3.10 Public Utilities

This section describes certain representative public utilities in study area and identifies the potential for impacts on utility systems for the various HST Alignment Alternatives[1]. The public utilities evaluated in this section are electrical transmission lines, natural gas facilities, and wastewater treatment facilities. A *potential utility impact* is any potential conflict between an alignment alternative or station location option and a utility, including crossings, regardless of depth or height.

3.10.1 Regulatory Requirements and Methods of Evaluation

A. REGULATORY REQUIREMENTS

U.S. Environmental Protection Agency

Under the CWA, the EPA was granted authority to implement pollution control programs, such as setting wastewater standards for industry. The CWA established the basic structure for regulating discharges of pollutants into the waters of the United States; in addition, it contains requirements to set water quality standards for all contaminants in surface waters. The CWA created the National Pollution Discharge Elimination System (NPDES) permit program to regulate the discharge of any pollutant from a point source into navigable waters by requiring those point sources to obtain a permit if their discharges go directly to surface waters.

Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation

The Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation, is responsible for carrying out the duties regarding pipeline safety set forth in 49 U.S.C. § 60101 *et seq.* and 49 C.F.R. § 190.1. The regulations apply to the owners and operators of the facilities and cover the design, installation, inspection, emergency plans and procedures, testing, construction, extension, operation, replacement, and maintenance of pipeline facilities transporting oil, gas, and hazardous liquid. The regulations require operators of gas pipelines to participate in a public safety program, such as a one-call system that would notify the operator of any proposed demolition, excavation, tunneling, or construction that would take place near or affect the facility.

California State Water Resources Control Board

The California State Water Resources Control Board (State Water Board) and the nine California Regional Water Quality Control Boards (RWQCBs) are responsible for developing and enforcing water quality objectives and implementation plans that best protect the beneficial uses of the state's waters. Both the state and regional agencies regulate wastewater through the issuance of wastewater discharge standards that are implemented through NPDES permits and waste discharge requirements issued by the RWQCBs.

California Public Utilities Commission

The California Public Utilities Commission (CPUC) regulates the provision of privately owned utilities in California. These utilities include privately owned telecommunications, electric, natural gas, water, railroad, rail transit, and passenger transportation companies. The CPUC is responsible for ensuring that California utility customers have safe, reliable utility services at reasonable rates; protecting utility customers from fraud; and promoting the health of California's economy. The CPUC does not issue permits for proposed projects that would cross utility lines. The CPUC does, however, regulate at-grade rail crossings.

[1] See Section 3.0, Introduction, for an explanation of how this section fits together with the HST Network Alternatives presented in Chapter 7, as well as for an overview of the information presented in the other chapters.

Office of the State Fire Marshall

The Office of the State Fire Marshall, Pipeline Safety Division, regulates the safety of approximately 5,500 mi (8,851 km) of intrastate hazardous liquid (e.g., oil, gas) transportation pipelines and acts as an agent of the Federal Office of Pipeline Safety concerning the inspection of more than 2,000 mi (3,219 km) of interstate pipelines. Pipeline safety staff inspect, test, and investigate to ensure compliance with federal and state pipeline safety laws and regulations. Spills, ruptures, fires, and similar incidents are responded to immediately; all such accidents are investigated for cause.

B. METHOD OF EVALUATION OF IMPACTS

The following methods were used to gather information for each area or subarea within the broadly defined study area.

- Review of the project's GIS to identify cities and counties in the study area.
- Review of the general plans for potentially affected communities in each subregion of the corridor in which proposed alternatives are being studied, as well as maps from the Thomas Bros. *California Atlas* and from the California State Automobile Association.
- Review of project alignments/proposed improvements against GIS information of electrical transmission lines and gas and oil pipelines compiled using MapSearch.
- Exploration of Web sites of the GIS-identified cities and counties in the study area to gather appropriate setting information.
- Examination of applicable utility system maps and Web sites to gain a better understanding of facility distribution.
- Contact with public utility providers via mail to obtain or confirm the locations of their current and planned services and facilities in the study area.

Public utilities generally include a range of services, such as water, power, sewage, and communications systems. For the purposes of this analysis, three of the most common major facilities that may pose construction challenges were identified to best represent potential utility impacts. These facilities not only provide critical services, but they also are likely to create a hazard if damaged during construction operations.

- Electrical facilities are defined as major transmission lines and substations that meet or exceed a power rating of 230 kV.
- Natural gas facilities are defined as high-pressure gas pipelines and facilities of various sizes.
- Wastewater treatment facilities are defined as wastewater pipelines with a minimum 36-in (91-centimeter [cm]) diameter and any treatment facilities located in the project corridor.

The methods used to assess potential conflicts (any crossing or longitudinal encroachment of an existing utility by a portion of the HST system) included overlaying the available utility maps with the alignment alternatives and identifying facilities within 100 ft (30 m) of the centerline of the proposed alignment alternatives. The tally of representative utility conflicts generally indicates degree of difficulty in construction or level of expense related to avoiding or relocating utilities. Because public utilities are prevalent throughout the study area, it was not practical to assess each potential conflict. Rather, the relative impact for purposes of comparing the alignment alternatives was determined by quantifying the number and type of potential conflicts for each alternative. In addition, a qualitative ranking of high, medium, or low was assigned to describe the potential severity of the conflict, as described below and summarized in Table 3.10-1. Low- and medium-ranking conflicts would be

considered less than significant in nature, and those conflicts ranked high would be considered significant.

Electric transmission lines, telecommunications lines, natural gas pipelines, and wastewater pipelines likely would be affected little by an HST Alignment Alternative because, with relatively minimal disruption or construction impacts, they could be avoided, minimized, or mitigated by routing either the public utility or the transportation improvement around, over, or under the facility. Where unavoidable, relocations of the utilities would not pose adverse environmental risks, based on current construction practices. However, they do represent additional project-related costs.

Fixed facilities, such as electrical substations or power stations and wastewater treatment plants, would be more likely to be affected by an HST Alignment Alternative because they could require more considerable engineering, design, and construction to avoid, minimize, or mitigate potential conflicts. These types of fixed facilities have more significant constraints regarding any potential conflict, such as routing the transportation improvement around, over, or under the facility or relocating the fixed facility to another location.

Table 3.10-1
Rankings for Potential Public Utilities Impacts/Conflicts

	Electrical Facilities	Natural Gas Lines	Waste Treatment Facilities
Low	No 230-kV or greater facility within study area	1 to 15 total gas lines within study area	No wastewater pipelines of 36-in (91-cm) diameter or greater or treatment facilities within study area
Medium	N/A	16 to 30 total gas lines within study area	N/A
High	One or more 230-kV substation, power station, or greater facility within study area	31 or more total gas lines within study area	Wastewater pipelines of 36-in (91-cm) diameter or greater or treatment facilities within study area

N/A = not available. There is no medium rating for this category; impacts are either low (no facilities in the alignment alternative) or high (one facility or more in the alignment alternative).

The analysis indicated that, with regard to potential conflicts with utilities, there are differences among the HST Alignment Alternatives. The greatest number of potential conflicts can be found in the East Bay to Central Valley corridor. A high-impact level of severity also can occur in the alignment alternatives of the Oakland to San Jose, San Jose to Central Valley, and Central Valley corridors. The alignment alternatives in both the San Francisco Bay Crossings corridor and San Francisco to San Jose Alignment corridor are considered to have a low-impact level of severity because of the lower number of potential conflicts. Although there are differences among the alternative alignments, the overall assessment of impacts on utility systems is considered similar for all alternative alignments because utilities generally do not present significant potential impacts that cannot be avoided, minimized, or mitigated through conventional design and construction processes. For instance, most potential conflicts typically would be identified during the design or construction stage of a project, and standard measures would be taken to minimize costs and disruption of service.

C. CEQA SIGNIFICANCE CRITERIA

For purposes of this discussion, an HST Alignment Alternative would be considered to result in a significant effect on utilities and service systems if it would result in a high-impact conflict. A high-impact conflict would occur where an alignment alternative would cross or conflict with a fixed facility

such as an electrical substation or wastewater treatment plant. Low-impact conflicts would occur if an alignment alternative would cross or conflict with pipelines or transmission lines, which are easier to avoid or relocate. Low-impact conflicts are considered less-than-significant impacts on utilities and service systems.

According to the State CEQA Guidelines Appendix G, a project would also have a significant impact on utilities and service systems if it would:

- Exceed wastewater treatment requirements of the applicable RWQCB.
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.
- Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.
- Need new or expanded entitlements to supply water to the project.
- Result in a determination by the wastewater treatment provider that serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to its existing commitments.
- Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs.
- Not comply with federal, state, and local statutes and regulations related to solid waste.

These Appendix G significance criteria address the issue of utilities' capacity. These criteria have been used to evaluate impacts of the HST Alignment Alternatives in the areas of energy, land use and planning, hazardous materials and wastes, and hydrology and water resources. The discussion of these areas can be found in Sections 3.5, 3.7, 3.11, and 3.14. Potential indirect effects associated with growth accompanying the implementation of an HST system alternative are addressed in Chapter 7.

3.10.2 Affected Environment

A. STUDY AREA DEFINED

The study area for public utilities is the area within 100 ft (30 m) of the centerline of each alignment, and 100 ft (30 m) around stations. The study area is located generally within developed and urbanized areas throughout the Bay Area and Central Valley. These areas typically include various underground, at-grade, and elevated utilities that provide water, power, natural gas, communications, and sewage service for residential, business, and manufacturing uses and for agricultural practices. The following section provides additional information on utility resources.

B. PUBLIC UTILITIES BY PROVIDERS AND RESOURCES

The key service providers of the representative utility services in the study area are summarized below. A complete description of these providers and resources is provided in Appendix 3.10-A.

- Electrical facilities—Providers include PG&E, Silicon Valley Power, and City of Palo Alto Utilities (CPAU). There are two power-generating facilities in the region (Santa Clara power plant and Gilroy Cogeneration Plant LP).
- Natural gas facilities—Provided by PG&E except in the city of Palo Alto. In Palo Alto, CPAU gas is purchased from commodity suppliers and transported via PG&E's system to CPAU's distribution system.

- Wastewater treatment and water—Wastewater treatment services are provided by cities, counties, and special agencies along alignments in the study area. Water and reclaimed water pipelines are owned and operated by numerous jurisdictions throughout the study area with more lines found in the more urbanized areas.

3.10.3 Environmental Consequences

A. NO PROJECT ALTERNATIVE

The existing conditions assume the continued operation of the transportation and public utilities infrastructure described above. The No Project Alternative assumes that, in addition to existing conditions, other transportation and utility improvements would be developed and operational by 2030. The transportation improvements include projects that are programmed or funded to 2030 (as described in Chapter 2).

It was not possible as part of this study to identify or quantify the utility improvements expected to occur by 2030. Rather, it is assumed that utility development would occur to meet projected demand and growth characteristics near proposed HST Alignment Alternatives and station location options. For existing transportation facilities, conflicts with electrical transmission lines, natural gas pipelines, oil pipelines, wastewater and water utilities, and other utilities have been addressed previously, and few additional or increased impacts are expected from the future transportation improvement included in the No Project Alternative. In addition, it is assumed that measures would be taken to avoid these potential conflicts to the extent feasible and practical and to greatly limit any potential additional costs or disruption of service. It is common practice to coordinate on site with utility representatives during construction in the vicinity of critical infrastructure, such as high-voltage overhead/underground transmission lines, high-pressure gas pipelines, and aqueduct canals. Also, future transportation or utility improvements would be expected to be analyzed in a project-level environmental document, which would incorporate feasible measures to mitigate potentially significant adverse environmental impacts.

Based on the above assumptions, the existing conditions of the No Project Alternative are used to provide the baseline for analysis of potential conflicts with utilities.

B. HIGH-SPEED TRAIN SYSTEM ALIGNMENT ALTERNATIVES

Existing conditions from the No Project Alternative provide the baseline condition. Improvements associated with the proposed HST Alignment Alternatives and station location options would result in potential impacts in addition to those resulting from the No Project Alternative. For the purposes of this analysis, the existing conditions are treated as representative of the No Project Alternative, and the analysis summarizes the relative differences between the existing conditions and HST Alignment Alternatives. Table 3.10-2 shows the number of potential utility conflicts for the alignment alternatives, by corridor, of the proposed HST routes.

Table 3.10-2. Public Utilities Summary Data Table for Alignment Alternatives and Station Location Option Comparisons

Corridor	Possible Alignments	Alignment Alternative	Number of Electrical Transmission Lines	Number of Electrical Substations or Power Stations	Number of Natural Gas Pipelines
San Francisco to San Jose: Caltrain	1 of 1	San Francisco to Dumbarton	0	0	22
	1 of 1	Dumbarton to San Jose	0	0	8
Station Location Options					
Transbay Transit Center			0	0	0
4th and King (Caltrain)			0	0	0
Millbrae/SFO			0	0	0
Redwood City (Caltrain)			0	0	0
Palo Alto (Caltrain)			0	0	0
Oakland to San Jose: Niles/I-880	1 of 2	West Oakland to Niles Junction	0	0	12
		12th Street/City Center to Niles Junction	0	0	13
	1 of 2	Niles Junction to San Jose via Trimble	0	0	14
		Niles Junction to San Jose via I-880	0	1	11
Station Location Options					
West Oakland/7th Street			0	0	0
12th Street/City Center			0	0	0
Coliseum/Airport			0	0	0
Union City (BART)			0	0	0
Fremont (Warm Springs)			0	0	0
San Jose to Central Valley: Pacheco Pass	1 of 1	Pacheco	2	0	14
	1 of 3	Henry Miller (UPRR Connection)	1	0	8
		Henry Miller (BNSF Connection)	2	0	6
		GEA North	1	0	14

Corridor	Possible Alignments	Alignment Alternative	Number of Electrical Transmission Lines	Number of Electrical Substations or Power Stations	Number of Natural Gas Pipelines
Station Location Options					
San Jose (Diridon)			0	0	0
Morgan Hill (Caltrain)			0	0	0
Gilroy (Caltrain)			0	0	0
East Bay to Central Valley: Altamont Pass	1 of 4	I-680/ 580/UPRR	1	1	6
		I-580/ UPRR	1	1	7
		Patterson Pass/UPRR	1	0	6
		UPRR	1	0	6
	1 of 4	Tracy Downtown (BNSF Connection)	1	0	13
		Tracy ACE Station (BNSF Connection)	1	1	12
		Tracy ACE Station (UPRR Connection)	1	1	12
		Tracy Downtown (UPRR Connection)	1	0	15
	2 of 2	East Bay Connections	0	0	0
Station Location Options					
Pleasanton (I-680/Bernal Rd)			0	0	0
Pleasanton (BART)			0	0	0
Livermore (Downtown)			0	0	0
Livermore (I-580)			0	0	0
Livermore (Greenville Road/UPRR)			0	0	0
Livermore (Greenville Road/I-580)			0	0	0
Tracy (Downtown)			0	0	0
Tracy (ACE)			0	0	0

Corridor	Possible Alignments	Alignment Alternative	Number of Electrical Transmission Lines	Number of Electrical Substations or Power Stations	Number of Natural Gas Pipelines
San Francisco Bay Crossings	1 of 2	Trans Bay Crossing—Transbay Transit Center	0	0	1
		Trans Bay Crossing—4th & King	0	0	3
	1 of 6	Dumbarton (High Bridge)	0	0	1
		Dumbarton (Low Bridge)	0	0	1
		Dumbarton (Tube)	0	0	1
		Fremont Central Park (High Bridge)	0	0	5
		Fremont Central Park (Low Bridge)	0	0	5
		Fremont Central Park (Tube)	0	0	5
Station Location Options					
Union City (Shinn)			0	0	0
Central Valley	1 of 6	BNSF—UPRR	0	1	7
		BNSF	2	1	7
		UPRR N/S	0	1	23
		BNSF Castle	3	1	7
		UPRR—BNSF Castle	3	1	18
		UPRR—BNSF	0	1	18
Station Location Options					
Modesto (Downtown)			0	0	0
Briggsmore (Amtrak)			0	0	0
Merced (Downtown)			0	0	0
Castle AFB			0	0	0

The key findings of the utilities analysis by corridor and alignment alternative are summarized below. For a complete summary of all utility conflicts by segment see Appendix 3.10-B.

San Francisco to San Jose

- No conflicts with electrical transmission lines or electrical substations or power stations.

- Thirty potential conflicts with natural gas pipelines along the corridor, with half of these conflicts occurring in the area between the station at 4th and Townsend Streets and the Millbrae/San Francisco International Airport station. The total number of conflicts for this corridor is considered a low-impact level of severity.
- No potential utility conflicts associated with the proposed stations in this corridor.

Oakland to San Jose

- Thirty potential conflicts with natural gas pipelines in this corridor. The total number of conflicts for this corridor would be considered a low-impact level of severity.
- One potential conflict is noted with the PG&E San Jose Substation B, which is located immediately adjacent to the proposed HST tracks on the I-880 alignment alternative between Trimble Road and Diridon Station (Niles/I-880 7A). This potential conflict is considered a high-impact level of severity.
- No potential utility conflicts associated with the proposed stations in this corridor.

San Jose to Central Valley

- A maximum of 28 natural gas pipeline conflicts and four electrical transmission line conflicts throughout the San Jose to Central Valley corridor. The total number of conflicts for this corridor is considered a high-impact level of severity.
- The Pacheco Pass alignment alternative has the most conflicts in the corridor, with 14 natural gas pipeline conflicts and two transmission line conflicts.
- Of the two east/west alignment alternatives, the GEA North alignment alternative has more total conflicts than the Henry Miller with 14 natural gas pipeline and one electrical transmission line conflicts.
- No potential utility conflicts associated with the proposed stations in this corridor.

East Bay to Central Valley

- A maximum of 22 potential natural gas pipeline conflicts, two transmission line conflicts, and two electrical substation/power station conflicts. The total number of conflicts would be considered a high-impact level of severity.
- Tracy Downtown alignment alternative has the most utility conflicts, with a maximum of 16.
- Two substations located in the vicinity of the proposed alignments—the Kaiser PG&E substation just east of Dublin and the Clavo PG&E substation located east of Tracy.
- No potential utility conflicts associated with the proposed stations in this corridor.

San Francisco Bay Crossings

- A maximum of eight natural gas pipeline conflicts associated with this corridor. This number of conflicts would be considered a low-impact level of severity.
- No potential utility conflicts associated with the proposed stations in this corridor.

Central Valley

- A maximum of 23 natural gas pipeline conflicts, one electrical substation/power station potential conflict, and three electrical transmission line conflicts throughout the Central Valley corridor. The total number of conflicts in this corridor would be considered a high-impact level of severity.

- UPRR N/S alignment alternative has the most conflicts with 23 natural gas pipeline conflicts and one substation conflict.
- No potential utility conflicts associated with the proposed stations in this corridor.

3.10.4 Role of Design Practices in Avoiding and Minimizing Effects

The public utilities impact analysis is programmatic and addresses only representative utilities; it does not address all utilities and does not address local details. Project-level analysis would address all utilities and local issues once the alignments are more defined. The Authority plans to avoid potential conflicts to the extent feasible and practical and to greatly limit any potential additional costs or disruption. It is common practice to coordinate on site with utility representatives during construction in the vicinity of critical infrastructure, such as high-voltage overhead/underground transmission lines, high-pressure gas pipelines, and aqueduct canals. Also, future transportation or utility improvements would be analyzed at the project-level environmental review, along with feasible measures to mitigate potentially significant adverse environmental impacts.

Design features to avoid the potential utility conflicts associated with the HST Alignment Alternatives include (i.e., are not limited to) the following features.

- During final design, adjustments could be made to the HST alignments and profiles to avoid major utility lines or facilities.
- The Authority could relocate transmission lines or substations.

3.10.5 Mitigation Strategies and CEQA Significance Conclusions

Based on the analysis above, most of the HST Alignment Alternatives would result in high-impact conflicts and would therefore have significant impacts on utilities and service systems. All the alignment alternatives would also result in low-impact conflicts, which are considered less-than-significant impacts on utilities and service systems. All potential conflicts will be reviewed during the more detailed project-level environmental analysis and during final design. The Authority will consult with the various utility providers during the detailed project-level analysis to minimize potential conflicts.

Proposed general mitigation strategies for potential utility conflicts first focus on avoidance of potential conflicts. If conflicts are unavoidable, the next strategy focuses on reducing and minimizing the potential impact. The mitigation strategies are similar for all alignment alternatives and would be refined during subsequent project-specific review.

For large utilities, such as wastewater treatment facilities, electrical substations, and pipelines, the strategy would be first to avoid crossing or using any of the utility right-of-way or facility footprint as the project-specific review proceeds and as engineering designs are refined. Avoidance opportunities include consideration of modifying both the horizontal and vertical profiles of the proposed transportation improvements.

During final design, the Authority will consult with each utility provider/owner to avoid or reduce potential impacts on existing and planned utilities through design refinements. If avoidance is not feasible and adjustment of alignments has not removed the potential conflict, relocation/reconstruction/restoration of the utility would be considered, in close consultation and coordination with the utility owner, as a second mitigation strategy. This type of mitigation could include combining several utilities into a single utility corridor, relocation, or reconstruction. Where feasible and cost-effective, consolidating several utilities, primarily underground electrical and communications utilities, into one conduit should be considered during utility relocation planning. The co-lead agencies will comply with the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 in the acquisition of all property necessary for the proposed HST system.

Based on the program-level analysis, and in accordance with the CEQA Appendix G thresholds of significance for public utilities and service systems, the HST system alternative would result in a significant impact on utilities and utility services in the study region, although implementation of the above design features and mitigation strategies is expected to reduce impacts on utilities and service systems to a less-than-significant level at the program-level. Additional environmental assessment will allow more precise evaluation in the second-tier, project-level of environmental analysis.

Based on the review of the Appendix G thresholds at the program level in this analysis, the proposed HST system would not result in a significant increase in demand for, or significant impacts on, public utility services, and thus would have a less-than-significant impact on utility services and utility capacities. This conclusion is based on consideration of the areas enumerated in the Appendix G thresholds and a number of factors. These factors include the phased implementation and long construction period projected for the HST system, the expectation that the HST system would not generate such significant growth as to result in great demand increases for utility services, and the expectation that such growth and the indirect effects of such growth would be distributed across various communities. In general, growth would be reflected in infill development and increased development densities near HST stations and would occur over a time frame consistent with the planning horizons for, and within the purview of, the local and regional agencies that provide such services.

3.10.6 Subsequent Analysis

As previously mentioned, the public utilities impact analysis is programmatic and addresses only representative utilities; it does not address all utilities and does not address local details. Project-level analysis would address all utilities and local issues once the alternative alignment for the Bay Area to Central Valley corridor is selected. Project-level environmental documentation and subsequent planning documents will identify precise utility locations and will analyze in more detail conflicts between the HST system and the following utilities:

- Water supply lines.
- Wastewater conveyance lines.
- Wastewater and water pump stations.
- Storm drains.
- Fiber-optic lines.
- Telecommunication lines.
- Other utilities and pipelines likely to be crossed or conflict with the various alignment alternatives, including liquid petroleum and crude oil pipelines.

Project-level environmental documentation will also include a more detailed discussion of the capacity of existing utilities to serve the HST system's needs. The energy supply needs from the electricity grid will be considered segment by segment in order to ensure that demand from the HST system is managed and that adequate capacity will be available to serve the system. The project level analysis will also consider the utility services of the proposed HST stations and in the station area planning, where growth patterns, infill densities, and services for the both the HST system and community will be addressed.