed, despite these unavoidable adverse effects under NEPA and significant and unavoidable impacts under CEQA, based on the benefits listed in the following subsections and identified in Chapter 1, Project Purpose, Need, and Objectives, and in Chapter 3.

7.2.1 Transportation Benefits

- Provides an essential building block to establish very high-speed passenger rail service as part of Phase 1 of the HSR system to meet the state’s growing demands on its transportation system
- Adds capacity to the state’s transportation infrastructure via the new HSR transportation mode, thereby reducing pressure on the state’s existing transportation infrastructure, including highways and airports
- Improves regional mobility and connectivity by providing multiple intermodal connections at HSR stations in San Francisco, Millbrae, and San Jose

7.2.2 Environmental Benefits

- Avoids fill in San Francisco Bay due to roadway and airport expansions that would be required to achieve equivalent intercity travel capacity
- Provides long-term reductions in regional vehicle miles traveled by automobile
- Provides long-term improvements in regional air quality by reducing criteria pollutants and GHGs generated by automobiles and aircraft
- Provides long-term reduction in transportation-related energy requirements
- Supports achieving the state’s GHG reduction goals as described in Assembly Bill 32, Senate Bill 32, and the California Air Resources Board’s Scoping Plan (California Air Resources Board 2008)
- Supports the state’s goals for reducing vehicle miles traveled and promoting transit-oriented development, as reflected in Senate Bill 743

7.2.3 Safety and Security Improvements

- Improves safety and security within the Caltrain corridor by installing four-quadrant gates at at-grade crossings, completing perimeter fencing along the existing right-of-way, and implementing safety improvements to platforms at some existing Caltrain stations

7.2.4 Economic and Employment Benefits

- Provides economic and employment benefits from construction

7.3 Relationship between Short-Term Use of the Environment and the Enhancement of Long-Term Productivity

NEPA regulations require that the discussion of environmental consequences includes “the relationship between short-term uses of man’s environment and the maintenance and enhancement of long-term productivity” (40 C.F.R. § 1502.16). This section describes the use of the environment—the use of natural resources and land—that would lead to the long-term productivity of these resources by providing a transportation system that would expand capacity while increasing safety, generating employment, and reducing emissions.

Developing the project would require an investment of materials to create new transportation infrastructure. This investment of materials is expected to include natural resources, such as rock and aggregate to build HSR structures and other facility foundations; steel for rail, other building materials, and the various structural components of the HSR trains. Fossil fuels would be

consumed for project construction. In addition, the project would require conversion of land to accommodate the new transportation infrastructure. In many cases, the land required is already being put to use as commercial, mixed-use, and residential development and transportation right-of-way. Residential, commercial and industrial, and community and public facilities would be displaced to accommodate the project. The consequences of these land conversions are described in Chapter 3.

As indicated in Chapter 1, the capacity of California's intercity transportation system is insufficient to meet existing and future travel demand, and the current and projected future congestion of the system will continue to result in deteriorating air quality, reduced reliability, and increased travel times. The project would provide benefits such as increased safety improvements at at-grade crossings and along the length of the right-of-way, improved intercity transportation, reduced pollutant emissions, and reduced GHGs. Because the HSR system would provide a new alternative to regional transportation options that consume fossil fuels (e.g., automotive trips and commercial air travel), and because the HSR system would be powered by electricity primarily generated by harnessing renewable resources (e.g., solar power, wind power), the project would make an important contribution to GHG reduction efforts.

As described in Section 3.17, Regional Growth, the HSR system would provide direct and indirect economic benefits, including short- and long-term employment benefits. The HSR system would improve accessibility to labor and customer markets and induce regional job growth by providing a more attractive market for commercial and office development. The new connectivity to the San Francisco and Los Angeles metropolitan regions provided by the HSR system could increase the regional workforce and require the construction of new housing, provide new community services, and generally increase land consumption. HSR service would attract a new market of intercity travelers and increase statewide accessibility to jobs, goods, and services. The benefits of the HSR system are described in more detail in Chapter 1.

7.4 Significant Irreversible Environmental Changes or Irretrievable Commitment of Resources

The NEPA regulations require that the discussion of environmental consequences include "any irreversible or irretrievable commitments of resources which would be involved in the proposal should it be implemented" (40 C.F.R. § 1502.16). Similarly, Section 15126.2(c) of the CEQA Guidelines requires that an EIR address any significant irreversible environmental changes associated with a project.

The project would require the irreversible commitment of energy and materials for construction, as well as the irretrievable commitment of resources such as land for HSR facilities and fossil fuels for the generation of energy. The project would require an irretrievable investment of materials such as rock, aggregate, dirt, steel, wood, and other building materials. Fossil fuels would be consumed during construction. In addition, the project would require the conversion of land to accommodate the new transportation infrastructure (including track and systems, stations, and an LMF). These environmental changes would be irreversible. Chapter 3 evaluates the significance under CEQA and effects under NEPA of these impacts. Overall, it is expected that residents and businesses in the region would benefit from the improved quality of the transportation system (e.g., improved accessibility, increased capacity, energy savings) and that these benefits would outweigh the irreversible or irretrievable commitment of resources.

