

3.0 Approach to Impact Analysis

This chapter provides environmental analyses of the physical impacts that could occur as a result of implementation of the Proposed Project. The analyses are based on the Proposed Project's ~~35 percent design~~ preliminary engineering (completed in 2008 and refreshed in 2013) and uses a "reasonable worst-case" approach to analyzing potential impacts. There is a separate section for each resource analyzed, as listed below. In each section, there is a description of the environmental and regulatory setting, significance criteria and methodology used in the impact analysis, and the potential impacts and required mitigation measures. Both construction and operational impacts are discussed, as appropriate in each subject section. Cumulative impacts are discussed separately in Chapter 4, *Other CEQA-Required Analysis*.

This chapter is organized with the following sections.

- 3.1, *Aesthetics*
- 3.2, *Air Quality*
- 3.3, *Biological Resources*
- 3.4, *Cultural Resources*
- 3.5, *Electromagnetic Fields and Electromagnetic Interference*
- 3.6, *Geology, Soils, and Seismicity*
- 3.7, *Greenhouse Gas Emissions and Climate Change*
- 3.8, *Hazards and Hazardous Materials*
- 3.9, *Hydrology and Water Quality*
- 3.10, *Land Use and Recreation*
- 3.11, *Noise and Vibration*
- 3.12, *Population and Housing*
- 3.13, *Public Services and Utilities*
- 3.14, *Transportation and Traffic*

3.0.1 Topics Considered but Dismissed from Further Analysis

Although agricultural and mineral resources are identified in Appendix G of the State CEQA Guidelines, this EIR does not include these topics because there would be no impact, as described below.

1 **3.0.1.1 Agricultural Resources**

2 There are no farmlands within or near the project corridor that would be affected by the Proposed
3 Project. Using mapping from the California Department of Conservation’s Farmland Mapping and
4 Monitoring Program (FMMP), it was determined that the Proposed Project would not cross through
5 any significant farmland (defined as prime farmland, farmland of statewide importance, or unique
6 farmland). The majority of the project corridor runs through urban and built-up land, which is
7 defined as land occupied by structures with a building density of at least 1 unit to 1.5 acres, or 6
8 structures to a 10-acre parcel. Examples of urban and built-up land are residential, industrial,
9 commercial, and institutional facilities. A portion of the project corridor that runs through northern
10 San Mateo County and the southern terminus of the project corridor runs through areas defined as
11 other land. This is land that is not included in any other FMMP mapping category. Land use
12 examples of other land include low-density rural developments, wetlands, and riparian areas not
13 suitable for livestock grazing. The two traction power substations included in the Proposed Project
14 would be located in commercial or industrial areas, not in farmland areas and thus would not result
15 in conversion of farmland to urban uses. All other facilities would be within or immediately adjacent
16 to the Caltrain right-of-way and, thus, would not result in conversion of farmland.

17 Because there are no significant farmlands within or near the project corridor, there would be no
18 impact on agricultural resources.

19 **3.0.1.2 Mineral Resources**

20 The Caltrain ROW does not contain mineral resources of any developable value, nor would the
21 project facilities have any potential to affect mineral resources. Therefore, there would be no impact
22 on mineral resources, and impacts are not discussed further.

23 **3.0.1.3 Project Variant Analysis**

24 As described in Chapter 2, Project Description, there are four project variants under consideration to
25 lower construction costs. These variants are analyzed in the following environmental analyses as
26 follows.

- 27 • Project Variant 1 – Electrifying to just south of the Tamien Station: This variant would lower OCS
28 construction impacts south of Mile Post (MP) 49.9 but would have the same OCS construction
29 impacts north of MP 49.9. Since OCS construction impacts would be less than the Proposed
30 Project, they are not discussed further in the EIR. The impacts of the PS7 Variant locations,
31 which would be adjacent to Alma Avenue south of the Tamien Station instead of near Kurte Park
32 with the Proposed Project, is analyzed specifically in this EIR in all subject sections.
- 33 • Project Variant 2 – Deferral of electrification of storage tracks at the San Francisco 4th and King
34 Station. Under this variant, the storage tracks would not be electrified temporarily or
35 permanently. There would be no change in normal commuter operations at the station.
36 However, if there is a need for maintenance of EMUs that needs to take place at the storage
37 tracks at the 4th and King yard, then a diesel yard hauler would be needed to pull or push the
38 EMUs onto the non-electrified tracks and to return the EMUs from the storage tracks to the
39 electrified tracks. As a result, this variant is only discussed in the air quality, noise, and
40 greenhouse gas sections.
- 41 • Project Variant 3 – Electric locomotives may be used instead of EMUs for backup train sets. This
42 variant would result in no change to normal commuter rail service. This would only affect

1 temporary replacement of individual EMUs at discrete times. Electric locomotives would
2 function similar to the Proposed Project EMUs and would only operate temporarily during
3 repair or maintenance of EMUs. There would be no difference in construction impacts. Electric
4 locomotives use slightly more electricity and are slightly noisier than EMUs, but still more fuel
5 efficient and quieter than diesel locomotives, so use of electric locomotives instead of diesel
6 locomotives (as done under No Project conditions) would also represent an improvement in
7 terms of fuel use (and related emissions) and noise over No Project conditions. Operationally,
8 the environmental impacts would be virtually the same as the Proposed Project in all aspects
9 because electric locomotives would only be used for limited amount of service at any one time.
10 Thus, this variant is not analyzed further in this EIR.

- 11 • *Project Variant 4 – Combining guy wire and OCS pole foundations.* This variant would result in
12 slightly less construction by combining foundations for the guy wires and for the OCS pole
13 foundations. There would be no other changes to the Proposed Project. Since this variant would
14 have lesser amount of construction and less foundations than the Proposed Project, it would not
15 result in any new or increased environmental impacts. Thus, this variant is not analyzed further
16 in this EIR.

